

# Mindfulness-based cognitive safety and spiritual safety leadership for voluntary safety practice

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## Abstract

Organizations are making great efforts to improve their level of safety, but accidents continue to occur, and safety issues are not easily solved within an organization. Therefore, the importance of voluntary safety is increasing, and as a result, interest in safety culture has recently increased. However, the concept of safety culture is ambiguous and the implementation of safety culture is not improving in the correct manner. This work proposes a unique framework for voluntary safety practice within an organization. This framework consists of Mindfulness-Based Cognitive Safety (MBCS) and spiritual safety leadership. From the perspective of safety within the concept of safety culture, safety has been considered a sub-facet of organizational culture. However, from a new perspective suggested by this study, safety is regarded as another important value separated from organizational culture, in which members should make intentional efforts based on safety awareness. MBCS maintains such safety awareness through self-safety cognition, while spiritual safety leadership is a fundamental foundation and fuel for self-safety cognition. Based on this, industries can pursue ideal safety and increase the integrity of the organization. This work provides effective guidance to improve safety management and emergency management related to industrial accidents.

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## INTRODUCTION

Many organizations state safety as their most important value. However, accidents continue to occur, and safety issues are not prioritized. Why is safety constantly a problem for organizations even though they regard safety as the most important value? Fundamentally, there are two kinds of safety within an organization: perceived safety and ideal safety. Perceived safety is directly related to the survival and growth of the organization, and is characterized by tangible events such as explosion and serious injury. Therefore, from the standpoint of organizational culture, perceived safety is prioritized. Perceived safety naturally becomes the organizational culture and affects the attitudes and behaviors of the members. Ideal safety is an ideal and universal value for human dignity in which no one is injured. It is the concept that organizations generally portray as their highest priority, and they aim for and want to achieve ideal safety. However, it is not directly related to the survival and growth of the organization, so ideal safety does not naturally become the organizational culture, and is not properly prioritized from the standpoint of the organizational culture. This work examines the root problems of the safety culture to establish a way to approach safety within the organization for voluntary safety practice toward ideal safety.

Various efforts have improved the level of safety of organizations recently. In response to the safety management program, accidents generally decline rapidly at first, but gradually reach a plateau<sup>[1]</sup>. So far, safety has been improved mainly through top-down management such as laws and regulations, safety management systems, and scientific methodology by an

organization. Therefore, it seems that the improvement by the top-down management reaches its limit. In top-down management, members try to avoid failure, such as citations, rather than striving to achieve success, such as zero injury<sup>[2]</sup>. Therefore, organizations have come to recognize that voluntary safety practice by members is imperative to move toward a higher level of safety. Eventually, the hearts and minds of the management and workers must be engaged<sup>[3]</sup>. Safety culture has a profound significance when the accident rate reaches a plateau and the desire to move off the plateau fuels the safety culture paradigm shift<sup>[4]</sup>.

## SAFETY CULTURE

This interest has recently brought about many research explorations into safety culture, but it may be questionable whether such efforts in safety culture actually improve the level of safety and lead organizations to achieve their goal. Many researchers express the ambiguity of safety culture<sup>[5]</sup>, stating that "the concept remains vague, lacks empirical validation, and is used as an 'umbrella term' for all the social and organizational factors that affect accident rate"<sup>[6]</sup>. Additionally, there are few studies on the relationship between safety culture and safety performance<sup>[7]</sup>. With these considerations, it is not clear whether safety culture actually contributes to the goal of improving the level of safety<sup>[8]</sup>. The original purpose of cultural improvement is becoming ambiguous due to unclear distinction from other safety-concepts when actually applied.

