

What does Cabin Crew need during inflight emergencies? A SHELL-Model Analysis

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Abstract. Although flight attendants are responsible for the safety of millions of passengers per year, their safety role is publicly often trivialized. Extensive training is provided by the airlines to support cabin crew to handle emergencies, however, is the training sufficient to overcome the challenges flight attendants face? Technological evolutions to minimize errors in the cockpit can be found throughout the past century, however, most of the equipment which cabin crew are using are outdated and do not meet the requirements of today's air travel. **Research question.** Following research questions will be addressed in this study: RQ1: Which challenges do cabin crew face during inflight emergencies? RQ2: How can cabin crew be supported during inflight emergencies? RQ3: How can technological aids, such as illumination, support cabin crew handling emergencies? **Methodology.** A qualitative study was conducted with 15 cabin crew members. Open-ended questions were asked to assess which challenges cabin crew face and how they can be supported during emergencies. The SHELL-model framework was used to analyze and categorize the open-ended questions. **Results and Discussion.** Major concerns were unruly passengers as well as panicking and uncontrollable behaviour. Fire and smoke were another concerns belonging to the Environment- Liveware interface. Improving flight attendant training with regards to duration, content, and frequency were highlighted as an effective measure to increase confidence in cabin crew applying their knowledge and skills. It was mentioned that trainings should be more realistic, such as using actors to mime anxious passengers. **Conclusion.** This study identified flight attendant's challenges using the SHELL model framework. Flight attendants could gain more confidence in handling emergencies by improving the training frequency, duration and content. Technological aids such as smart and/or optimized emergency buttons could further improve discreet communication between flight attendants and cabin crew.

Keywords: cabin crew emergency processes · passenger safety · cabin crew training · SHELL Model Analysis · inflight emergency

1 Introduction

Cabin crew are the first responders to inflight emergencies. According to commission regulation (EC) No. 859/2008 [6] every operator should have procedures in place for abnormal situations. In a study conducted by Manikath et al. in 2025 [18] passengers and cabin crew stated commonly medical emergencies and unruly passengers as cases for inflight emergencies. Cabin crew in addition mentioned fire and smoke as emergency scenarios. Passengers considered aircraft damage as emergency scenarios. However, it is unclear whether other situations handled by cabin crew shall be additionally responded to as inflight emergencies. According to EASA Part CC cabin crew are trained in general knowledge in aviation and aviation regulations, communication, human factors and crew resource management, passenger handling and cabin surveillance, inflight medical emergencies and first aid, dangerous goods, general security aspects in aviation, fire and smoke training, as well as survival training [7]. Although, every operator needs to have procedures in place for abnormal and for emergency situations and cabin crew receive extensive training, the question remains whether these are sufficient to ensure effective and efficient task response. Therefore, the following paper assesses following questions:

- RQ1: Which challenges do cabin crew face during inflight emergencies?
- RQ2: How can cabin crew be supported during inflight emergencies?
- RQ3: How can technological aids, such as illumination, support cabin crew handling emergencies?

Cabin crew's safety behaviour is vital for the overall safety performance of an airline [12]. Effective communication is one of the crucial skills indicating a good performance of cabin crew [2]. A literature review was conducted to understand current challenges in communication between cabin crew and passengers. The SHELL-model framework was used to analyse the results.

1.1 The SHELL-model

The SHEL-model was originally designed by Prof. Elwyn Edwards in 1972 to understand how multiple components affect human performance [23]. Further, it is described in the ICAO Document 9859 Safety Management Manual Chapter 2 "Safety Management Fundamentals" to aid states, product, and service providers to establish a safety management system [11]. The model describes the relations between Software, Hardware, Environment, and Liveware. The concept was further refined in 1987 by adding a second "L" to incorporate interpersonal relationships [9]. The model puts the human (Liveware) in the center and analyses the interfaces between the other components of the system. Since humans are not standardized as the other components of the model, tensions at the interface might arise compromising human performance and contributing to human error[11]. The interfaces are described in the following:

Liveware–Hardware (L–H):

This interface describes the interaction between humans and physical aspects of machines, equipment, and facilities [11]. This is commonly referred to as the human-machine interface [23]. In an aviation context these could be controls and surfaces, displays, seats to fit the human body etc. [23].

