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## **The effect of Psychological Safety on Employee Innovation in Food Industries in Egypt: the moderating role of Marital Status**

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## **The effect of Psychological Safety on Employee Innovation in Food Industries in Egypt: the moderating role of Marital Status**

### **Abstract:**

Rapid developments in the business environment have led to the need for organizations to develop the employee innovative behavior to remain competitive. So, the current study mainly sought to investigate the impact of psychological safety on employee innovation in food companies in Egypt. Based on a survey list that collected data from a sample of (243) employees in the selected food companies, the results indicated that psychological safety has a positive impact on employee innovation and its three dimensions, namely idea generation, idea promotion and idea realization. In addition to that, it was found that Marital Status moderates the relationship between Psychological Safety and Employee Innovation. as, it has been shown that this positive relationship between psychological safety and employee innovation is greater among married people than among single ones. This is because married people are more stable in their families, which enhances a part of their psychological safety. Thus, some recommendations were presented, and some future studies were suggested.

**Keywords:** *Psychological Safety, Employee Innovation Behavior, Food Industries*

## تأثير السلامة النفسية على ابتكار العاملين في شركات الأغذية في مصر: الدور المعدل للحالة الاجتماعية

### الملخص

أدت التطورات السريعة في بيئة الأعمال إلى حاجة المنظمات إلى تطوير السلوك الابتكاري للموظفين لتظل قادرة على المنافسة، لذا سعت الدراسة الحالية بشكل أساسي إلى التعرف على أثر السلامة النفسية على ابتكار العاملين في شركات الأغذية في مصر، وبناءً على قائمة استقصاء موجهة لعينة قوامها (٢٤٣) موظفًا في شركات الأغذية محل الدراسة، خلصت النتائج إلى أن للسلامة النفسية تأثير إيجابي على ابتكار العاملين بأبعاده الثلاثة (إنتاج الفكرة - ترويج الفكرة - تطبيق الفكرة)، بالإضافة إلى ذلك فقد تبين أن الحالة الاجتماعية تعدل العلاقة بين السلامة النفسية والابتكار الوظيفي. إذ تبين أن هذه العلاقة الإيجابية بين الأمان النفسي والابتكار الوظيفي تكون أكبر عند المتزوجين منها عند العزاب. وذلك لأن المتزوجين أكثر استقراراً في أسرهم، مما يعزز جانباً من أمانهم النفسي. وفي ضوء ذلك تم تقديم عدد من التوصيات واقتراح بعض الدراسات المستقبلية.

## **1. Introduction:**

Change is one of the most prominent facts in this era as can be observed in the technological, economic, social, cultural fields, and even in behavior. Today's organizations face various consecutive circumstances and variables while attempting to perform activities in an efficient and effective way. The needs of customers have increased, the pace of technological progress and globalization has accelerated, and the competition has become more intensified between organizations (Elsayed et al., 2023). In addition to the increasing ambitions and expectations of employees, those challenges are deemed the pivotal factor to evaluate the ability of the administrative apparatus to cope with such circumstances and this necessitates searching for new ways to keep up with the current developments (Cao et al., 2022). The best measures to confront those challenges are reflected in several forms and methods; the most significant of which is paying attention to the behaviors of individuals. Moreover, improving the ability of individuals to innovate is one of the fundamental factors on which the organizations' success and survival depends (Zhou et al., 2021).

Rapid developments in the business environment have led to the need for organizations to develop the employee innovative behavior to remain competitive (Wang and Dass, 2017). Employee innovative behavior leads to the emergence of new ideas that help achieve excellence at the organization level, which is necessary to increase organizational effectiveness and support the level of competitive advantage to ensure organization' survival (Shaan et al., 2023).

Therefore, organizations must pay attention to developing employee innovation and developing their skills to develop services and products and solve problems in new ways, which is referred to as employee innovative behavior. Employee innovative behavior has recently received widespread attention among researchers in search of ways to activate and develop it among employees in organizations (Huo et al., 2023). This has been the reason why organizational scholars tried to identify the factors that enhance employees' desire to innovate and invest their energies into work (Kahn, 1990; Liu et al., 2023). Psychological safety, or the belief that the workplace is safe for risk taking (Frazier et al., 2017; O'donovan and McAuliffe, 2020), is the key cognitive state that came up as the major factor that facilitates the innovative behavior of employees and speeds their learning process.

Nowadays, life at work urges individuals to play a significant role, speak up, come up with new ideas, constantly learn and not to suffice with what they know already. Nevertheless, in a complex and dynamic world that is full of various problems, the risk of making mistakes, not showing perfection, and perhaps becoming under the unfavorable light in others' eyes (Wang et al., 2021) have becomes obvious. This highlights the significance of psychological safety as a major aspect that should exist so as employees feel safe at work and this helps them to develop, learn, become involved and take an active part in a rapidly changing world (Sjöblom et al., 2022).

Psychological Safety is considered one of the modern concepts that have emerged to address the cases of anxiety, fear, and confusion that many employees suffer from today considering the challenges and workloads (Tahir et al., 2022; Aboramadan and Kundi, 2023). This focuses on enhancing employees' feelings of reassurance and security, which is one of the most prominent basic psychological needs of employees that enhances their self-confidence (Kızrak et al., 2023).

Psychological safety made its first appearance in the organizational sciences at the hands of Schein and Bennis (1965) nearly a half century ago. However, practical studies focusing on this aspect have recently increased (Plester and Lloyd, 2023). Previous literature in the field has generally suggested that psychological safety helps employees "to feel safe at work in order to grow, learn, contribute, and perform effectively in a rapidly changing world" (Edmondson and Lei, 2014; Liu et al., 2023).

Recently, psychological safety research has boomed, and though there is empirical support that reflects the pivotal role of psychological safety in the workplace (Elsayed et al., 2023), many critical questions remain about how psychological safety affects employee innovation, especially in Food Industries in Egypt, which adds special importance to the current study.