Safety culture first appeared in an initial report by the International Nuclear Safety Group<sup>[9]</sup>. Since then, safety culture has continued to attract attention and its importance has been

discussed in various major accidents, such as the 1998 Piper Alpha oil platform explosion<sup>[10]</sup> and the 2003 Columbia accident<sup>[11]</sup>. Various definitions state that safety culture is related to beliefs, values, and attitudes about safety within the organization<sup>[12–16]</sup>. Safety climate seems to have received attention following research by Zohar describing the safety climate as 'a summary of molar perceptions that employees share about their work environment'<sup>[17]</sup>. The safety climate is related to the perception of safety within the organization<sup>[18–21]</sup>. The safety management system is generally defined as, 'the management procedures, elements and activities that aim to improve the safety performance of and within an organization'<sup>[22]</sup>. From the requirements of ISO 45001, the safety management system systematically covers the overall essentials for the management of safety within an organization<sup>[23]</sup>. The safety culture deals with the human aspect deeply embedded within an organization, meanwhile the safety climate deals with the human aspect related to the perception of members. Separately, the safety management system deals with the systematic aspect of the organization. However, in practice safety culture is applied similarly to the safety climate, approaching only the short-term and superficial aspects. They are often used interchangeably<sup>[4]</sup> and some definitions have little difference between them<sup>[24]</sup>. Measurement and improvement of safety culture are biased toward the safety management system rather than cultural fundamental aspects. The indicators for the safety culture contain conceivable indicators of the safety management system from the INSAG report and the ACSNI Human Factors Study Group report<sup>[4,16,25]</sup>. Since the safety management system should be warranted for safety culture, safety culture maturity can be replaced by safety management system development<sup>[8]</sup>. The dimensions of safety culture are often focused on aspects which are relatively easy to measure rather than the aspects that should be measured.

Moreover, the concept of safety culture may be fundamentally ineffective to achieve ideal safety. Considering that the safety culture is a sub-facet of the organizational culture as established by Cooper<sup>[26]</sup>, the safety culture should be bound by the organizational culture. The organizational culture that binds the safety culture is in turn related to the survival and growth of the organization as stated by Schein<sup>[27]</sup>. Because the organization must make profits for survival and growth, the organizational culture is fundamentally related to characteristics such as high efficiency and productivity, which requires low cost, fast work, and more output. However, ideal safety prefers to follow work standards and rules perfectly even if it requires more time and cost. It can be seen as a characteristic that should be actively pursued rather than the financial characteristic. As such, the organizational culture and ideal safety have fundamentally different natures and are facing opposite directions. The environment in which organizations live is very aggressive and competitive, so decision makers focus on short term financial and survival criteria rather than long-term criteria concerning welfare, safety, and environmental impact<sup>[28]</sup>.

Therefore, ideal safety cannot easily become the sub-facet of the organizational culture. It is difficult to change the organizational culture to a safety-first culture. Safety-first culture means that perceived safety itself is improved to a very high level. The organizational culture prioritizes optimization and has led to long-term organizational survival. Various sub-facets

such as production, quality, and safety are balanced in the most optimal state. Safety is also established as perceived safety, which is seen as the optimal state for the survival and growth of the organization. However, if only perceived safety is highly emphasized to establish a safety-first culture, the balance could be broken and this alteration from the perceived optimal operation threatens the survival of the organization. The organizational culture strongly resists this imbalance. Disorder or imbalance challenges the organizational culture, releasing anxiety and defensiveness, and organizational culture begins to work as a psychological cognitive defense mechanism<sup>[27]</sup>. Because the organizational culture is deeply rooted in history, collectively held, and sufficiently complex, it resists any attempts at direct manipulation<sup>[29]</sup>. Therefore, it is difficult to change the organizational culture itself only for perceived safety, and a gradual process is necessary to balance other sub-facets. Therefore, many organizations are promoting a safety-first culture, but it is not working as intended. The safety culture does not change drastically even if the government subsidizes organizations to improve the safety culture<sup>[30]</sup>, and in practice, substantial change in the organizational culture takes around 25 years<sup>[8]</sup>.