Liveware–Software (L–S):

All laws, regulations, orders, conventions, procedures which define how things are usually done are described in the Software category. Software also refers to the computer-based programs.

Liveware–Environment (L–E):

This interface cannot be actively controlled by humans, namely the physical environment [23]. Environmental influences such as radiation, light, noise, temperature, weather are summarized in this category.

Liveware–Liveware (L–L):

The relationship between humans in the workplace is defined in this interface. Prominent examples are organizational culture, however, also staff-management relationships. Aspects, such as communication, interpersonal skills, and group dynamics are important for human performance [11].

1.2 Analysis of communication between passengers and cabin crew using the SHELL-model

In the conducted literature review following challenges have been identified affecting the communication between passengers and cabin crew. The results are clustered using the SHELL-model.

Liveware–Hardware (L–H):

The main purpose of the existing Passenger Call Button (PCB) is to call cabin crew and shall be used by passengers. However, cabin crew also have their own routine of using the PCB to e.g. notify fellow crew members for help or to indicate a seat row where service is needed. This results in cabin crew not knowing who initiated the call [27]. Another problematic aspect is the lack of urgency indication by the PCB [14]. As identified by Wong and Neustaedter [27] there is "only a light and sound indication". Alarm sensitivity and prolonged response times could be results of the frequent use of the PCB by passengers for service requests [17]. In the air accident investigation report of flight BA762 [1], passengers used the existing PCB to alarm the cabin crew. However, the lead flight attendant was only alerted by the "highly unusual" behaviour of the passengers using the PCB multiple times and during take off [1].

Liveware–Software (L–S):

Company policies emphasizing service duties were found to negatively impact safety performance of cabin crew [5]. Time pressure and failure to meet

the safety duties are consequences of the airline specific performance standards for service duties. Thus, flight attendants are constantly fighting the dilemma of safety vs. service tasks. The implications for communication are that passenger calls are often expected to be service related which could lead to prolonged response times or no response and resulting in passenger frustration [16].

Liveware–Environment (L–E):

Noise inside the cabin has been found as a negative work condition for cabin crew which could affect communication with passengers [25]. As identified by previous research the cabin noise makes it difficult to hear information such as audio alerts and adversely affects speech intelligibility [27].

Liveware–Liveware (L–L):

Unruly passengers were identified by Tsaur et al. [25] as negative working conditions for flight attendants. Since 2022, the number of unruly passengers has increased according to IATA [10]. Further, cabin crew are subject to "verbal and physical violence" and sexual harrassment [25] by passengers. Additionally, there are behavioural differences in the different travel classes as reported by Manikath et al. [15]. All these factors have a negative impact on communication between passengers and cabin crew. However, there were also cases where flight attendants did not take information seriously which passengers communicated. As in case of the Air Ontario Dryden accident in 1989 a passenger informed the flight attendant about the ice buildup on the wing [20]. This vital information was not processed further by the flight attendant leading to the fatal crash [20].

To summarize the majority of literature regarding challenges in communication between passengers and cabin crew was found in the Liveware–Software and Liveware–Liveware interface.

2 Methodology

Cabin crew receive extensive initial training in handling inflight emergencies and are obliged to participate in recurrent trainings. This study aims to understand whether the provided trainings are sufficient for cabin crew’s task response and whether there are any technical aids which could support the flight attendants in detecting and handling inflight emergencies.

2.1 Participants

15 cabin crew members with a medium age of $M = 46$ ($SD = 10.4$) and an average flying experience of $M = 19.6$ ($SD = 9.8$) years participated in the online study. Participants were recruited through convenience sampling, were over 18 years old, and were either former or active flight attendants. The survey

link was shared with the participants, ensuring their participation remained anonymous. Data was collected between June 2024 and February 2025. Ethics approval (CURES/21010/2023) was granted by the institutional research ethics committee.

