JOURNAL OF MODERN SCIENCE

Том 4/53/2023

www.jomswsge.com

DOI: doi.org/10.13166/jms/176328

Małgorzata Zdzisława Wiśniewska
University of Gdańsk, Poland
ORCID iD: 0000-0002-5193-2153

Ewa Majerowska
University of Gdańsk, Poland
ORCID iD: 0000-0003-0991-3714

Tomasz Grybek
University of Gdańsk, Poland
ORCID iD: 0000-0001-7994-8280

JUST CULTURE ASSESSMENT TOOL AND ITS VERIFICATION IN A SMALL SEAFOOD ORGANIZATION

NARZĘDZIE POMIARU JUST CULTURE I JEGO WERYFIKACJA W MAŁEJ ORGANIZACJI PRZEMYSŁU RYBNEGO

Abstract

Purpose: The aim of the article is to present a proposal for a just culture (JC) assessment tool and the results of its verification.

Methods: In the research process the case study method, supported by analysis of the company's documentation, unstructured interview, statistical analysis, and the method of synthesis and logical reasoning were used.

Results: It was confirmed that the JC assessment tool used by the studied organization is reliable. The study succeeded in establishing both the overall and partial levels of JC. Although the level of JC can be considered satisfactory, there are important management aspects that need more care than before. Areas for improvement were proposed.

Conclusions: Employees' opinions are not statistically different from each other. Employees equally perceive the need for necessary training, safety as a priority at work, the convenience of reporting errors, and the need to respond to problems. Opinions on JC are not dependent on employee work experience.

Keywords: *organizational culture, just culture, food, safety, employee behavior*

Abstrakt

Cel: Celem artykułu jest przedstawienie propozycji narzędzia oceny kultury just culture (JC) i wyników jego weryfikacji.

Metody: W procesie badawczym wykorzystano metodę studium przypadku, wspartą analizą dokumentacji firmy, wywiadem nieustrukturyzowanym, analizą statystyczną oraz metodą syntezy i wnioskowania logicznego.

Wyniki: Potwierdzono, że narzędzie oceny JC stosowane przez badaną organizację jest wiarygodne. W badaniu udało się ustalić zarówno ogólny, jak i częściowy poziom JC. Pomimo że poziom JC można uznać za satysfakcjonujący, istnieją ważne aspekty zarządcze, wymagające większej troski, niż dotychczas. Zaproponowano obszary wymagające poprawy.

Wnioski: Opinie pracowników nie różnią się od siebie statystycznie. Pracownicy w równym stopniu postrzegają potrzebę niezbędnych szkoleń, bezpieczeństwo jako priorytet w pracy, wygodę zgłaszania błędów i potrzebę reagowania na problemy. Opinie na temat JC nie zależą od doświadczenia zawodowego pracowników.

Słowa kluczowe: *kultura organizacyjna, just culture, żywność, bezpieczeństwo, zachowania pracowników*

Introduction

Since accidents such as the nuclear disaster at Chernobyl in 1986 or the explosion on the oil production platform of *Piper Alpha* in 1988, it has been recognized that underlying failures or scandals, and violations of safety rules, are caused by a weakness or lack of safety culture (SC), an important component of the overall organizational culture (OC). According to Hofstede (Hofstede, 1991), OC is *the collective programming of the mind that distinguishes the members of one group or category of people from others*. SC is a culture that influences the attitudes and behaviour of employees regarding health and safety levels (Cooper, 2000). The SC phenomenon has been present in the literature for a long time, and among the pioneers of this topic can be mentioned, for example, Zohar (Zohar, 1980), Reason (Reason, 1997), Guldenmund (Guldenmund, 2000), and Marx (Marx, 2009). Despite many experiences and studies in other industries, evidenced by Deepak and Mahesh (Deepak, Mahesh, 2023), as well as food scandals, the food safety culture (FSC) phenomenon came very late to the food industry. For the first time, this problem was addressed by Yiannas (Yiannas, 2009) and Griffith et al. (Griffith, Livesey, Clayton, 2010a,b). FSC can be understood as the aggregation of the prevailing, relatively constant, learned, and shared attitudes, values, and beliefs that contribute to the hygiene behaviours practiced within a specific food-handling environment (Griffith, Livesey, Clayton, 2010a). When it comes to the food industry it is probably Wiśniewska (Wiśniewska, 2023) who for the first time pointed to a very important element of FSC, called just culture (JC). However, there is still a research gap and lack of work on JC in the food industry, both in Poland and in the world, and, above all, publications about the ways of measuring JC in a food organization. Therefore, the case of a small seafood company, where an attempt was made to develop and use a tool to measure JC, seems interesting. Based on our case study, we posed the following research questions: RQ1 – Does the tool used by the organization meet the conditions of reliability? RQ2 – If so, what is JC's level and what are its more intense and weakest aspects? Therefore the purpose of the article is to present a proposal for a JC assessment tool and the results of its verification. The article is structured as follows: after an introductory section, the literature basis is

presented to propose research hypotheses. The next sections of the article are the methodological part, the presentation of the results and their discussion, and the concluding part, which includes the main outcomes of the research, and research limitations and indicates future directions for the further study of the described problem.