As such, the safety culture is considered essential to achieve a high level of safety. However, it can be seen that there are practical difficulties in improving the level of safety of the organization to the level of ideal safety. Therefore, it is necessary to first change the perspective on safety within the organization in order to achieve ideal safety, and this work proposes a new framework for voluntary safety practice toward ideal safety.

## METHODOLOGY

First, to analyze the phenomenon, this work refers to 'mental programming' by Hofstede et al. and establishes that personality of the individual and organizational culture can be approached similarly in terms of software of mind<sup>[31]</sup>. Additionally, this work builds on Cooper's theory that the safety culture is a sub-facet of the organizational culture<sup>[26]</sup>, and Schein's statement that the organizational culture is paramount for survival and growth of the organization<sup>[27]</sup>.

Second, to propose a solution, this work refers to Mindfulness-Based Cognitive Therapy (MBCT) by Segal et al. in the field of psychology to prevent relapse of depression<sup>[32]</sup>, and Fry's spiritual leadership theory<sup>[33]</sup>.

## RESULTS AND DISCUSSION

The common approach towards safety culture is to regard safety as a sub-facet of the organizational culture, and members passively practice safety as perceived safety within the organizational culture (Fig. 1a). However, in order to achieve ideal safety, safety should be pursued in a separate area from the organizational culture. Members should be aware of ideal safety based on ideal and universal values, which are different from the survival and growth of the organization, and must conduct intentional efforts to reach ideal safety (Fig. 1b).

### Basic concept for voluntary safety

According to Hofstede et al., organizational culture and human nature are 'mental programming', and he described them as 'software of the mind' (Fig. 2)<sup>[31]</sup>. Based on this, the

Voluntary safety practice

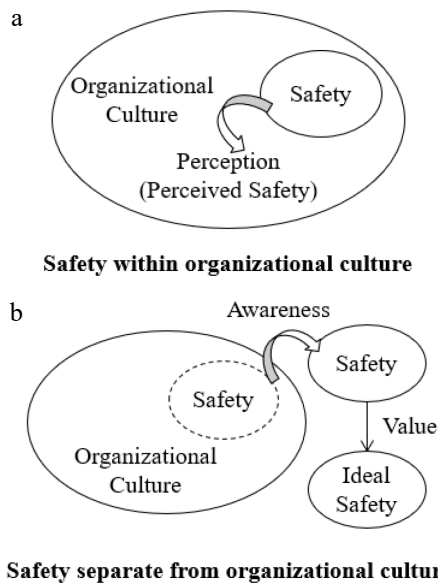


Fig. 1 Change of the perspective on safety within organizations.

organizational culture, which is programmed in relation to the survival and growth of the organization, is similar to the personality of the individual, which is programmed in relation to the survival and growth of the individual. Therefore, the organizational culture and personality can be approached from a similar perspective. The organizational culture is difficult to change, similar to the personality of an individual, because they are related to survival and growth. However, for the individual, although the personality is difficult to change once it is formed, spiritual beliefs and values can be acquired and changed by intentional efforts, and are pursued separately from the personality. It can be said that spiritual beliefs and values are related to survival in the spiritual aspect. The spiritual beliefs and values have different characteristics from the personality, which are pursued separately from the personality by intentional efforts. The ideal and universal values of the organization such as ideal safety can be approached from a similar perspective to spiritual beliefs and values of the individual. For the individual, personality is related to survival in daily life, however, spiritual beliefs and values are related to survival in the spiritual aspect. Similarly, the organizational culture is related to the survival in daily business, however, ideal and universal values are related to survival in the spiritual aspect of the organization, and are eventually related to the integrity of the organization. Integrity is defined as 'wholeness, completeness, soundness'<sup>[34]</sup> and is related to coherence, professional responsibility, moral reflection, and values like incorruptibility,