2.2 Material

A qualitative online study was conducted with former and active flight attendants to understand what are the major concerns and how technical aids could support cabin crew during inflight emergencies. The questionnaire started with basic demographic questions (such as: gender, age, work experience, working class, etc.) to categorize the participants. Lastly, three open ended questions were asked as follows:

- Q1: What is your biggest pain point / fear while dealing with inflight cabin emergencies? What are your major concerns?
- Q2: Would it help if the area where the emergency was declared would be illuminated in a special way e.g. coloured flashing light, e.g. red ambient light, dimming or turn on maximum brightness of cabin lights? What would be your suggestions?
- Q3: Do you have any suggestions on how to tackle your above mentioned pain points / fears? What could help you handling inflight cabin emergencies?

2.3 Research Design

Qualtrics (www.qualtrics.com) was used to generate and distribute the questionnaire. Firstly, the participants needed to read and sign the consent form containing relevant information about the study before starting the survey. It was possible to exit the study at any time by closing the browser window. All participants needed to firstly answer the basic demographic questions before moving forward to the three open ended questions. It was possible to complete the questionnaire within 10 minutes. Data was coded using NVivo 14.

3 Results

For the thematic analysis data was coded and categorized into the four elements Software, Hardware, Environment, and Liveware. Regarding the first question biggest pain points and concerns dealing with inflight emergencies most of the codes referred to the Liveware–Liveware interaction (twelve participants, $M_{\text{age}} = 46$ years, $SD = 9.4$). Seven participants mentioned specifically challenges with passengers ($M_{\text{age}} = 48$ years, $SD = 9.7$). Four participants were specifically concerned about panicking or uncontrollable behaviour of passengers ("*Passengers may get panicky*", "*people as they and their reactions are most unpredictable*", "*panicking of pax*", and "*[...] human factors*"). Additionally, three cabin crew ($M_{\text{age}} = 52$ years, $SD = 4.9$, $M_{\text{work experience}} = 24.3$ years,

$SD = 3.3$) mentioned either violent (*"Passenger violence"*) or interfering / non-compliant passengers (*"Pax interference. Pax taking pictures and blocking access."*, *"The fact that passengers are oblivious to the dangers surrounding them (disrespecting the fasten seat belt sign)"*).

Another code which falls under the Liveware–Liveware interaction can be summarized as Crew Resource Management. Four participants highlighted issues regarding team performance (*"[...] poor performance"*), stress reactions (*"Stress. You never know how you are going to react in a stressful situation (freeze, flight, fight)."*), and crew coordination (*"Coordination is key. Crew members must work together in a coordinated manner. Roles have to be clear."*). Two flight attendants additionally mentioned that lack of staff could be an issue especially in case of multiple scenarios or a fully occupied flight (*"Multiple smoke spots together with medical emergency and lack of staff."*, *"In case of a large and fully booked aircraft (B777-300) and where half of the crew is resting, your active team is small in case of an emergency. Of course you can wake up the resting crew, but it takes time. Experience shows that passengers can also be assisting."*). Further, lack of assertiveness (*"Lack of assertiveness [...]"*) and miscommunication (*"Miscommunication and escalation of the situation"*) were also described as pain points.

The most often stated code belonging to the Environment–Liveware interface was fire. Fire and smoke were mentioned by six cabin crew ($M_{age} = 50$ years, $SD = 9.6$) as a major concern. Especially the "uncontrollable" situation (*"uncontrollable size of fire"*), smoke (*"Fire or heavy smoke especially when the source cannot be found."*, *"multiple smoke spots"*) and the required fast reaction times by cabin crew to handle the situation (*"Fire spreads fast (abt 20 min time to get it under control, otherwise plane is most probably lost, esp. over open water)"*) were of a major worry. Surprisingly, time was listed only as the second most common subcode mentioned by three participants. Cabin crew were worried about lack of time which emphasizes the time criticality to find a solution during emergencies (*"Time for handling the emergency is spare"*, *"Not having the right amount of time to take necessary actions"*, *"[...] shortness of time [...]"*). One flight attendant named the constricted cabin space to be one potential challenge which is faced during emergencies (*"[...] lack of space, crowding [...]"*). Furthermore, one cabin crew mentioned serious injuries as a concern.