Literature background and hypotheses development

A serious problem, not only in the food industry, is the reluctance to talk about mistakes made by employees, just as much as the reluctance of employees to disclose them. This type of action has a psychological basis and has already been thoroughly explained in the literature (Kucharska, Rebelo, 2022). The main reasons for this behavior include, among others, a lack of trust and fear of consequences, such as shame, dismissal, ostracism, fear of rejection, and revanchism from other employees (Kucharska, Rebelo, 2022; Powell, 2023). Implementing and then developing JC is a condition for such situations not to occur. Interest in JC has intensified since several tragic accidents in the 1970s and 1980s, at the root of which was gross negligence of safety procedures (Wiśniewska, 2023). Nonetheless, the breakthrough in this regard was the publication by Reason (Reason, 1997) entitled *Managing the Risks of Organizational Accidents*. Reason defined JC as *a collective understanding of where the line should be drawn between blameless and blameworthy actions*, and pointed out that JC is *an atmosphere of trust in which those who provide basic information about the safety risk are encouraged and even rewarded, but in which employees know where the boundary between acceptable and unacceptable behavior is* (Reason, 2000). Wiśniewska (Wiśniewska, 2023) concerning the food industry, defines the phenomenon this way: *JC in the food sector is an element of FSC and is one in which all employees within a food company are encouraged to provide and feel comfortable providing FS-related information. It is an atmosphere of trust in which food handlers are convinced they will be treated fairly based on their actions rather than the outcome of those actions, in the case of positive, as well as negative food safety events*. Reporting

errors is important in the food industry because this sector is one of the most vulnerable to different kinds of risks translating into a loss of confidence for consumers, who are now not entirely convinced that brands guarantee safety (Chavez, Seow, 2012). The rapid detection of a product safety-related failure can save the life and health of the consumer and protect the company from loss of reputation and sometimes the market. The basic requirement, however, is that employees know when they are making a mistake, what the mistake is, and what the consequences are. Understanding the scope of error requires a climate that fosters trust, in which front-line workers are encouraged and willing to report errors and incidents; on their own, and/or those of others, providing key information about safety problems and potential solutions (von Thaden, Hoppes, 2005).

Taking into account the general message conveyed by Hofstede (Hofstede, 1991) about OC relating to the collective programming of the mind, very important in the context of the article is the definition formulated by Sharman et al. (Sharman, Wallace, Jespersen, 2020) that *FSC is a long-term construct existing at the organizational level relating to the deeply rooted beliefs, behaviors, and assumptions that are learned and shared by all employees, which impact the food safety performance of the organization* All these opinions refer to the need for an equal understanding of the values upheld by everyone throughout the organization. Therefore we assume that: H1: Employees' opinions on the statements in each group of questions are not different from each other in this population. For this reason, systematic training (da Cunha, 2021), compliance with safety rules, and setting safety priorities, based on ethics and moral obligations (Amalia, 2019; Lancaster, Vizgirda, Quinlan, Kingston, 2022) are also critical. As experts convince JC is a culture of trust and accountability (GAIN Working Group, 2004; Dekker, 2022), and therefore the primary purpose of JC is to respond appropriately to incidents. JC should enable one to learn from failures and hold people accountable for undesirable performance. Taking this into account, it can be assumed that: H2: Employees equally perceive the need for necessary training, safety as a priority at work, the convenience of reporting errors, and the need to respond to problems. In formulating the subsequent hypothesis, there is also a need to draw attention to the meaning of work experience. Daily responsible attitude and behavior

supported by professional experience are considered a very important factor, regardless of the sector. In different works on attitudes toward FS, work experience is recognized as a key variable (e.g Zanin, da Cunha, de Rosso, Capriles, Stedefeldt, 2017; Rifat, Talukdar, Lamichhane, Atarodi, Alam, 2022). Having the above in mind, we assume that: H3: Opinions on JC are dependent on employee work experience.