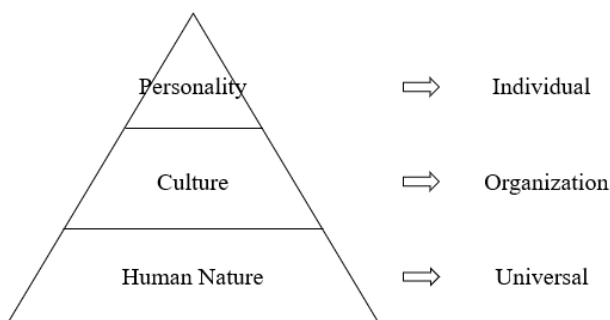


Fig. 2 Hofstede's 'mental programming'.

laws and rules, moral values and norms, and exemplary behavior<sup>[35]</sup>. Therefore, just as the spiritual beliefs and values of the individual are pursued separately from the personality, ideal safety of the organization should be pursued separately from the organizational culture.

The individual's awareness is dominated by the personality, so the individual regularly raises the awareness about spiritual beliefs and values through self-cognition. Spiritual faith provides the fundamental foundation and fuel for such self-cognition. The organization is dominated by the organizational culture, so the organization must regularly raise the awareness about ideal safety through self-safety cognition. In addition, safety faith about ideal safety should provide the foundation and fuel for such self-safety cognition. Therefore, this work proposes the concept of voluntary safety practice toward ideal safety in the organization. The concept includes two elements, which are self-safety cognition and safety faith (Fig. 3).

**Framework for voluntary safety**

A framework is introduced for voluntary safety practice toward ideal safety in the organization, which consists of two concepts (Fig. 4). The first concept is Mindfulness-Based Cognitive Safety (MBCS) for self-safety cognition, and the second concept is spiritual safety leadership for safety faith. MBCS draws influence from Mindfulness-Based Cognitive Therapy (MBCT), which was proposed by Segal et al. in the field of psychology to prevent relapse of depression<sup>[32]</sup>, and relates to active control of the individual's mind. Spiritual safety leadership refers to spiritual leadership, which was proposed by Fry<sup>[33]</sup>.

**Mindfulness-Based Cognitive Safety (MBCS)**

Mindfulness plays an important role in pursuing spiritual beliefs and values, and allows the individual to maintain moment-by-moment awareness based on self-cognition, attempting not to perceive the world in a habitual pattern through the personality. Organizations can refer to the principle of mindfulness in order to intentionally pursue ideal safety beyond the habitual perceived safety endorsed by the organizational culture. Therefore, this work proposes MBCS for self-safety cognition of members based on mindfulness. The organization can maintain moment-by-moment safety awareness through MBCS. In the field of psychology, Segal et al. established MBCT to prevent the relapse of depression of the individual based on mindfulness<sup>[32]</sup>, and MBCS intends to apply mindfulness to safety by referring to MBCT. Mindfulness is 'paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally'<sup>[36]</sup> and depression is described as 'a disorder of mood that affects a person's capacity to think

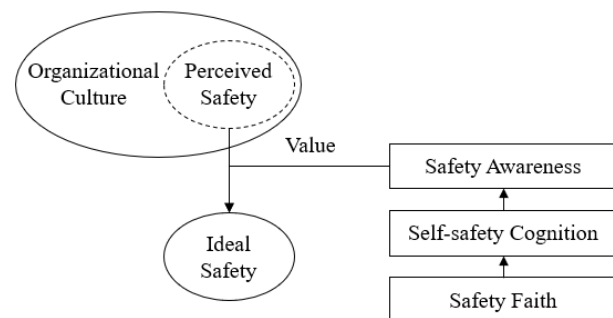
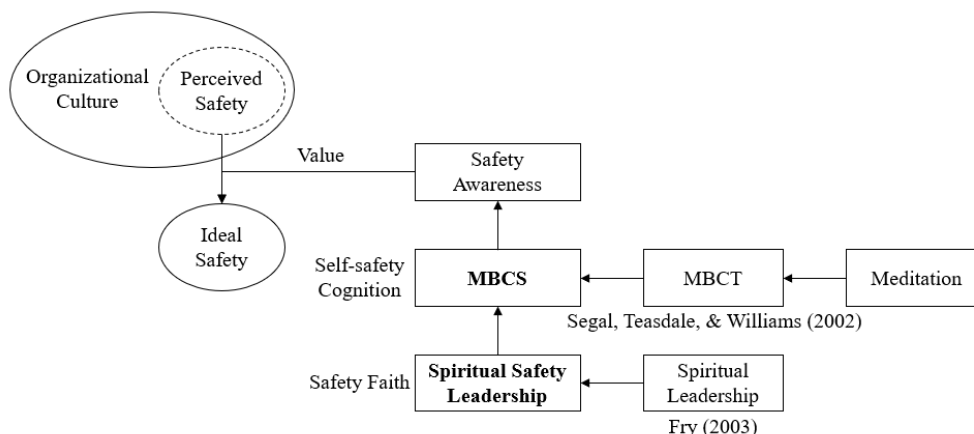