Three codes were identified for the Liveware–Hardware interface, whereas two were referring to Hardware used by passengers. Smartphones were mentioned as one factor which is hindering flight attendants from effective emergency response (*"The biggest problem in my opinion is the introduction of smartphones into the cabin. This forms a major distraction for colleagues, feels quite threatening, and gets in the way generally of being able to handle the emergency."*). Passengers taking pictures and obstructing the already limited space in the cabin are distracting and impeding flight attendants in their duties (*"[...] Pax taking pictures*

and blocking access."). Interestingly, one cabin crew member stated that some of the emergency equipment cannot be conveniently used ("[...] the effectiveness and ease of some of the emergency equipment").

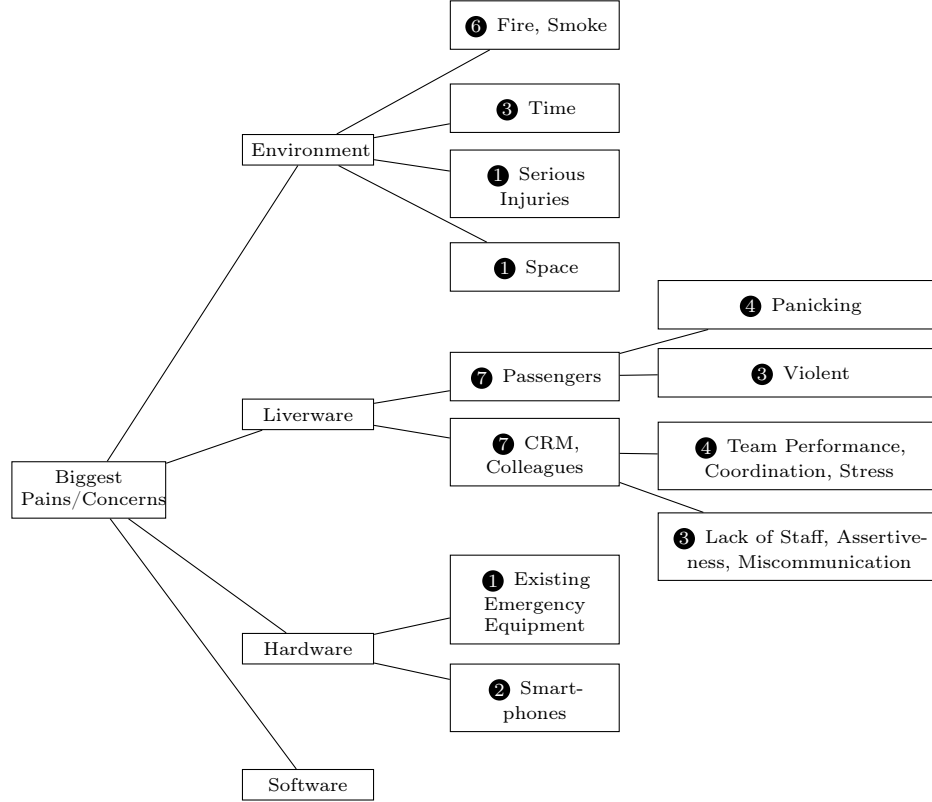


Fig. 1: SHELL-model analysis: biggest pains during inflight emergencies

The second question was about how to tackle these challenges and what does cabin crew need to handle inflight emergencies. The majority of codes was in the Liveware–Liveware interaction (15 codes), thereof five in the subcode Training. Participants ($M_{\text{age}} = 45$ years, $SD = 9.5$) either suggested to improve the frequency of the training ("*Practice during yearly training.* ", "*more frequent training [...]*") or the content. One flight attendant mentioned the existing training to not be very realistic ("*[...] Trainings are often not realistic*"). Other cabin crew members suggested improvement of the existing training by e.g. training with actors who mime scared passengers, or to include assertiveness and communication in the training. Familiarity with confined space and simulated events was also stated as a potential training enhancement. In the subcode passengers one flight attendant stated it would be helpful to know where medical person-