Methodology

Methods

The research was conducted using the case study method, which is the most widely used approach in academia, in qualitative research (Khan, Ming, Ali, Zhang, 2022). In addition, we used methods such as analysis of the company's documentation, unstructured interview, statistical analysis, and the method of synthesis and logical reasoning. The documents provided with the approval of the company's management were completed evaluation sheets. They were analyzed, taking into account such issues as the type of criteria, statements, the evaluation scale and the grades awarded. The selection of the company for the study was convenient. Convenience sampling refers to entities that are easily accessible to the researcher and willing to cooperate. At the same time, it is relatively quick and cheap to implement. The researcher selects a company for the sample, taking advantage of a convenient situation (Winton, Sabol, 2022). In the context of this study, trust, readiness, and willingness to share experiences, and to be assessed were of primary importance, to better prepare the company to measure JC in the future. During our research, we worked directly with a representative of the organization responsible for quality management and FS (hereafter referred to as QSR – Quality and Safety Representative). Documents analysis was consistent with the approach READ – (R) ready your materials, (E) extract data, (A) analyze data, and (D) distill your findings (Dalglish, Khalid, McMahon, 2020). The unstructured interview, as indicated in the literature (Mulcahy, Rossner, Tsalapatanis, 2021) consisted of a deepening of knowledge, through a free conversation with the QSR about

the case being analyzed, to better understand the situation observed. Above all, we applied an *appointment* type approach, adapting to the date, time, and place (Osborne, Grant-Smith, 2021), set by the QSR. We, as the authors, obtained at our disposal the questionnaire and the results of measuring JC in the selected organization, which we knew was making several efforts for FSC. Since, so far, and to the best of our knowledge, few food organizations in Poland know and understand the essence of JC, the selected example seemed very interesting to us.

General characteristics of the company

The company is located in the north of Poland and specializes in logistics services, handling, and storage of packed frozen seafood products. The company has implemented several non-obligatory management systems, such as ISO 9001 (quality management system), ISO 14001 (environmental management system), and ISO 45001 (occupational health and safety management system). In addition, due to the specific nature of its operations and its global area of cooperation, the company is certified with systems such as IFS (International Featured Systems) Logistics, BRCGS (British Retail Consortium Global Standard) Storage & Distribution, MSC (Marine Stewardship Council) Chain of Custody, and the four-pillar norm by Sedex Members Ethical Trade Audit (SMETA). The company has also implemented legally required systems such as HACCP (Hazard Analysis and Critical Control Point), GMP (Good Manufacturing Practice), and GHP (Good Hygienic Practice). Mandatory and voluntary regulations and standards are the most critical part of international requirements to assure integrated, proactive, risk-based approaches as well as continuous improvement in the food safety management systems (FSMSs) in global food chains (Nguyen, Li, 2022), and IFS and BRCGS requirements directly refer to the need to implement FSC in the organization. The company has 24 employees, employed at three levels of the organizational structure – operational, tactical, and strategic. At the operational level, there are three divisions. The first is directly responsible for food handling, the second for customer service, and the third for technical activities. At the tactical level, there are three divisions responsible for administrative and human resources management, quality assurance, and finance and accounting. At the top of

this structure was the management in the person of the CEO. The processes in the company are supported by IT software – Warehouse Management System that ensures the full traceability of handled products and storage space management.

The tool, the sample, and the statistical analysis

The organization, as a basis for developing a questionnaire to assess JC, created its own unique tool based on the papers by von Thaden and Hoppes (von Thaden, Hoppes, 2005) and Petschonek et al. (Petschonek, Burlison, Cross, Martin, Laver, Landis, Hoffman 2013). The first group of authors created a questionnaire consisting of 20 statements divided into four categories, such as: Reporting Systems; Response and Feedback; Accountability; and Basic Safety, and subsequent authors developed a tool consisting of 27 statements assigned to the following six dimensions: Feedback and Communication; Openness of Communication; Balance; Quality of event reporting process; Continuous Improvement; and Trust. In both cases, a seven-point Likert scale was adopted.

The tool used by the surveyed company consists of 30 statements subordinated to four categories: GEN – General principles (statements: Q1-Q7); REP – Reporting (statements: Q8-Q16); RES – Responsibility (statements: Q17-Q22), and REA – reaction (statements: Q23-Q30), and some of the statements have negative overtones, coded inversely (R – Reverse) (see Table 1).

Table 1. *Statements included in the JC assessment tool.*

No.	Statements
	GEN
Q1	In our company, employees receive the necessary training on safe raw material/food handling
Q2	Raw material/food safety is a priority in our company, regardless of cost
Q3	In our company, employees are provided with the necessary equipment, and materials, to perform their work in a way that ensures the safety of the raw material/food
Q4	In our company, an employee receives the necessary assistance from his or her superiors if he or she has any doubts regarding the observance of food safety rules
Q5	In our company, systematic improvements are being made to raw material/food safety
Q6	When incidents occur that may affect or influence the safety of raw materials/foods, we have clear rules on how to act in such cases
Q7	When incidents occur that may affect or influence the safety of raw materials/foods, they are usually due to human error (R)