Fig. 3 Basic concept for voluntary safety practice.



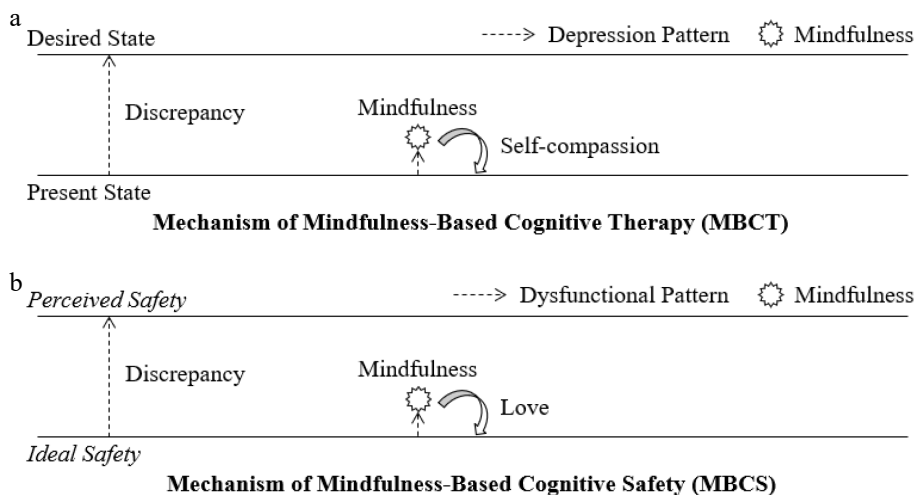
**Fig. 4** Framework for voluntary safety practice.

clearly; undermines motivation to act; alters intimate bodily functioning, such as sleeping and eating; and leaves a person feeling stranded in the midst of searing mental pain and suffering he or she feels unable to do anything about' and 'a chronic, recurrent disorder'<sup>[32]</sup>. The reason for relapse and recurrence of depression is 'repeated associations between depressed mood and patterns of negative, self-devaluative, hopeless thinking during episodes of major depression'<sup>[37]</sup>.

MBCT explains that the depression, which can be described as spiritual anxiety and pain, arises from pessimism about reality and disparaging oneself in the process of sensing the discrepancy between a desired state that the personality wants and the present state, judging the present state as bad, making the gap larger than reality, and creating an inability to acknowledge the reality and therefore struggling to fix it. This is called the depression pattern, which causes mood disorders and typically results in depression. Depression pattern recurs because it is based on the habitual personality. Therefore, the role of MBCT is to recognize the occurrence of the depression patterns based on mindfulness (Fig. 5a). It is based on looking at reality as is, without judgement or distortion, actively avoiding pessimism and disparagement of oneself. MBCT additionally includes self-compassion such as kindness, empathy, equanimity, and patience, which is very important to change depression patterns along with mindfulness<sup>[38]</sup>. Through MBCT, the individual can begin to regard distressing cognitions as

mental events rather than reality, and thereby cultivate moment-by-moment awareness<sup>[39]</sup>.