## **2. The Exploratory Study**

To accurately determine the study problem, the researcher conducted in-depth interviews with managers and some factory workers (Dahab Pasta Factory and Cookers Factory in Alexandria) in order to get to know the research topic from a practical perspective as well as to precisely define the research problem and then formulating it into a set of questions. The researcher began by conducting in-depth personal interviews and talking with about 25 employees and five managers

and asked them about the extent to which they felt safe and free from fear and anxiety while working, as well as about the presence of an atmosphere that supports and encourages them to present innovative ideas. Their answers indicated the following:

- 80% from Employees do not feel sufficiently secure in factories, especially in light of work conditions and contracts that allow the employer to easily dismiss them.
- There is a constant fear among 75% from employees of losing or leaving their jobs.
- 70% from Employees are reluctant to submit proposals and ideas for work, especially since the general climate in the factories is not conducive to submitting them or considering them with interest.
- 70% from Employees notice that management does not encourage them enough to think freely and comfortably about various problems and work procedures if they try to simplify them.
- 80% from Employees suffer from some pressures related to the conflict between job requirements and family, in addition to the conflict between job requirements and the few resources they receive in exchange for work.
- 70% from Employees believe that they are restricted by systems that do not help them apply all their experience and knowledge at work.
- 75% from Employees confirm that the work system is not flexible enough to allow all employees to develop methods for carrying out their work tasks in accordance with developments in the industry, but they must wait for these methods to be instructions from management only.

### **3. Research Problem and Questions**

The food industry is considered one of the important pillars of the industrial sector in Egypt, which addresses an important and vital issue related to human life and food security. The food industry has developed significantly in recent years, and this industry has occupied a major position within the resources and economies of the country. In modern work environment that remarkably depends on many

advances in technology and work tasks that absorb most of the personal time, employees are required to play various roles while retaining the maximum productivity at the same time (Obrenovic et al., 2020).

Considering the growing desires of customers and the accelerating pace of competition between companies at the international level, organizations have paid attention to encouraging innovation and researching various ways to support it. Also, results of the Exploratory Study indicated that the general work climate is not fully prepared for the psychological comfort of employees at a time when these companies are witnessing a decline in the level of innovation on the part of employees.

This requires organizations to be keen on encouraging employees to innovate and develop innovative behaviors in the workplace by enhancing employees' sense of psychological safety. Given the scarcity of studies that addressed the kind of relationship between psychological safety and innovative behavior among workers in the food industry in general and in Egypt in particular, the problem of the study is "the low level of employee innovation in addition to the lack of clarity in the nature of the relationship between psychological safety and employees' innovative behavior". Accordingly, the study problem can be formulated in the following questions:

- What is the level of employee innovation in the food companies under study?
- What is the level of Psychological Safety among employees in the food companies under study?
- Is there an Effect of Psychological Safety on employee innovation behavior in the food companies under study?
- Does marital status moderate the relationship between psychological safety and employee innovation behavior in the food companies under study?

#### **4. Research Objectives**

Based on the related studies presented in this chapter, the objectives of the research are:

- To study the relationship between psychological safety and employee innovation behavior in the food companies under study.
- To investigate the moderating effect of marital status on the relationship between psychological safety and employee innovation behavior in the food companies under study.

## **5. Research Importance**

The researcher reviews the importance of the study, which can be divided into scientific importance and applied importance, as shown in the following:

### **- The Academic Importance**

The importance of this study emerges from the theoretical point of view in its attempts to highlight the role of psychological safety in the development of employee innovation behavior, as a study that contributes to other modern studies tackling the issue of innovation behavior, which still requires digging deeply, analyzing thoroughly, and theoretically exploring its various aspects, and which will help researchers interested in the field to carry out more focused research. By a detailed review of the previous studies, the researcher realized that there is a gap in the research as regards examining the relationship between psychological safety and innovation behavior among workers in the food industries, which adds importance to the study and contributes to the field.

### **- The Practical Importance**

The current study attempts to find a mechanism through which the level of innovative behavior in the food industry in Egypt can be improved, especially taking into account the food crisis that the world will face in the near future.

## **6. Theoretical Frameworks and Hypotheses**

### **6.1 Psychological Safety**

Psychological safety, as a significant concept in management studies, has received great attention recently. The term psychological safety, which was introduced by Edmondson (1999), refers to the freedom one can express his/herself without being afraid of any negative or harmful consequences such as being punished, humiliated, or deported. Recently, the term has been used to refer to the common belief among employees that they need to express their opinions, ask for help or



assistance, dare to take risks, and speak up their minds or feel free to be creative and innovative without fear of being embarrassed, blamed or retributed (Frazier et al. 2017; Plester and Lloyd, 2023).

According to Edmondson et al. (2004), psychological safety is a mental state that allows employees not to be afraid “to express and employ themselves without fear of negative consequences to self-image, status, or career”. Likewise, Edmondson and Lee (2014) defined psychological safety as a common belief among employees that it is safe to take personal risks and to express their thoughts, queries, or worries in the workplace.

Psychological safety epitomizes an environment that is highly safe, full of trust and faith at the interpersonal level of employees, and where the atmosphere at work is reflecting mutual respect and consideration for others’ opinions and ideas, where people can easily express their differences and come up with innovative ideas, without being afraid of being mal-treated, embarrassed or even criticized (Kahn, 1990; Walumbwa and Schaubroeck, 2009). In other words, one may conclude that employees who have a high sense of psychological safety are perhaps less afraid of being adversely affected when they take risks or upon expressing their opinions (Liu et al., 2023).

Nembhard and Edmondson (2006) believe that psychological safety is the fact that people do not feel this kind of limitation that takes place when others reject their ideas or being afraid that any adverse personal consequences may be incurred upon them. On the other hand, Carmeli et al. (2010) define it as the way individuals perceive the consequences of taking risks while dealing with others in any job environment. As for Bond et al. (2010), the psychological safety milieu is defined as referring to how far employees perceive their work environment to be safe on the psychological and social levels.