REP	
Q8	In our company, every employee can comfortably report errors/incidents threatening the safety of raw material/food observed in others
Q9	In our company, every employee can comfortably report errors/incidents that threaten the safety of raw materials/foods, committed by him/herself
Q10	In our company, every employee can comfortably report errors/incidents that could be a future threat to the safety of raw material/food
Q11	In our company, employees do not have time to report errors/incidents (R)
Q12	The main obstacle to reporting errors/incidents in our company is the fear of being punished (R)
Q13	The main obstacle to reporting errors/incidents in our company is the fear of being accused of denunciation (R)
Q14	The main obstacle to reporting errors/incidents in our company is the belief that this will not translate into an appropriate management response (R)
Q15	Employees in our company would be interested in introducing an anonymous reporting system for errors/incidents that threaten raw material/food safety
Q16	In my company, employees discourage each other from reporting errors/incidents (R)
RES	
Q17	If, in my company, an employee violates procedures, or rules contributing to a raw material/food safety risk, he/she is immediately disciplined by superiors
Q18	If, in my company, an employee violates procedures, or rules contributing to a raw material/food safety risk, he/she is immediately disciplined by other employees
Q19	In our company, disciplining employees by supervisors does little to improve compliance with raw material/food safety procedures and rules (R)
Q20	In our company, disciplining employees by other peer employees does little to improve compliance with raw material/food safety procedures and rules (R)
Q21	If an employee, through no fault of his/her own, makes a mistake that compromises raw material/food safety, he/she can always count on management support and an appropriate explanation of the matter
Q22	If a raw material/food safety incident occurs in our company, the first thing to do is to look for the guilty person (R)
REA	
Q23	In our company, an employee responds immediately to raw material/food safety issues
Q24	If an employee in our company reports raw material/food safety issues, appropriate decisions, and actions are taken immediately
Q25	If a raw material/food safety problem arises in our company, both supervisors and employees take it very seriously
Q26	If a raw material/food safety problem arises in our company, an investigation team is always set up to look at every step in the process to determine how it could have happened
Q27	In our company, positive lessons are learned from mistakes made
Q28	In our company, supervisors' response to a problem is always fair to the employee
Q29	In our company, our superiors discuss with all of us the raw material/food safety problems that arise
Q30	In our company, we know nothing or almost nothing about the errors/incidents that occur and their consequences, which can affect the safety of raw material/food (R)

Source: Own elaboration based on company documentation

Statements are rated on a 5-point Likert scale (where 1 means strongly disagree and 5 means strongly agree, with a value of 3 as neutral). The survey questionnaire was anonymous and completed in paper form, and its metric section allowed the identification of respondents' characteristics such as gender, work experience in the industry, the length of service in the surveyed organization, and education. To avoid discouraging employees, the questionnaire omitted to identify the type of position held. The study did not include gender as a variable, due to the overwhelming predominance of men. In the organization, a total of 24 people were examined. Thus, the entire population was surveyed.

All the paper questionnaires provided by the QSR were statistically analyzed by using IBM SPSS Statistics version 27 software. Cronbach's alpha was calculated to assess the scale of the questionnaire, which is considered reliable if the alpha coefficient is ≥0.700. Descriptive statistics was used in the data analysis to determine the main characteristics of the answers. The Spearman rank correlation coefficient was used to assess the relationship between the answers to the questions in the selected groups.

Results and discussion

Characteristics of respondents

The characteristic of the surveyed population is illustrated in Table 2.

Table 2. *Characteristics of respondents*

Age (years)	Respondents	Seniority (years)	Respondents	Experience (years)	Respondents
<35	25%	<2	8.3%	<3	12.5%
35 – 45	50%	2 – 4	4.2%	3 – 5	16.7%
46 – 55	12.5%	>4	87.5%	6 – 10	41.7%
>55	12.5%			>10	29.1%

Source: Own elaboration based on the study results

As can be seen, half of the employees surveyed were aged between 35 and 45. The vast majority have been employed in this company for more than four years. People with extensive experience in the logistics industry also dominated. Over 70% of employees had over 6 years of experience in this industry.

Seeking answers to research questions and verification of research hypotheses

As mentioned, the survey covered all employees, so they are assumed to constitute the population. The 30 questions included in the questionnaire were divided into four groups: GEN, REP, RES, and REA. All of the analyses below refer to the recorded responses of the whole studied population. Cronbach's alpha coefficient values for all questions together and for individual groups are presented in Table 3. High coefficient values indicate that the respondents' answers to the questions are consistent. Given the results obtained, we were able to confirm that the tool used is reliable and measures what it should measure. Thus, a positive answer to the first research question (RQ1) was achieved.

Table 3. *Cronbach's alpha for the selected group of questions*

Question numbers	Cronbach's alpha
All questions	0.953
Group 1: Q1 – Q7	0.845
Group 2: Q8 – Q16	0.894
Group 3: Q17 – Q22	0.840
Group 4: Q23 – Q30	0.852

Source: Own elaboration based on the study results

The results of our research also allowed us to positively verify the first research hypothesis (H1). The evidence is summarized in Table 4. The following columns concern individual groups of questions and determined values of the median and interquartile deviation. which represents the spread of the middle half of the data set. As can be seen, the diversity of answers to questions in the first group of questions is very small. A clear differentiation can be seen in

the second group, where more than 50% of the employees answered the first six questions at level 5, while the last question was answered at level 1. It is interesting that only for question Q15 a very high differentiation of employees' answers was noticed. As many as 50% of the middle set of answers differed by 3 points. Consistently, the highest median value was obtained in the first three groups and the lowest in the last group.