This work is based on the view that chronic accidents of the organization are similar to chronic spiritual anxiety and pain of the individual. Chronic accidents are caused due to a dysfunctional pattern perpetuated by the habitual organizational culture, similar to the depression pattern of the individual by the habitual personality. Just as depression is the result of mood disorder, chronic accidents are the result of a disorder of working mood, which affects members' capacity to work safely and leaves members feeling the need to work quickly at any cost. The dysfunctional pattern occurs due to the organizational culture, which is obsessed with success in daily business. The dysfunctional pattern judges ideal safety as not good enough, and members who do not make more outputs as quickly as possible can be devalued, causing disorder of working mood and resulting in unsafe acts and accidents. This cycle continues due to the habitual organizational culture. Therefore, accidents continue to occur at a certain frequency within the organization. It is necessary to recognize this habitual dysfunctional pattern through mindfulness, and ideal safety should be pursued by allowing the present healthy and safe state to be viewed positively based on ideal and universal values (Fig. 5b). For this, MBCS includes the value of love, which is similar to self-compassion in MBCT. This is linked to spiritual safety leadership and will be further discussed in the next



**Fig. 5** Mechanism of MBCT and MBCS.

Voluntary safety practice

section. The main content of MBCT and MBCS are presented in Table 1. MBCT is for the individual, and prevents the relapse of depression, and MBCS is for the organization, and prevents continuous accidents. MBCT enables the individual to maintain moment-by-moment awareness based on mindfulness, and feel positive through self-compassion. MBCS similarly enables the organization to maintain moment-by-moment safety awareness based on mindfulness, and pursue ideal safety through the value of love.

MBCS can lead to the development of specific programs based on mindfulness. Core mindfulness skills are 'observing, describing, acting with awareness, and accepting without judgement'<sup>[40]</sup>. Based on this, the core skill of MBCS is 'observing safety, describing safety, acting with safety awareness, and accepting safety without judgement as first priority'. Segal et al. developed an MBCT program consisting of eight sessions, which includes practices such as body scan, mindful movement, breathing space, mindfulness walking, and so on<sup>[32]</sup>. Since MBCS is applied to the organization, MBCS programs can consist of group training and work-related activities. Group training can include sitting and walking safety awareness, mindfulness safety movement, and focused safety during routine daily work. Work-related activities can consist of pre-work practice and during-work practice. Pre-work practices can include team safety awareness that recognizes safety at the team level before starting work, and personal safety awareness that individuals perform just before work. During-work practice can include body scan, mindfulness working, safety conversation, and the right to stop working. Overall, the basic principle of MBCS is to recognize ideal safety at all times and intentionally practice it through self-safety cognition, and to perform safe work through moment-by-moment safety awareness. Training for top management to assist in organizational encouragement is also imperative for the success of MBCS. MBCS can serve as self-cultivation for the organization to pursue ideal safety in

daily business. This work presents examples of applicable programs of MBCS, but further discussions about specific training programs and work-related activities are needed.