Liang et al. (2012) define psychological safety as reflecting to what extent individuals believe that either their colleagues or supervisors at work may tolerate their suggestions or opinions without any consequences of being punished or misunderstood if they speak up about freely. Additionally, Bienefeld and Grote (2014) see psychological safety as a state of feeling safe, both at the cognitive and the emotional levels, to give suggestions or admit making mistakes. Kirk-Brown and van Dijk (2016) also view perceived psychological safety as the feeling an individual may have about his/her ability to express him or herself and work

without fear of any adverse consequences on his mental health, position at work, or professional career in general.

Employees' feeling of psychological safety may increase their level of satisfaction with the organization and with the various working conditions (Mitterer and Mitterer, 2023), enhance their level of happiness at work (Aboramadan and Kundi, 2023), which may improve their level of performance and positive behavior (Obrenovic et al., 2020; Wang et al., 2021; and Chughtai, 2022), and makes them more prepared to adopt these proactive strategies Lee, 2022). Also, employees' feeling of psychological safety may reduce the employees' desire to leave and leave the job (Nguyen et al., 2023; and Kızrak et al., 2023), enhances workers' ability and desire to learn as they become more willing to do so (Lee, 2022).

As for the most important determinants of psychological safety, Aboramadan and Kundi (2023) indicated that the emotional culture of joy enhances employees' level of psychological safety in the workplace. While. Liu et al. (2023) indicate that managers adopting an ethical leadership style would enhance ethics and respect in the workplace, which enhances psychological safety and well-being.

Nguyen et al. (2023) confirm that the stronger and positive these relationships are, the more they enhance the workers' sense of psychological safety because they will receive what they give in a framework of respect without insult or anxiety. Also, Elsayed et al. (2023) believe that the presence of a work climate that encourages cooperation, creativity, and innovation would enhance the level of employees' feelings of psychological safety. In addition to, Xu et al. (2023) who suggest that the feeling of envy reduces the feeling of psychological safety among employees, which in turn affects their participation at work. As Chughtai (2022) concludes that employees' tendency to trust their bosses and co-workers would increase and enhance psychological safety in the workplace.

## ***6.2 Employee Innovation Behavior***

Much research has been done on the concept of innovative behavior by several scholars in various fields such as management, psychology, and economics (Schaijk, 2018; Hapsari et al., 2019). Agarwa (2014) claimed that employees are important sources of innovation, and hence, organizational innovation relies heavily on their innovative behaviors. Besides, it is well known that employee innovative behavior revolves around the employee's ability to give free rein to

new ideas and to be capable of applying these innovative ideas to his/her job-related tasks, which leads to better organization performance (Shaalan et al., 2022).

Innovation is further defined by Wang and Dass (2017) as the organization's ability to formulate an innovative vision and put into action new ideas aiming at consolidating the success of the organization in a rapidly changing environment and achieving a sustained competitive edge (qtd. in Shaalan et al., 2023).

Employee innovation behavior is a pivotal aspect of the organization innovation, which is essential to its growth, providing quality service, and ensuring customer satisfaction (Xu and Wang, 2020; Shaalan et al., 2023).

Scott and Bruce (1994) explained that the employee innovation behavior entails being able to recognize and comprehend problems in addition to forming an innovation team that can put innovative ideas into practice and finally make innovative practices commercialized.

Again, employee innovation behavior is defined as the process through which employees form creative and valuable ideas for different workplace situations and endeavor to put them into action (Shi, 2012). Thus, it is a process that includes generating, promoting, and realizing innovative thinking (De Vries et al., 2016; Liu et al., 2023).

Meanwhile, Kleysen and Street (2001) contended that the innovation behavior should be comprehended fully starting from the initial seizing of opportunities to the incorporation of innovative ideas, effecting a multifaceted evaluation of those innovative ideas, providing creative support, and finally, materializing creative ideas. Shen et al. (2017) believed that the concept of employee innovation behavior comprises the generation of innovative ideas at the workplace and then transform those ideas into practice (Lukes and Stephan, 2017).

Therefore, innovative behavior is the process of creating new ideas in an unconventional way of thinking and using all possible ways and methods to provide innovative services that benefit society as a whole within a framework of adventure and risk accompanying change processes.

Janssen (2000) classified innovative behavior into three basic dimensions that can be explained as follows:

- **Idea generation:** What is meant by generating new ideas is a stage during which employees recognize the problems facing organizations and try hard to find innovative solutions to deal with them efficiently. This stage includes generating ideas and choosing appropriate opportunities, and its success depends on creating an available opportunity for employees to express their ideas in the organization with complete freedom (Asurakkody and Shin, 2018). This stage involves the activity of producing and modifying ideas in various areas of the organization (Soetantyo and Ardiyanti, 2018).
- **Idea promotion:** The process of promoting new ideas means to give a complete and free expression of ideas, simplifying and explaining them to everyone to show the benefits they can achieve. This requires full support for new ideas and the establishment of strategic alliances with people who have influential power. Therefore, cooperation and openness must be done with a large number of influential people to accept new ideas and their spread (Hsu and Chen, 2017).
- **Idea realization:** Implementing new ideas means turning them into reality. This requires introducing new products, new processes and work methods, in addition to examining and modifying them. The competencies existing in the organization and the competence and capabilities of individuals help in implementing these ideas, as well as the presence of a work atmosphere in which employees feel safe from the consequences of errors that may occur (Kim et al., 2018).

Innovative behavior represents a prominent issue of concern nowadays; an issue that seeks leadership and encourages innovation and competition. We discuss below the most important consequences resulting from employees enjoying innovative behavior in the workplace (Hsu and Chen, 2017; Kim et al., 2018; Soetantyo and Ardiyanti, 2018; Teng et al., 2020; Zhou et al., 2021; Shaalan et al., 2022; Yao and Hao, 2023; Miao et al., 2023; Luo et al., 2023; Wang and Tang, 2023).

- Innovative behaviours are considered one of the most prominent means for organizations to grow, confront all future problems and repercussions, and respond to the forces of competition.