nel are seated. The other participants comments reflected on how to improve the communication between passengers and flight attendants e.g. *"information of pax, and pax keeping calm and pax listening and reacting to instructions of crew"*, *"You have to talk with pax if you want them to cooperate"*. Another suggested approach was to provide another written instruction card to passengers besides the existing ones especially warning about the consequences in case of heavy turbulences to increase passenger's awareness to comply with cabin crew's instructions. Regarding the subcode colleagues *"[...] knowing the procedures and having the experience"* was considered to be useful. One flight attendant and flight safety trainer additionally mentioned a behavioural aspect on how to de-stress to be able to improve task response by *"Take a deep breath or recognize the behaviour of a colleague. If you take some time in most situations you can think about the procedures that you have learned."* Lastly, communication between senior colleagues and the flight deck shall be kept short and precisely (*"When starting abc procedure, (attack, buddy, communicator) communication with senior purser and cockpit should be very short and accurate by interphone. Don't keep the line busy. Mention if abc is medical or fire."*) was another suggestion.

One flight attendant suggested four different technological solutions which could support cabin crew during emergencies (Liveware–Hardware). The first recommendation was to include automatic sensors, e.g. include automated fire extinguishers in waste bins. The second suggestion was to install an emergency button for cabin crew when they are alone in the galley area. Additionally, an emergency button for passengers was also proposed. Further, a messaging option via the IFE system for cabin crew and passengers to send messages between each other was also mentioned (*"[...] Perhaps the option to send a message via the screen that ends up at the main panel of the IFE system. Conversely, crew can send messages to passengers from there (per section and per seat)"*). Automated announcements could also support flight attendants (*"[...] automatic announcement asking everyone to remain in their seats, keep smartphones and tablets away and respect the crew?"*).

Suggestions in the Software–Liveware interface were made predominantly regarding laws, regulations and procedures. One proposal was to punish illegal behaviour more severely (*"[...] Severe punishment of illegal behaviour (DBP) as deterrent."*). Improvement of communication procedures was mentioned twice (*"Getting all the information you need. Get control of the communication"*, *"Enhanced standard communication procedures"*), as well as one flight attendant stated fire handling procedures.