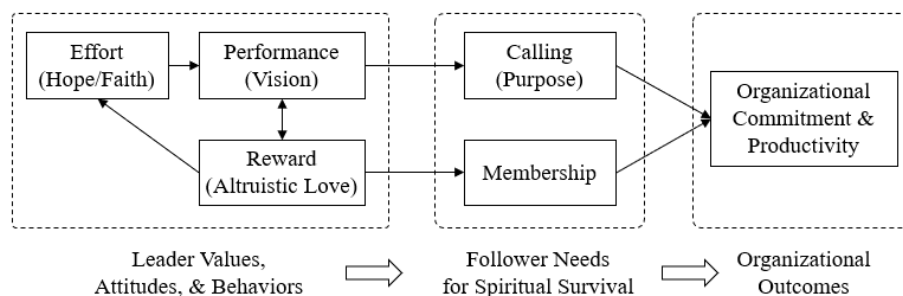
**Spiritual safety leadership**

This work has established the concept of self-safety cognition through MBCS. However, self-safety cognition needs a fundamental foundation and fuel, and this work establishes safety faith, drawing influence from spiritual faith. Spiritual faith acts as the fundamental foundation and fuel for the individual to engage in self-cognition activities. If this is not secured, such activities end in a one-time event and the individual returns to their daily life patterns dominated by the personality. Therefore, MBCS also needs something that serves as a fundamental foundation and fuel for members to voluntarily practice it, and we can call it safety faith, similar to spiritual faith. Survival in daily business is the most important in organizations, but when members recognize that the value of ideal safety is as important as the value emphasized by the organizational culture, members will intentionally and voluntarily pursue ideal safety based on MBCS.

Recently, interest in a spiritually healthy organization has been increasing and Fry's spiritual leadership theory (developed in the field of leadership in 2003) has emerged as an academic approach<sup>[33]</sup>. This work refers to Fry's spiritual leadership and proposes spiritual safety leadership to form such a safety faith in the organization. The reason is that the core role of leadership is motivation for members. In Fry's spiritual leadership theory, he defined spiritual leadership as 'comprising the values, attitudes, and behaviors that are necessary to intrinsically motivate one's self and others so that they have a sense of spiritual survival through calling and membership'<sup>[33]</sup>. Looking at Fry's spiritual leadership model, it consists of altruistic love, faith, and vision (Fig. 6). This leads to a purpose and membership, and allows members to achieve spiritual motivation. For spiritual motivation, having a purpose

**Table 1.** Main content of MBCT and MBCS.

	MBCT	MBCS
Object	Individual	Organization
Discrepancy	Chronic & Relapse of Depression Desired State (Based on Personality) Present State (Normal State)	Continuous Accidents Perceived Safety (Based on Organizational Culture) Ideal Safety (Ideal & Universal Value)
Pattern	Depression Pattern (Habitually React)	Dysfunctional Pattern (Culturally React)
Mood	Disorder of Mood (Pessimistic)	Disorder of Working Mood (Compulsive)
Result	Depression	Unsafe Act & Accident
Core Skill	Mindfulness Moment-by-moment Awareness	Moment-by-moment Safety Awareness
Attribute	Self-compassion	Love
Purpose	Preventing Relapse of Depression	Preventing Recurrence of Accident



**Fig. 6** Fry's spiritual leadership model.



helps members feel that their life has meaning and they are unique. Membership helps members feel that they are understood and appreciated. One very important aspect of spiritual leadership, which requires discussion, is altruistic love. Altruistic love provides 'emotional and psychological benefits' to members, acting as an intrinsic source of motivation and reward and driving members to make further efforts, which can lead to improved performance. This altruistic love eventually allows members to feel purpose and membership, and achieve spiritual motivation, which brings positive organizational outcomes.

Based on Fry's spiritual leadership, this work proposes spiritual safety leadership to form safety faith (Fig. 7). Spiritual safety leadership aims to achieve organizational integrity, as well as survival in the spiritual aspect of the organization, by giving ideal safety the attribute of love emphasized in spiritual leadership. Considering that ideal safety can be achieved by loving and caring about oneself and colleagues sincerely, ideal safety is fundamentally similar to characteristics of love. Based on this, safety faith can be expressed as 'safety is love', and the core concept of spiritual safety leadership can be described as 'love oneself and colleagues'. Here, 'love oneself' secures a member's own safety, helping members to realize their value and meaning, and feel the importance of what they are doing, thereby eventually feeling a sense of calling. 'Love colleagues' protects each other's safety, and members can feel that they are understood and appreciated by others, and eventually feel a sense of membership. As such, safety and love are connected, and spiritual safety leadership can be realized based on the altruistic love within spiritual leadership. In the spiritual safety leadership model, love acts as the intrinsic motivation and reward<sup>[33]</sup>, which eventually improves safety performance. Using love-based ideal safety, members can realize self-safety from 'love oneself' and the team-safety from 'love colleagues'. This encourages the spiritual motivation of members based on calling and membership, and improves the environment surrounding them, which eventually improves the integrity of the organization and leads to healthy and sustainable organizational growth.