- Innovative behaviour reveals new ways to reduce the total costs of an organization's activity, rationalize the use of resources, and thus maximize profitability.
- Employees' practice of innovative behaviors would develop products and services and simplify the mechanisms for providing services to customers, which leads the organization to have a competitive advantage among competitors.
- Innovative behaviour improves the level of quality of services and products provided and lead to improving and simplifying the methods of implementing work tasks to ensure the fulfilment of customers' desires and result in their satisfaction.
- Innovation enhances the ability of the organization to adapt to changes in the surrounding environment, ensuring its stability in the future.
- It helps to develop the mental, intellectual and cognitive capabilities of the employees in the organization.
- It contributes to developing and enriching the functional experiences of employees that help them possess the ability and technology and benefit from them.
- It helps the organization to enter new markets by ensuring excellence in services and products.
- Innovative behaviour enhances employees' confidence in them and in their abilities and makes they feel the importance of what they offer.

Given the importance that innovative behavior represents that keeps it always in the minds of leaders of contemporary organizations, many studies have been keen to explore the most prominent mechanisms for improving the level of innovative behavior of employees, where Liu et al. (2023) indicate that workers' feeling of anxiety at work reduces workers' opportunities for positive thinking and innovation. While Ahmad et al. (2023) and Liu et al. (2023) stated that managers' embracing of an ethical leadership style encourages employees to adopt positive and innovative behaviors.

In addition, when the employee has a proactive personality Teng et al. (2020) and Ahmed et al. (2023) and be open to the expertise and experiences of others Liu et al. (2023) and his sense of well-being Miao et al. (2023) and with the support provided by his supervisors Wang and Tang (2023) enhances their level of innovative behavior. Leadership style also affects employees' innovative behavior. Yao and Hao (2023) confirm that the presence of paternal leadership in the workplace makes employees feel comfortable and well-being, which works to enhance the behavior and the innovative work of employees. While Luo et al. (2023) demonstrate that paradoxical leadership encourages workers to excel because they will receive the treatment they deserve. Appreciation thus encourages employees to practice innovative behaviors.

### **6.3 Psychological Safety and Employee Innovation Behavior**

The innovative behavior of employees is not limited to providing new products or services only, but extends to developing the work style, operating methods, and any unique positive behaviors. Liu et al. (2023), Ahmad et al. (2023), and Elsayed et al. (2023) confirm that psychological safety may make employees feel comfortable and well-being and increase their desire to think positively and provide positive behaviors, which enhances their innovative behaviors and constructive ideas. Accordingly, it could be argued that psychological safety may affect innovative behavior, which this current study is trying to be proved.

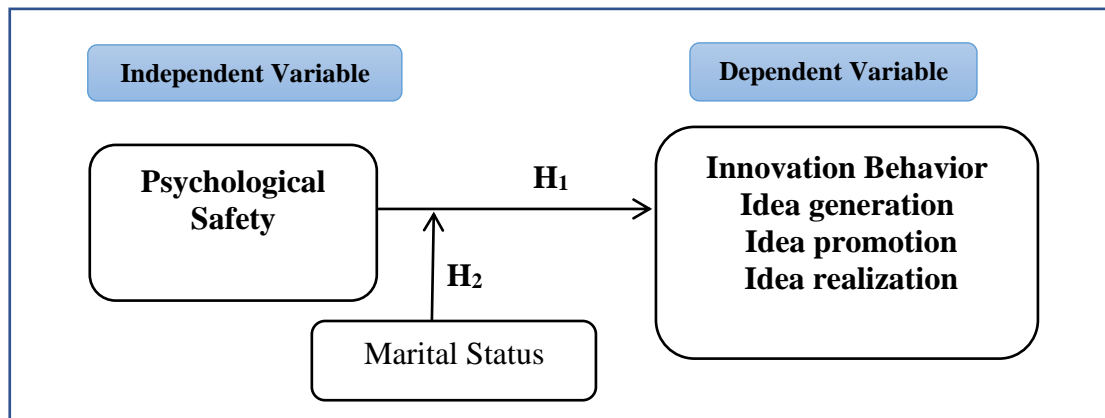
**H1:** Psychological safety influences employee innovation behavior in the food companies under study.

- **H1-1:** Psychological safety influences idea generation in the food companies under study.
- **H1-2:** Psychological safety influences idea promotion in the food companies under study.
- **H1-3:** Psychological safety influences idea realization in the food companies under study.

The researcher believes that the employee's marital status may play a decisive role in his feeling of psychological safety and its reflection on his performance and behavior in general. Accordingly, the second hypothesis of the study can be formulated as follows:

**H2:** Marital status moderates the relationship between psychological safety and employee innovation behavior in the food companies under study.

As a result of the theoretical framework, the research model of the study was shown in Figure 1.



**Fig. 1.1 Research Hypotheses Model**

## **7. Research Population and Sample**

The food industry in Egypt represents one of the most prominent components of the industry and a major source of the Egyptian domestic product, as food industry exports represent about 14% of the total Egyptian export sector, and the food industry sector contributes 24.5% to the gross domestic product and provides about 23.2% of the volume of direct and non-direct labor. There are about seven million workers in Egypt, and the number of companies operating in the food industry sector is about 14 thousand establishments, while investments in the food sector are estimated to be about 500 billion pounds.

The study population represents all employees in the food industry in Egypt, and due to the large size of the corporate community in the food sector under study, the researcher decided to limit himself to employees of El-Bawadi, Harvest, and Grupo AJE companies. Therefore, the size of the study population was 1,331 employees in the three companies under study as shown in table 1.

Considering the population size of the study, which amounted to 1331 employees in the three companies under study, and at a 95% confidence level and +5%



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confidence interval limits of error, the sample percentage was determined by using Steven K. Thompson equation:

$$n = \frac{N \times p(1-p)}{\left[ \frac{(N-1) \times (d^2 \div z^2)}{p(1-p)} \right] + p(1-p)}$$

The sample comprised 299 individuals, distributed among the employees of the three companies under study, considering the proportional representation of each company as displayed in table 1.