Table 4. *Characteristics of the answers to the questions*

Group 1 – GEN			Group 2 – REP			Group 3 – RES			Group 4 – REA		
Q	M	ID	Q	M	ID	Q	M	ID	Q	M	ID
Q1	5	1	Q8	5	1	Q17	4	1.25	Q23	5	1
Q2	5	0.25	Q9	5	1	Q18	4	2	Q24	5	1
Q3	5	0	Q10	5	1	Q19	4	1.25	Q25	5	1
Q4	5	0	Q11	5	1	Q20	4	2	Q26	4	1
Q5	5	0.25	Q12	5	1	Q21	5	1	Q27	5	1
Q6	5	1	Q13	5	2	Q22	4	2	Q28	4.5	1
Q7	1.5	1	Q14	5	1				Q29	5	1
			Q15	3	3				Q30	4	1.25
			Q16	4	1.25						

Q – Question; M – Median; ID – Interquartile deviation

Source: Own elaboration based on the study results

Thus, taking into account the median responses in all groups, it was also possible to establish the overall level of JC in the company. The total median is 5 for all questions and all answers. This means that more than half of the studied population has a high level of awareness of the general principles, and the highest ratings are the principles of reporting, responsibility, and proper response in case of an emergency. This result can be seen as a very positive sign of the collective understanding of the company's FS principles (Hofstede, 1991). This is additional evidence supporting hypothesis H1. It can also be considered that the observed reality, confirmed by a positive result, fits into the definition of JC (Reason, 2000; Wiśniewska, 2023). The employees of the

surveyed organization are equally aware, understand the policies in place, and similarly follow the requirements adopted for FS. Their beliefs about JC are overwhelmingly consistent and mutually shared. The above means that the right organizational culture has been built in the organization studied, based on the value of FS and the ability to share knowledge of potential problems, without fear and in confidence. Such an atmosphere is necessary to maintain JC (Powell, 2023). Evaluating the results for the first group of questions (and taking into account the reverse coding), it can be seen that the total score is most understated by respondents' opinions on Q7 (median 1.5 with relatively little variation). According to the answers obtained, over 50% of the surveyed population believes that the threats to the safety of the raw material/food occurring in the company are caused mainly by human errors. At the same time, the differentiation of answers was as much as 2 points. As this aspect is also the least rated in light of all the other statements, this type of observation can certainly be considered worrying. According to Reason's (Reason, 2000) error theory, the fault lies primarily with the system, not the people. Perhaps, in the case under review, this type of belief stems from the view that instructing or disciplining a member of staff can take care of a problem. This is confirmed by the answers to questions Q19 and Q20, and by QSR. However, it is important to remember that disciplining people does not absolve one from looking at the substance and effectiveness of the FSMS in place. This, in the case of the implementation of several systems, is particularly important. Supervision of such systems should be carried out in an integrated and systematic manner (Nguyen, Li, 2022). In the second group of statements, on the other hand, the most underrated opinion concerns an anonymous reporting system (Q15), with a very wide variation in responses. It was against this statement that respondents had little conviction. Half of the employees stated that they had no opinion or disagreed with it, while the other half had no opinion or agreed with it. The average variation in responses was 3 points. During the interview, the QSF confirmed that the reporting system is not yet perfect and that it is not easy to implement it in such a small organization, where employees know each other very well. As the researchers emphasize, the implementation of an anonymous and friendly reporting system and, above all, convincing employees to use this system is one of the conditions for the

success of the JC (Lancaster, Vizgirda, Quinlan, Kingston, 2022). Convincing people, in turn, requires strengthening confidence in that system and its role in the organization (Wiśniewska, 2023). As for the third group, it is noticeable that Q21 increases the score for the other questions. If an employee made a mistake through no fault of his own, he or she could count on the support of the management. It is very positive that more than half of the surveyed population was convinced of this. The answers to the questions in the fourth group were relatively consistent. Firstly, these kinds of observations certainly confirm that employees notice and appreciate that they receive proper support from their supervisors and their engagement when problems arise. This in turn means that an atmosphere has been created for open communication, conducive to a fair assessment of the situation. The above situation fulfills the important conditions for ensuring FS (Griffith, Livesey, Clayton, 2010a, b; Zanin, Stedefeldt, Luning, 2021). According to QSR, employees are not left with a problem, and this causes them to become more involved in ensuring product safety and working to solve the problem. FS communication and management engagement are listed among the main components of the broadly understood FSC (Zanin, Stedefeldt, Luning, 2021). The results gathered in this way provided an answer to the second research question RQ2. One of the questions in the questionnaire concerned work experience measured by the length of experience in the food logistics industry. Therefore, it was examined whether there is a relationship between the work experience of the employees and the answers to particular groups of questions. The values of the calculated Spearman rank coefficients are presented in Table 5. Based on the obtained results, it can be concluded that the indicator values are relatively low, and at the significance level of 0.05, the answers to the questions in any of the groups do not depend on the work experience of the employees. Our results, therefore, do not allow us to confirm the third research hypothesis (H3). This can be considered a very positive sign, as well as proof of the effectiveness of the training that employees undergo in the company. As QSR confirmed, employees are trained, involved, and engaged with the company, with the issues of ensuring product safety, and the awareness of one's role in ensuring FS is shaped from the first moment of employment. Even experienced employees are obliged to undergo systematic refresher training. Especially FS training