Spiritual safety leadership draws influence from the active perception of actions. Leading by example plays an important role in introducing the individual to having faith in a particular value, and the individual can have faith with confidence when a leader shows the importance of that value. Therefore, the top management and leaders should show the importance of love-based ideal safety to realize the integrity of the organization and take care of the safety of members. In an individual's daily life, various questions arise about such values and constantly

conflict between their daily lives and their spiritual values. Therefore, they regularly participate in learning communities such as gathering and worship for collective consciousness, and they maintain and improve their spiritual faith by sharing experiences with members. Similarly, members can feel a sense of belonging and spiritual faith can spread and strengthen among the members through learning communities. Therefore, the organization should develop safety faith through learning communities such as periodic safety gatherings and group safety study. In order to vitalize this collective consciousness, a safety manager who has experience and can convey the necessary wisdom is necessary, and the safety department needs to lead these activities separate from daily work activities. Through this organizational support of spiritual safety leadership, members voluntarily practice MBCS and strengthen safety faith. As such, the organization can form and improve safety faith, which provides the foundation for members to voluntarily practice ideal safety.

## CONCLUSIONS

This work develops a new framework for voluntary safety practice, which consists of MBCS and spiritual safety leadership. MBCS is for maintaining safety awareness, while spiritual safety leadership is for forming safety faith. Through this, the organization can maintain safety awareness and pursue ideal safety. Furthermore, the organization will be able to achieve integrity and continue sustainable and healthy growth. In addition, the safety management system will become more effective due to the active safety awareness of the members. From this concept, the level of safety in the organization can be divided into four levels. The first level is a reactive level in which there is no safety management system and no voluntary safety awareness. The second level is a managerial level in which safety is managed by the safety management system, but there is no voluntary safety awareness. The third level is a proactive level in which the effectiveness of the safety management system increases based on voluntary safety awareness. The fourth level is a generative level in which ideal safety is finally integrated into the organizational culture based on voluntary safety awareness. It should be noted that it is necessary to develop specific and scientific programs for organizations to use this framework in practice. Methods should be developed to evaluate the effectiveness between these programs and the improvement of the level of safety. In addition, essential barriers should be selected to systematically manage safety awareness in the organization.

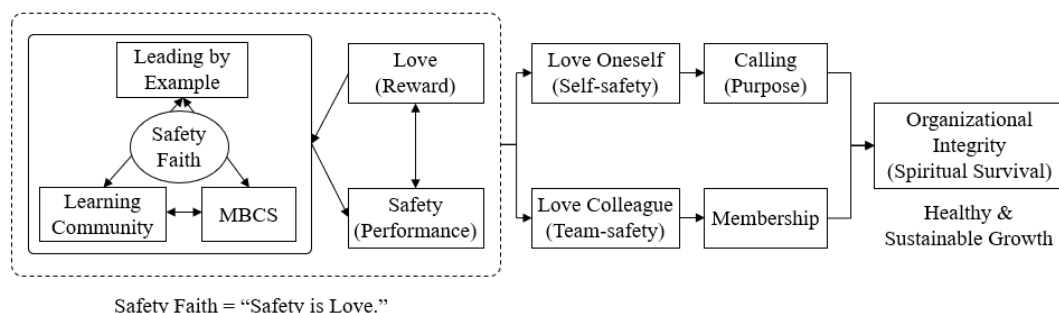


Fig. 7 Spiritual safety leadership model.

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## Conflict of interest

The authors declare that they have no conflict of interest.

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