**Table 1**  
**Population and Sample of the Study**

Companies	Study Population	%	Study Sample	Number of Respondents	Response Rate
El-Bawadi	844	63.4%	190	155	81.5%
Harvest	360	27%	81	67	82.7%
Grupo AJE	127	9.6%	28	21	75%
<b>Total</b>	<b>1331</b>	<b>100%</b>	<b>299</b>	<b>243</b>	<b>81.2%</b>

*Source: The researcher*

Table 3.1 shows that the number of respondents within the sample was 243, with a response rate of 81.2%.

## 8. Measures

The current study includes two main variables, which are psychological safety and creative behavior. The researcher reviewed these variables and the metrics used to measure them, as follows:

- **Psychological safety (independent variable):** The researcher relied on the scale presented by Liang et al. (2012) to reflect psychological safety. This scale is made up of five statements and was built based on the concept of Edmondson (1999). This scale was used by Wanless (2016), Hu et al. (2018) and Obrenovic et al. (2020).
- **Innovative behavior (dependent variable):** The researcher used a certain scale that was prepared by Scott and Bruce (1994) and developed by Janssen (2000). This scale consists of three main dimensions as follows: idea generation, idea promotion, and idea realization. These dimensions are



measured by nine statements. The researcher relied on this scale because it has a high degree of reliability and validity. Besides, this scale is the most widely used among researchers, such as Lukes and Stephan (2017), Zhou et al. (2019), Teng et al. (2020), Ye et al. (2022), and Shaalan et al. (2022).

## **9. Analysis**

We use SPSS V. 23 and Pls v.3. Throughout the statistical analysis, significance level of 0.05 was taken into consideration. Descriptive statistics was used to present the main characteristics of the sample. For the factor structure of the scales, factor analysis was performed with principal components model and factor loadings were taken into consideration. For the internal consistency of the scales, reliability analysis was performed and coefficient alphas were taken into consideration. Before the regression analysis, in order to test the relationships among variables, Finally, The Partial Least Squares (PLS) method was utilized to verify the second hypothesis, which is one of the Structural Equation Modeling (SEM) methods using the Smart PLS v.3 program. This is to estimate the path model relationships in a way that maximizes the value of the explanatory coefficient (R<sup>2</sup>) for the dependent variable.

## **10. Results**

### **10.1. Validity and Reliability Analysis**

To verify the reliability and validity of the survey content, the extent of internal consistency between items and the ability of the scale to accurately measure what is supposed to be measured have been evaluated according to the following:

#### **10.1.1 Reliability of measures**

The reliability analysis was carried out to investigate how far the questionnaire is consistent internally. Reliability of internal consistency means the consistency of the questionnaire items used in the field study (Hair et al., 2010). Cronbach's Alpha coefficient ( $\alpha$ ) was used as it is the most common employed method of analyzing reliability. Also, Composite Reliability (CR) was used to make sure that each scale is internally consistent.

According to Hair et al. (2010), the value of Cronbach's Alpha coefficient ( $\alpha$ ) and Composite Reliability coefficient (CR) should be greater than 0.7, since this indicates that the scales used are stable and that any item inside the scale must

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have an Item-Total Correlation coefficient greater than 0.30 between itself and the rest of the items on same scale.

**Table.2**  
**Coefficient of Reliability and Validity of Scales**

Items	Item–Total Correlation	Cronbach’s Alpha If Item Deleted	Factor Loadings
Psychological Safety			
1. In my work unit, I can express how I truly feel towards my job.	0.821	0.702	0.862
2. In my work unit, I can freely express my thoughts.	0.815	0.654	0.796
3. In my work unit, expressing one’s true feelings is welcomed.	0.862	0.722	0.832
4. No one in my unit may pick on me even if I have different opinions.	0.797	0.691	0.897
5. I am worried that expressing true thoughts in my workplace would be harmful to me.	0.792	0.770	0.884
Results of the Reliability and Validity Tests for Psychological Safety Variable:			
Cronbach's Alpha ( $\alpha$ ) = 0.889	Average Variance Extracted (AVE) = 0.731		
Composite reliability (CR)= 0.931	Square Root of (AVE) = 0.855		
Idea Generation			
1. I provide innovative solutions to solve the company’s business problems.	0.782	0.742	0.878
2. I look for new methods to facilitate job tasks.	0.779	0.684	0.886
3. I have ideas to provide new services to increase customer loyalty towards the company.	0.832	0.459	0.885
4. I am keen to learn about new ideas in my field of specialization.	0.803	0.689	0.857
Results of the Reliability and Validity Tests for Idea Generation Variable:			
Cronbach's Alpha ( $\alpha$ ) = 0.856	Average Variance Extracted (AVE) = 0.768		
Composite reliability (CR)= 0.930	Square Root of (AVE) - 0.876		
Idea Promotion			
5. I try to convince others of the importance of the new idea.	0.903	0.711	0.891
6. I try to provide sufficient support for the innovative ideas presented.	0.882	0.753	0.907
7. I seek approval from senior management to implement new ideas.	0.739	0.680	0.873

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Items	Item–Total Correlation	Cronbach’s Alpha If Item Deleted	Factor Loadings
8. I strive to make others excited about new innovative ideas.	0.910	0.764	0.791
Results of the Reliability and Validity Tests for Idea Promotion Variable:			
Cronbach's Alpha ( $\alpha$ ) = 0.911	Average Variance Extracted (AVE) = 0.751		
Composite reliability (CR)= 0.923	Square Root of (AVE) = 0.866		
Idea Realization			
9. I transform innovative ideas into useful applications.	0.847	0.641	0.888
10. I try to bring innovative ideas to work in an organized and thoughtful way.	0.714	0.575	0.847
11. I evaluate the feasibility of innovative ideas presented at work.	0.798	0.720	0.839
12. I try to make innovations part of my work in the company.	0.726	0.704	0.781
Results of the Reliability and Validity Tests for Idea Realization Variable:			
Cronbach's Alpha ( $\alpha$ ) = 0.891	Average Variance Extracted (AVE) = 0.705		
Composite reliability (CR)= 0.905	Square Root of (AVE) = 0.839		
Results of the Reliability and Validity Tests for Employees' Innovative Behaviors Variable:			
Cronbach's Alpha ( $\alpha$ ) = 0.925	Average Variance Extracted (AVE) = 0.741		
Composite reliability (CR)= 0.971	Square Root of (AVE) = 0.861		

• **Reliability of Psychological Safety:**

To have the internal consistency of psychological safety measurement verified and since it focuses on the internal consistency of the contents of each test subject, Cronbach's Alpha and Composite Reliability (CR) were used to confirm each scale internal consistency (Hair et al., 2010).