does have an impact on the knowledge, attitudes, and behaviors of food handlers (da Cunha, 2021). Due to this fact, the company makes sure that employees believe that their systematic development and commitment count, regardless of experience. QSR points out that employees have a sense of equal treatment and feel valued because of this. The role of these factors in shaping FSC is widely discussed and confirmed by different researchers (e.g. Griffith, Livesey, Clayton, 2010b; Zanin, Stedefeldt, Luning, 2021; da Cunha, 2021).

Table 5. *Spearman's rank correlation coefficients between employee experience and responses to questions in individual groups.*

Group of questions	Correlation coefficient	Significance (2-tailed)
1	-0.028	0.898
2	0.143	0.506
3	0.142	0.508
4	0.154	0.473

Source: Own elaboration based on the study results

In the next step, it was examined whether there is a relationship between the employees' answers to the selected questions. The results are presented in Table 6.

Table 6. *Spearman's rank correlation coefficients between answers to selected questions.*

Selected questions	Correlation coefficient	Significance (2-tailed)
Q1 and Q2	0.593	**0.002**
Q1 and Q23	0.079	0.715
Q2 and Q6	0.594	**0.002**
Q8 and Q22	0.150	0.484
Q9 and Q22	0.192	0.369
Q17 and Q27	0.565	**0.004**

Source: Own elaboration based on the study results

As can be seen, in three cases there is a statistically significant positive correlation between the answers to the selected questions. This means that those employees who undergo the necessary training consider FS to be a priority at the workplace. FS and adequate FS practices must be a priority for every food handler (Zanin, Stedefeldt, Luning, 2021). This condition translates into clear rules of conduct in case of danger. Respondents also believe that if safety procedures are violated, employees are disciplined by their superiors, which positively affects the drawing of conclusions from the mistakes made. A proper and fair response from superiors is critical to keeping JC in the workplace (Reason, 1997; Reason, 2000; Wiśniewska, 2023; Amalia, 2019, Lancaster, Vizgirda, Quinlan, Kingston, 2022). It also fosters a sense of safety and convinces employees that they can always count on their superiors, regardless of the situation. In general, such wide-ranging support can enhance their job satisfaction, self-efficacy, and daily engagement (Pratama, Suwarni, Handayani, 2022). Furthermore, the research confirmed that job satisfaction and self-efficacy translate into a willingness to report incidents (Yu, Sirsat, Neal, 2019). With these observations in mind, it can be confirmed that hypothesis H2 has been positively verified.

Proposals for the company

The research carried out and the results obtained lead us to propose some solutions that can be implemented in the organization to maintain JC. First and foremost, it is necessary to address two observed weaknesses. Although the final result of the assessment allows the level of JC to be considered high, it seems necessary to provide management training (Yu, Sirsat, Neal, 2019; da Cunha, 2021) to enable them to better understand the nature of JC and the fact that the error is not in the staff, but in the system that has been implemented in the organization (Amalia, 2019). Leaders must recognize that employees in their systems may have been personally impacted in untoward ways. As a result, leaders should quickly respond when contemporary issues arise. Addressing safety principles including JC, error disclosure and reporting, near misses, and other FS incidents, all fundamental components of FS ensure a safe work environment, an essential component of workers' well-being (Lancaster, Vizgirda, Quinlan, Kingston, 2022). There are company