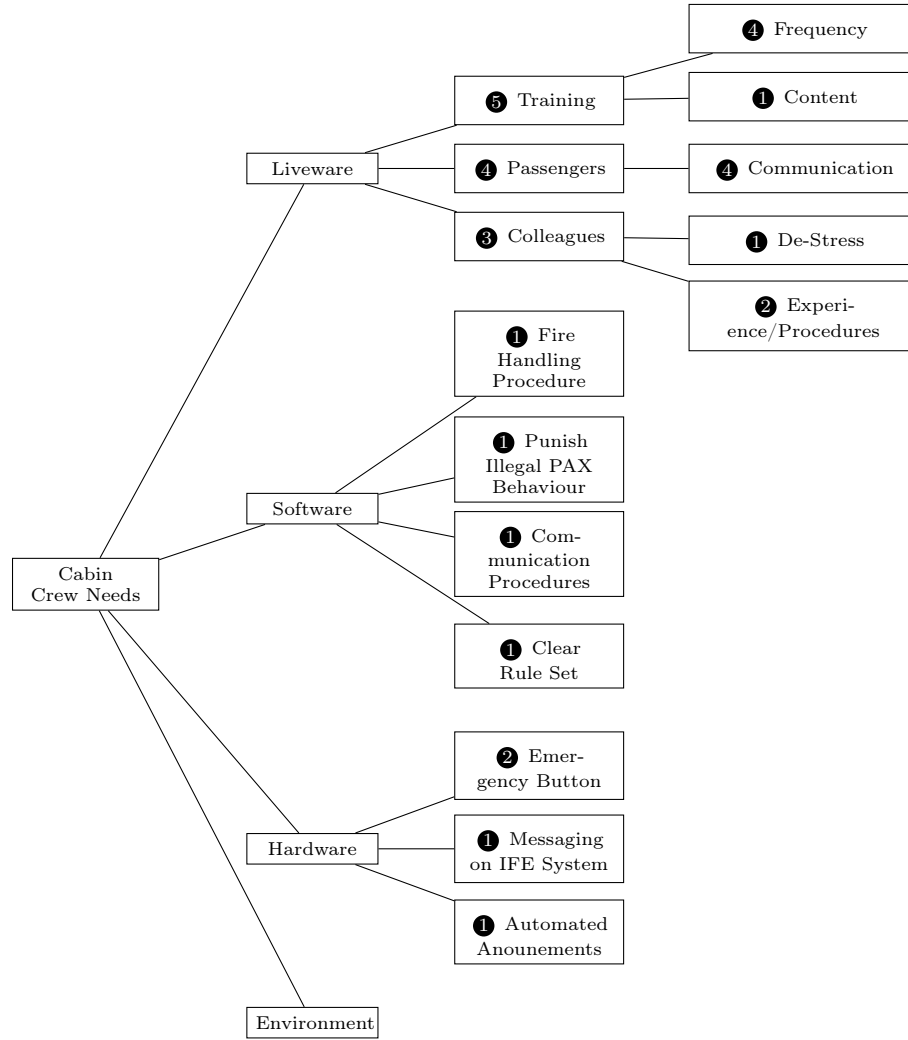


Fig. 2: Cabin crew needs during inflight emergencies

The last question was specifically about whether and how illumination of the emergency area could support cabin crew. In this study five participants had a positive attitude towards special lighting of the emergency area and two expressed a negative opinion. Subcodes were brightness, coloured light or flash lighting. Brightness was mentioned by five participants to be helpful (*"Bright, steady white/clear lighting may help."*, *"Brightness would be good to find the spot immediately - especially in case of dimmed light during night. [...]"*). However, two flight attendants also mentioned the missing discretion which could also lead to panic and stress of the passengers (*"Potentially to alert the crew, but*

sometimes a more discrete scenario (i. e. a pax death) you might not want the whole cabin to know, especially on a night flight. In addition, alerting the whole cabin to a warning could cause panic prior to the crew being able to handle the emergency."). Participants were more negatively inclined towards coloured light e. g. red light (*"Flashing light or red ambient light = no way"*), whereas flashing light was rated more positively (*"May be the area call light on the ceiling can turn into flashing."*, *"A flashing light in the area of the incident"*).

3.1 Summary of the main results

To summarize the results, the majority of codes regarding biggest pains and concerns of flight attendants while dealing with inflight emergencies, belonged to the Liveware–Liveware interface. Challenges dealing with uncontrollable, violent, panicking passenger behaviour was described by seven cabin crew members. Concerns regarding intra-team performance, crew coordination, and stress reactions were also mentioned by seven flight attendants. Fire and Smoke, belonging to the Environment–Liveware was the second most stated concern. The uncontrollable situation and the required fast reaction times seemed to be most worrying to the participants. Regarding the needs and how to tackle the challenges, the majority of codes was again in the Liveware–Liveware interface. Improvement of training frequency, content were frequently mentioned, as well as to improve the communication between passengers and flight attendants. With regard to whether illumination could be of help to increase situation awareness, some of the participants were more positively inclined. However, there were also participants mentioning that either coloured light or flashing light could cause panic and discretion in these cases could be compromised.

4 Discussion

The following qualitative study is the first of its kind to use the SHELL-model framework to identify cabin crew's challenges and needs handling inflight emergencies. The findings of this study are beneficial to support cabin crew during inflight emergencies by e. g. improving trainings and procedures. One of the main findings of this study is that most of the challenges which cabin crew face are in the Liveware–Liveware interface. This is in accordance with the findings of the previously conducted literature review (see 1.2). Passengers which are either panicking, or even violent or incompilant were mentioned as a major concern. This is consistent with the findings in Tsaur et al. [25] where unruly passengers were found to be a negative working condition for cabin crew. Moreover, IATA [10] identified a rising number of unruly passengers since 2022, which can be seen as a worrying development. Further, team performance, stress reactions, and crew coordination were mentioned as an uncertainty in the Liveware–Liveware interaction. Collaboration is important for flight attendant's for delivering on-board safety and customer service duties [27]. Wong et al. [27] compares the collaborative procedures of flight attendants with other team-based professions such

as firefighters or medical trauma care. Similarities in the roles are e.g. although flight attendants work in different positions during the flight they know the work procedures of colleagues in other positions. Their tasks and challenges are changing depending on the individual passenger and situation. Therefore, it is important that during emergencies the roles within the team are clearly defined and crew members work together in a coordinated way. A lack in teamwork can be embarrassing and could even lead to incidents or accidents [22].