Table 2 indicates that all the statements on the scale of psychological safety have a correlation coefficient higher than 0.30, and therefore it was decided not to exclude any of its items. It was also found that the Cronbach's Alpha coefficient ( $\alpha$ ) = 0.889 and the Composite Reliability coefficient (CR) = 0.931. Since the

value of Cronbach's Alpha coefficient and the Composite Reliability coefficient is higher than 0.7, the stability of the psychological safety scale used in the study is confirmed.

- **Reliability of Employee Innovative Behaviors:**

Because of its focus on the internal consistency between the contents of each test subject, the internal consistency of Employee Innovative Behaviors was verified using Cronbach's Alpha and Composite Reliability (CR) to ensure the internal consistency of each scale (Hair et al., 2010).

Table 2 illustrated that all the statements of Employee Innovative Behaviors scale have a correlation coefficient higher than 0.30, and therefore it was decided not to exclude any of the items of the scale. It was also found that the value of Cronbach's Alpha coefficient ( $\alpha$ ) = 0.925, and that of Composite Reliability coefficient (CR) = 0.971. Hence, both values of Cronbach's Alpha coefficient and Composite Reliability coefficient are greater than 0.7.

It was also found that the alpha coefficient for the dimensions of Employee Innovative Behaviors scale (Idea Generation, Idea Promotion, and Idea Realization) was (0.856), (0.911) and (0.891), respectively. It was also found that Composite Reliability coefficient (CR) for the dimensions of Employee Innovative Behaviors scale (Idea Generation, Idea Promotion, and Idea Realization) was (0.930), (0.923), and (0.905), respectively, which indicates the stability of the Employee Innovative Behaviors scale used in the study.

As one can notice from the previous analysis, all the scales that had been used in the questionnaire of this study had a relatively high score of reliability coefficients. This could ensure that the items of the questionnaire are highly consistent internally.

#### **10.1.2 Validity of measures**

Validity of measures indicates the extent of the truthfulness of the survey terms in measuring what it is designed for, and it gives the participant the same meaning that the researcher intended. For validity testing, the researcher relied on the honesty test on Content Validity, Convergent Validity and Discriminant Validity. As shown in Table 2, this indicates the following:

- **Content Validity:** It refers to the extent according to which an assessment instrument is considered relevant to, and representative of, the target construct it is designed to measure. In order to ensure the validity of survey statement, both scientifically and practically, the survey was presented to Supervising professors, in addition to being presented to 20 employees of Al-Bawadi Company under study, and the initial test was conducted through interviewing the arbitrators and taking into account their observations on Some words and expressions mentioned in the survey list and amend them based on those observations and to serve the nature of the study.
- **Convergent Validity:** It is supporting evidence of the construct validity. The idea underlying convergence validity is that the test related to the construct should be highly correlated. It refers to the extent of convergence and compatibility of measurement phrases with each other when measuring the same dimension or variable and it also indicates that the related measures in theory must be linked in practice. This is done by checking the values of Factor Loadings, which should not be less than (0.7), and the value of Average Variance Extracted (AVE) for each variable should be greater than (0.5) (Hair et al., 2010).

The results displayed in table 2 indicate that the values of Factor Loadings for all statements are greater than 0.7 and all these values are significant at the level of significance 0.05, and the value of the Average Variance Extracted (AVE) for each variable (psychological safety - employee innovative behaviors and their dimensions) is greater than 0.7 to indicate that the items of the study instrument used in measuring the study variables are characterized by Convergent Validity and that they are related in practice.

- **Discriminant Validity:** In order to measure the spacing or the similarity of the variables between the measures used to measure each of the study variables and that each variable represents itself and the Discriminant Validity can be calculated by the Fornell-Larcker coefficient, which is calculated through the square root of the average value of the variance extracted (AVE), the value of the Fornell-Larcker coefficient must be greater than the correlation coefficients between the same variable and other variables (Hair et al., 2010).

From tables 2 and 3, it becomes clear that the value of the Fornell-Larcker coefficient is greater than the correlation coefficients between the variable and

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other variables shown in the rows and columns. This indicates that the study tool is characterized by Discriminant Validity since it confirms that there is no overlap or common correlation between the study variables.

Accordingly, it becomes evident that the measures used in the current study all have a high degree of reliability and validity.

## **10.2 Descriptive Analysis**

In this part, the researcher performs a descriptive analysis of the variables and the sample of the study.

### **10.2.1 Descriptive analysis of the study sample**

The researcher described the findings obtained from the survey by calculating the values of the percentages of repetitions of the demographic variables in the survey. Table 3, illustrates the sample distribution according to demographic variables.