leaders who are responsible for establishing and sustaining a JC. This includes understanding what JC is, and the role of leaders in JC implementation, as well as communicating to employees where the line between responsible and irresponsible behavior lies (Lancaster, Vizgirda, Quinlan, Kingston, 2022). Management should also do better work of ensuring staff confidence in the FS error reporting system adopted (Reason, 2000; Dekker, 2022). This system should become an integral part of the organization's existing FSMSs. Therefore, reporting system should also be tested and reviewed on an ongoing basis. JC means open reporting and discussing the safety issues and mistakes, without response to punitive, and also accepting and enforcing consistently the principle that individuals must be held appropriately accountable when they ignore these principles. This follows directly from the essence of JC (Reason, 2000; Amalia, 2019; Dekker, 2022). Therefore, bearing in mind the fact that the company operates in accordance with many management systems serving food quality and safety, it can be proposed that: (1) JC should be firmly embedded in existing FSMSs, especially those that directly refer to the need to implement FSC (IFS, BRCGS), and embedded in quality and food safety policies; (2) employees should be fully aware and trust that JC in the company is not about blaming people, but about learning from mistakes (Reason, 2000); (3) JC assessment, as FSC assessment, should be carried out systematically and its results should be discussed with employees on an ongoing basis (Griffith, Livesey, Clayton, 2010b; Zanin, Stedefeldt, Luning, 2021); (4) JC assessment should be supported by methods such as audits, workplace observations (e.g. by using a standardized observation list), *food safety walks*, and interviews with employees (Hanskamp-Sebregts, Zegers, Boeijen, Westert, van Gurp, Wollersheim, 2013); (5) JC assessment process should be based on the PDCA cycle (Deming, 2012): P – plan the assessment, D – do – assess JC systematically, by the adopted methodology; C – check the results; A – act for the continuous improvement of JC approach.

Conclusions

This study indicates that the questionnaire used by the company to assess JC is a reliable instrument. Thanks to the statistical analysis methods used, we were also able to determine the overall level of JC, as well as identify the weaknesses of JC in the examined organization, such as understanding the role of JC by management and creating an appropriate error reporting system. The results of our research allowed us to confirm hypotheses H1 and H2, according to which, respectively, employees' opinions on the statements in each group of questions are not statistically different from each other, and employees equally perceive the need for necessary training, safety as a priority at work, the convenience of reporting errors, and the need to respond to problems. In turn, hypothesis H3 according to which opinions on JC are dependent on employee work experience has not been confirmed. The presented and analyzed case study also allowed us to propose directions to improve the observed state in the field of JC and to compose them into Deming's PDCA improvement cycle. This approach seems very logical because the company has already implemented systems such as failure 9001 or ISO 14001, based on this cycle. In addition, the PDCA cycle is a typical cycle of structured work to control the regularity and effectiveness of the various stages of activities. We believe that the measurement of JC should become a permanent element of an integrated food quality and safety management system in the company, especially since standards such as IFS or BRCGS introduced the requirement for FSC, of which JC is a key element.

The results of our study have implications for science, as they expand knowledge in JC research and de facto about JC assessment tools. Our tool can be recommended to other researchers as part of comparative research conducted in organizations of similar size and specificity of operation. We believe that by taking up this topic, we have filled the identified research gap. We recognize this element as an original contribution to scientific knowledge.

As implications for practice, we believe that the results of our work are the starting point for improvement in the examined organization, and the tool itself can be used to evaluate its suppliers in terms of JC.

The findings of this study must be seen in the light of some limitations. The obtained results concern only the studied company with a given industry specificity. A factor that may affect the overall result of JC is certainly a high degree of the company's commitment to food safety management in the systemic approach. Therefore, in the future, it is necessary to check whether the tool will also be adopted by companies of different sizes, specificity of operation, and systemic maturity.

References

Amalia, D. (2019). Promoting Just Culture For Enhancing Safety Culture In Aerodrome Airside Operation, 8, 260-266. International Journal of Scientific & Technology Research.

Chavez, P.J.A., Seow, C. (2012). Managing Food Quality Risk in Global Supply Chain: A Risk Management Framework, 4(1), 1-8. International Journal of Engineering Business Management.

Cooper M.D. (2000). Towards a model of safety culture, 36, 111-136. Safety Science.

da Cunha, D.T. (2021). Improving food safety practices in the foodservice industry, 42, 127-133. Current Opinion in Food Science.

Dalglish, S.L., Khalid, H., McMahon, S.A. (2020). Document analysis in health policy research: the READ approach, 35(10), 1424–1431. Health Policy and Planning.

Deepak, M.D., Mahesh, G. (2023). Demystifying the Recent Trends and Advances in Safety Culture Research: A Systematic Review. In: R.Y.M. Li (Ed.), Construction Safety: Economics and Informatics Perspectives, 165-182. Springer.

Dekker, S. (2022). Introduction to Restorative Just Culture. In: S. Dekker, A. Oates, J. Rafferty (Eds.), Restorative Just Culture in Practice, 1-20. Productivity Press.

Deming, W.E. (2012). Wyjście z kryzysu. Opex.Books.pl.

GAIN Working Group. (2004). A road map to a just culture: enhancing the safety environment. Access 14.06.2023 from https://flightsafety.org/files/just_culture.pdf

Griffith, C.J., Livesey, K.M., Clayton, D. (2010a). Food safety culture: the evolution of an emerging risk factor?, 112(4), 426-438. British Food Journal.