Miscommunication, lack of staff, and assertiveness were also stated as major concerns. When it comes to communication during emergencies, firefighters for example have a personalized radio which will be used to communicate with each other, however flight attendants collaboration tools are often stationary and they need to rush to the specific position to be able to communicate e.g. via cabin interphone. During emergencies, this can lead to "communication breakdowns", because the existing equipment is not meeting the collaborative needs of flight attendants [27]. In an observational study conducted by Damos et al. [5], it was highlighted that cabin crews were not able to meet all the safety, security, and service tasks within a given time to achieve performance levels set by the airlines. Further, a reduction in staffing to the minimum required amount was seen critically especially during domestic flights by Damos et al. [5]. Participants of this study mentioned as well lack of staff as an issue during emergencies. "Lack of assertiveness" could be linked to either external factors such as the public trivialization of flight attendant's role or lack of training. The flight attendant's main responsibility is to ensure safety and security of the passengers during flight [5], [17]. Although cabin crew are responsible for the safety and the security of millions of passengers annually, the public image still remains of the "trolley dolly", "space waitress" (Hochschild, 1983 as cited in [19]) and keeping the cabin "clean and tidy" [3]. Further, often flight attendants are belonging to the younger workforce and, therefore, may not have the experience to dissolve conflict situations [19]. In a study conducted by Rhoden et al. [21] regarding effectiveness of training for unruly passengers, participating cabin crew overall felt they had the abilities and knowledge to handle the situations, however, confidence in applying these skills varied. Further, it was identified that existing training should be either prolonged, more frequent and more realistic to increase confidence in flight attendants.

Fire and smoke were major concern belonging to the Environment-Liveware interface. In a study conducted by Manikath et al. [18] fire and smoke were found to be of most concern with cabin crew since flight attendants are trained in active fire fighting. Fire, as also mentioned by the participants of this study is an uncontrollable situation which is highly time critical. Fire and smoke could also be the result of overheated portable electronic devices (PED). In December 2024 Southwest Airlines Flight 3316 was evacuated in Denver after one passenger's mobile phone battery caught fire [13]. Participants of this study mentioned that passenger's taking pictures and blocking aisles would disturb cabin crew

while performing evacuation tasks. This was also the case for the accident of Emirates flight EK521 where passengers who evacuated via the escape slides stayed near the aircraft to take videos and pictures and therefore delayed the passenger flow to the evacuation area [8]. Further, passengers also disobeyed cabin crew's instructions to leave carry-on baggage behind before evacuation. However, the investigation report revealed that several passengers delayed the evacuation process because they took carry-on baggage with them and blocked the aisles.