**Table 3**  
**Descriptive Analysis of the Study Sample Characteristics**

<b>Demographic Variables</b>	<b>Sub Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	Male	168	69.1%
	Female	75	30.9%
<b>Age</b>	Under 25 years old	78	32.1%
	From 25 to less than 40 years old	89	36.6%
	From 40 to less than 50 years old	52	21.4%
	50 years and over	24	9.9%
<b>Duration of Experience</b>	Less than 10 years	132	54.3%
	From 10 to less than 20 years	64	26.4%
	From 20 to less than 30 years old	36	14.8%
	30 years and over	11	4.5%
<b>Managerial Level</b>	Top Management	9	3.7%
	Middle Management	67	27.6%
	Lower Management	167	68.7%
<b>Marital Status</b>	Single	58	23.9%
	Married	152	62.5%
	Otherwise	33	13.6%

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<b>Educational Level</b>	Postgraduate Studies	38	15.6%
	University Education	137	56.4%
	Pre-University Education	68	28%

The number of sample members was (243), most of them male (69.1%), while the ages of the majority of the sample ranged between 25 and 40 years (36.6%), while the majority of the sample was less than 10 years old. Years of experience, so most of them work at the lowest managerial level (68.7%). Most of the sample members were married (62.5%) and held a university degree.

#### 10.2.2 Descriptive analysis of the study variables

In the following section, the researcher presents descriptive statistics for study variables (Psychological Safety and Employee Innovative Behaviors).

**Table 4**  
**Descriptive Analysis of Psychological Safety Variable**

<b>Statements</b>	<b>Mean</b>	<b>Std. Deviation</b>
1. In my work unit, I can express how I truly feel towards my job.	2.934	0.756
2. In my work unit, I can express my thoughts freely.	3.112	0.826
3. In my work unit, to express one's true feelings is welcomed.	2.856	0.659
4. No one in my unit may pick on me even if I express different opinions.	2.998	0.755
5. I am worried that expressing true thoughts in my workplace would be harmful to me.	3.258	0.843
<b>Psychological Safety</b>	<b>3.0316</b>	<b>0.703</b>

From the descriptive analysis of the psychological safety variable in Table 4, it becomes clear to the researcher that the level of employees' feeling of psychological safety in general in the companies under study has reached an average level, as its arithmetic mean reached (3.03) with a standard deviation of (0.703).

Thus, it has become evident that the companies under study do not pay extensive attention to the psychological state and psychological safety of employees, which may cause employees to lose their sense of importance at work and the feasibility

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of their jobs and their opinions and proposals, which may make them disappointed with their work.

**Table 5**  
**Descriptive Analysis of Employee Innovative Behaviors Variable**

Statements	Mean	Std. Deviation
<b>Idea Generation</b>	<b>3.123</b>	<b>0.756</b>
1. I provide innovative solutions to solve the company's business problems.	2.998	0.634
2. I look for new methods to facilitate job tasks.	3.106	0.618
3. I have ideas to provide new services to increase customer loyalty towards the company.	3.346	0.586
4. I am keen to learn about new ideas in my field of specialization.	3.041	0.766
<b>Idea Promotion</b>	<b>3.005</b>	<b>0.811</b>
5. I try to convince the others of the significance of the new idea.	2.869	0.665
6. I try to provide sufficient support for the innovative ideas presented.	2.993	0.493
7. I seek approval from senior management to implement new ideas.	3.053	0.816
8. I strive to make others excited about new innovative ideas.	3.106	0.685
<b>Idea Realization</b>	<b>3.018</b>	<b>0.642</b>
9. I transform innovative ideas into useful applications.	3.109	0.716
10. I try to bring innovative ideas to work in an organized and thoughtful way.	2.889	0.589
11. I evaluate the feasibility of innovative ideas presented at work.	3.201	0.659
12. I try to make innovations part of my work in the company.	2.873	0.721
<b>Employee Innovative Behaviors</b>	<b>3.048</b>	<b>0.671</b>

From the descriptive analysis of the employee innovative behaviors variable in table 5, it becomes clear to the researcher that the innovative behaviors of employees in the companies under study from the employees' point of view have



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reached an average level, with the mean reaching (3.04) and a standard deviation of (0.671). Moreover, its dimensions (idea generation, idea promotion, idea realization) were at an average level, as the arithmetic mean was (3.12), (3), (3.01), respectively, with a standard deviation of (0.756), (0.811), (0.642), respectively.

This indicates that the innovative behaviors of employees in the companies under study do not rise to the required level, as they do not care about presenting new and innovative ideas and do not try to market, disseminate and defend those ideas among their colleagues and the management of those companies. This may be due to several reasons including the work climate or the prevailing culture or psychological state among employees.

### 10.2.3 Descriptive analysis of the relation between study variables

Before testing the study hypotheses, the researcher used correlation analysis to describe the nature of the relation between variables. Table 6 illustrates the results of using the Pearson correlation coefficient concerning the relationship that exists between the study variables, whereas the closer the value of the correlation coefficient is to one, the more evidence of the strength of the correlation between both variables.

**Table 6**  
**Correlation Coefficients Matrix**

<b>Variables</b>	<b>Psychological Safety</b>	<b>Idea Generation</b>	<b>Idea Promotion</b>	<b>Idea Realization</b>	<b>Employee Innovative Behaviors</b>
<b>Psychological Safety</b>	1				
Idea Generation	0.614**	1			
Idea Promotion	0.541**	0.762**	1		
Idea Realization	0.433**	0.817**	0.783**	1	
<b>Employees' Innovative Behaviors</b>	0.563**	0.845**	0.889**	0.877**	1

**\*\* It indicates significant at the level of statistical significance 0.0001.**

Based on table 6, there exists a positive and statistically significant relationship between the three dimensions of psychological safety, and the correlation coefficients ranged between (0.762) and (0.817). Also, there is a statistically positive relationship between both the psychological safety and the employee

innovative behaviors, where the value of the correlation coefficient is (0.563), in addition to the positive statistical relation between employee innovative behaviors dimensions and psychological safety.

It is evident from the above findings that there exists a positive and statistically significant relationship between the study variables and thus it is possible to test the first hypothesis.

### 10.3 Hypothesis Testing Results

The researcher presents the following most important results of the study hypothesis test with an analysis and discussion, and they were divided into two main groups, each of those was devoted to testing one of the main two study hypotheses.