Griffith, C.J., Livesey, K.M., Clayton, D. (2010b). The assessment of food safety culture, 112(4), 439-456. British Food Journal.

Guldenmund, F.W. (2000). The nature of safety culture: a review of theory and research, 34(1–3), 215-257. Safety Science.

Hanskamp-Sebregts, M., Zegers, M., Boeijen, W., Westert, G.P., van Gurp, P.J., Wollersheim, H. (2013). Effects of auditing patient safety in hospital care: design of a mixed-method evaluation, 13, 226. BMC Health Service Research.

Hofstede, G. (1991). Cultures and organizations: Software of the mind. McGraw-Hill.
Khan, I., Ming, J., Ali, A., Zhang, Z. (2022). Influence of government supports on small and medium enterprises development: Case study of Swat Valley, 60(6), 1484-1515. Journal of Small Business Management.
Kucharska, W., Rebelo, T. (2022). Knowledge sharing and knowledge hiding in light of the mistakes acceptance component of learning culture – knowledge culture and human capital implications, 29(6), 635-655. The Learning Organization.
Lancaster, R.J., Vizgirda, V., Quinlan, S., Kingston, M.B. (2022). To Err Is Human, Just Culture, Practice, and Liability in the Face of Nursing Error, 20(5), 517-521. Nurse Leader.
Marx, D. (2009). Whack-a-Mole: The Price We Pay for Expecting Perfection. McGraw-Hill.
Mulcahy, L., Rossner, M., Tsalapatanis, A. (2021). It's about time: investigating the temporal in socio-legal studies through unstructured interviews, 48(1), 104-117. Journal of Law and Society.
Nguyen, T.T.B., Li, D. (2022). A systematic literature review of food safety management system implementation in global supply chains, 124(10), 3014-3031. British Food Journal.
Osborne, N., Grant-Smith, D. (2021). In-Depth Interviewing. In S. Baum (Ed.), Methods in Urban Analysis. Cities Research Series, 105-125. Springer.
Petschonek, S., Burlison, J., Cross, C., Martin, K., Laver, J., Landis, R.S., Hoffman, J.M. (2013). Development of the just culture assessment tool: measuring the perceptions of health-care professionals in hospitals, 9(4), 190–197. Journal of Patient Safety.
Powell, M. (2023). Comparing perspectives on organisational silence: an analysis of the Gosport inquiry, 37(1), 67-83. Journal of Health Organization and Management.
Pratama, E.N., Suwarni, E., Handayani, M.A. (2022). The Effect Of Job Satisfaction And Organizational Commitment On Turnover Intention With Person Organization Fit As Moderator Variable, 6(1), 74–82. APTISI Transactions on Management (ATM).
Reason, J. (1997). Managing the Risks of Organizational Accidents. Routledge.
Reason, J. (2000). Human error: Models and management, 172(6), 393-395. Western Journal of Medicine.
Rifat, M.A., Talukdar, I.H., Lamichhane, N., Atarodi, V., Alam, S.S. (2022). Food safety knowledge and practices among food handlers in Bangladesh: A systematic review, 142, 109262. Food Control.
Sharman, N., Wallace, C.A., Jespersen, L. (2020). Terminology and the understanding of culture, climate, and behavioral change – Impact of organizational and human factors on food safety management, 96, 13-20. Trends in Food Science & Technology.
von Thaden, T.L., Hoppes, M. (2005). Measuring a just culture in healthcare professionals: Initial survey results. Understanding and creating a just culture for patient safety. International audio conference, Risk Management and Patient Safety Institute, Lansing, MI, USA.

Winton, B.G., Sabol, M.A. (2022). A multi-group analysis of convenience samples: free, cheap, friendly, and fancy sources, 25(6), 861-876. International Journal of Social Research Methodology.

Wiśniewska, M. (2023). Just culture and the reporting of food safety incidents, 125(1), 302-317. British Food Journal.

Yiannas, F. (2009). Food safety culture. Creating a behavior-based food safety management system. Springer.

Yu, H., A. Sirsat, S., Neal, J.A. (2019). Linking food safety training with whistle-blowing: The mediation roles of job satisfaction and self-efficacy, 31(1), 141-160. International Journal of Contemporary Hospitality Management.

Zanin, L.M., da Cunha, D.T., de Rosso, V.V., Capriles, V.D., Stedefeldt, E. (2017). Knowledge, attitudes and practices of food handlers in food safety: An integrative review, 100(1), 53-62. Food Research International.

Zanin, L.M., Stedefeldt, E., Luning, P.A. (2021). The evolvement of food safety culture assessment: A mixed-methods systematic review, 118(Part A), 125-142. Trends in Food Science & Technology.

Zohar, D. (1980). Safety climate in industrial organisations: Theoretical and applied implications, 65(1), 96–102. Journal of Applied Psychology.