4.1 Suggestions to improve handling of inflight emergencies

What are cabin crew's needs and how could they be supported? Particularly, with regards to passenger violence one flight attendant suggested to have more severe punishment of illegal passenger behaviour. According to the Tokyo convention (1963) [4] the aircraft commander has the power to disembark or restrain an offender to ensure safety and security of the passengers and of the aircraft. Although the Tokyo convention is the first international treaty in aviation history which grants immunity and power to the aircraft commander, there are also major weaknesses. As discovered by Sopilko and Shevchuk [24] one of the major weaknesses of the treaty is the weak enforcement system meaning that in certain circumstances offenders could leave without punishment. One of the main aspects which the participants of this study mentioned is to improve either frequency or the content of the trainings. Participants further mentioned that the training is not realistic and should be enhanced by hiring actors which "mime" frightened passengers. This finding is in line with the results in a study conducted by Rhoden et al. [21] where flight attendants claimed that the duration of the training is not sufficient, but also trainings are not realistic. The behavioral consequences are that cabin crew lack confidence in application of knowledge and skills. Improvement of communication and communication procedures was also described frequently by the participants which could help handling inflight emergencies. Collecting all the necessary information and informing passengers was highlighted, as well as, having standardized communication procedures. Informing passengers satisfies two purposes: avoiding panic and involving passengers to cooperate. As already identified by Manikath et al. [14] there are several challenges involved in the communication between passengers and cabin crew. Manikath et al. [14] especially pointed out the missing discretion in case of emergencies and the need for the passenger to discreetly alert cabin crew. It was also identified that the existing equipment is not supporting the communication needs of passengers and cabin crew [17]. Flight attendants of this study suggested interestingly mainly technological aids intended to improve communication between passengers and cabin crew such as automated announcements e.g. to remain seated during turbulences or emergencies. Additionally emergency buttons and the possibility to send messages to passengers IFE screen was also suggested.

4.2 Illumination as a potential support?

The opinions of the study participants regarding illumination as a potential aid during emergencies were divided. Whereas, the majority of flight attendants agreed that brightness would be of help to increase situation awareness, there were also concerns regarding missing discretion and causing panic. In case of for example dimmed cabin light during night flights, passengers might be disturbed if suddenly the illumination changes (*"Lighting that part of the cabin at least gives an indication that 'something' is going on. A auto message in the screens near the pax in that area would be useful as an explanation, because during a night flight, passengers are startled when lights come on all at once.[...]"*). Winzen et al. [26] suggested to have different lighting conditions according to the operational tasks. Previous research found out that the targeted application of coloured lights could not only have a benefit on passengers, but also on flight and cabin crew [26]. Participants of this study were more concerned about the use of flashing lights or red light since it could create panic and discomfort for the passengers. In a study conducted by Yao et al. [28] it has been shown that the visual comfort of passengers is linked mainly to the lighting in the aircraft cabin. Flashy lights could therefore be perceived as uncomfortable for the eyes. Colours are also important for visual comfort considering the psychological effects which colours have on behaviour and human perception [28]. Thus, red lights could be perceived as a threat. There is innovative potential for situation-controlled illumination of the cabin area, which could be part of the implementation of an automated smart cabin concept. Based on various flight, time, and cabin scenarios triggering the Emergency Call Button could launch an automated routine that adapts the cabin lighting smoothly to an optimum configuration, thus supporting the crew.

5 Conclusion

Aviation is one of the safest modes of travel. Reasons for this are increased reliability and technological development of aircraft, and extensive training requirements for pilots and cabin crew. Over the past decades a lot of research involved on how to improve flight deck design in order to enable pilots to improve task performance and reduce failures, however, research on cabin crew's safety performance is scarce. This study contributes to highlight pain points from a cabin crew's perspective on how to handle inflight emergencies and what could be done to support task performance. The study participants, namely flight attendants who are responsible for the safety of millions of passengers annually contributed to highlight major concerns but also suggestions on how to handle inflight emergencies in this study. Firstly, this research focuses on the needs of flight attendants during emergencies. One of the main concerns are the interaction and reactions with passengers in stressful situations. Specifically, unruly passengers and the uncontrollable human behaviour under stress were mentioned as a major concern. Moreover, fire and smoke was also a worrying scenario due to the unpredictability of the situation.

So, what do flight attendants need to combat the challenges? Firstly, more frequent and realistic training was mentioned by the majority of participants. For instance, actors who mime panicking passengers could make the training more realistic. Secondly, stricter punishment of violent passengers and improvement of communication procedures could also be of support. The latter one can also be found in the literature, cf. [17], [16]. Lighting has a major influence in the visual comfort of passengers and targeted use of lighting could support cabin crew and pilots during operational tasks. However, too bright light and red coloured light should be avoided in order to avoid panic and reduce visual discomfort. The findings of this study are relevant for cabin crew trainers and training providers in order to improve training content and frequencies. Additionally, further research is needed to investigate how situation awareness of flight attendant's during emergencies can be further improved.

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