#### 10.3.1 First hypothesis testing results

The first hypothesis discusses the extent impact of Psychological Safety on employee innovation behavior according to employees' perception under study. This states, **"Psychological safety has an effect on employee innovation behavior in the food companies under study"**. To test that hypothesis and its sub-hypotheses, the researcher used Simple Regression Analysis because of its ability to demonstrate the effect of an independent variable on a dependent one, and the simple regression analysis test was used at the level of 5% significance. The researcher explains in table 7 the results of simple regression analysis to effect of the independent variable (psychological safety) on employee innovation behavior as a dependent variable.

**Table 7: Results of Simple Regression Analysis  
for Psychological Safety on Employee Innovation Behavior**

Dependent Variable	Independent Variable	B	T-Value	Sig.
Employee Innovation Behavior	(Constant)	1.531	4.542	0.000
	Psychological Safety	0.563	9.246	0.000
<b>R= 0.563</b> <b>R<sup>2</sup> = 0.317</b>		<b>F- Value = 88.656</b> <b>Sig = 0.000</b>		

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Table 7 shows that psychological safety positively and significantly affect employee innovation behavior from the perception of the employees under study, as the regression coefficient reached (0.563) at the level of significance 0.000, while F- value reached (88.656) with a significant level of (0.000), which is less than (1%). That means that the model is valid to predict the values of the dependent variable (Employee Innovation Behavior).

To further clarify the effect of psychological safety on each of the dimensions of employee innovation behavior, a simple regression analysis was used at the 1% significance level to test the three sub-hypotheses of the first hypothesis as shown in tables 8, 9 and 10.

#### **10.3.1.1 First sub-hypothesis testing results**

The first sub-hypothesis discusses the extent impact of Psychological Safety on idea generation according to employees' perception under study. This states, **“Psychological safety influences idea generation in the food companies under study”**. The researcher used Simple Regression Analysis to test that hypothesis. He explains in table 4.6 the results of simple regression analysis showing the effect of the independent variable (psychological safety) on idea generation as a dependent variable.

**Table 8: Results of Simple Regression Analysis  
for Psychological Safety on Idea Generation**

Dependent Variable	Independent Variable	B	T-Value	Sig.
Idea Generation	(Constant)	1.696	3.441	0.000
	Psychological Safety	0.614	13.846	0.000
<b>R= 0.614</b> <b>R<sup>2</sup> = 0.376</b>		<b>F- Value = 106.963</b> <b>Sig = 0.000</b>		

Table 8 shows that psychological safety has a positively significant effect on idea generation from the perception of the employees under study, as the regression coefficient reached (0.614) at the level of significance 0.000, while F-value reached (106.963) with a significant level of (0.000), which is less than (1%). This means that the model is valid to predict the values of the dependent variable (Idea Generation).

In light of the above, it is possible to accept the first sub-hypothesis of the study, which states that **"Psychological safety influences idea generation in the food companies under study"**.

#### 10.3.1.2 Second sub-hypothesis testing results

The second sub-hypothesis discusses the extent impact of Psychological Safety on Idea Promotion according to employees' perception under study. This states that **"Psychological safety influences idea promotion in the food companies under study"**. The researcher used Simple Regression Analysis to test that hypothesis. In table 9, the researcher explains the results of simple regression analysis to see the effect of the independent variable (psychological safety) on idea promotion as a dependent variable.

**Table 9: Results of Simple Regression Analysis  
for Psychological Safety on Idea Promotion**

Dependent Variable	Independent Variable	B	T-Value	Sig.
Idea Promotion	(Constant)	1.982	3.992	0.000
	Psychological Safety	0.541	8.464	0.000
<b>R = 0.541</b> <b>R<sup>2</sup> = 0.292</b>		<b>F-Value =78.163</b> <b>Sig = 0.000</b>		

Table 9 shows that psychological safety has a positively significant impact on idea promotion from the perception of the employees under study, as the regression coefficient reached (0.541) at the level of significance 0.000, while F-value reached (78.163) with a significant level of (0.000), which is less than (1%). That means that the model is valid to predict the values of the dependent variable (Idea Promotion).

In light of the above, it is possible to accept the second sub-hypothesis of the study, which states that **"Psychological Safety influences Idea Promotion in the food companies under study"**.

#### 10.3.1.3 Third sub-hypothesis testing results

The third sub-hypothesis discusses the extent impact of Psychological Safety on Idea Realization according to employees' perception under study. This states that **"Psychological safety influences idea realization in the food companies under study"**. The researcher used Simple Regression Analysis to test that hypothesis. He explains in table 10 the results of Simple Regression Analysis of the impact of the independent variable (psychological safety) on idea realization as a dependent variable.

**Table 10: Results of Simple Regression Analysis  
for Psychological Safety on Idea Realization**

Dependent Variable	Independent Variable	B	T-Value	Sig.
Idea Realization	(Constant)	1.771	2.934	0.000
	Psychological Safety	0.433	6.796	0.000
<b>R= 0.433</b> <b>R<sup>2</sup> = 0.187</b>		<b>F- Value = 61.214</b> <b>Sig = 0.000</b>		

Table 10 shows that psychological safety has a positive significant effect of on idea realization from the perception of the employees under study, as the regression coefficient reached (0.433) at the level of significance 0.000, while F-value reached (61.214) with a significant level of (0.000), which is less than (1%). That means that the model is valid to predict the values of the dependent variable (idea realization).

In light of the above, it is possible to accept the third sub-hypothesis of the study, which states that **"Psychological safety influences idea promotion in the food companies under study"**.

Accordingly, it is possible to accept the first main hypothesis of the study, which states that **"Psychological safety influences employee innovation behavior in the food companies under study"** and accept its sub-hypotheses.

### **10.3.2 Second hypothesis testing results**

The second hypothesis discusses the impact of demographic characteristics as moderator variables on the relationship that exists between psychological safety and employee innovation behavior based on the perception of the employees under study. This states that **"the Marital Status moderate the relationship**

between psychological safety and employee innovation behavior in the food companies under study".

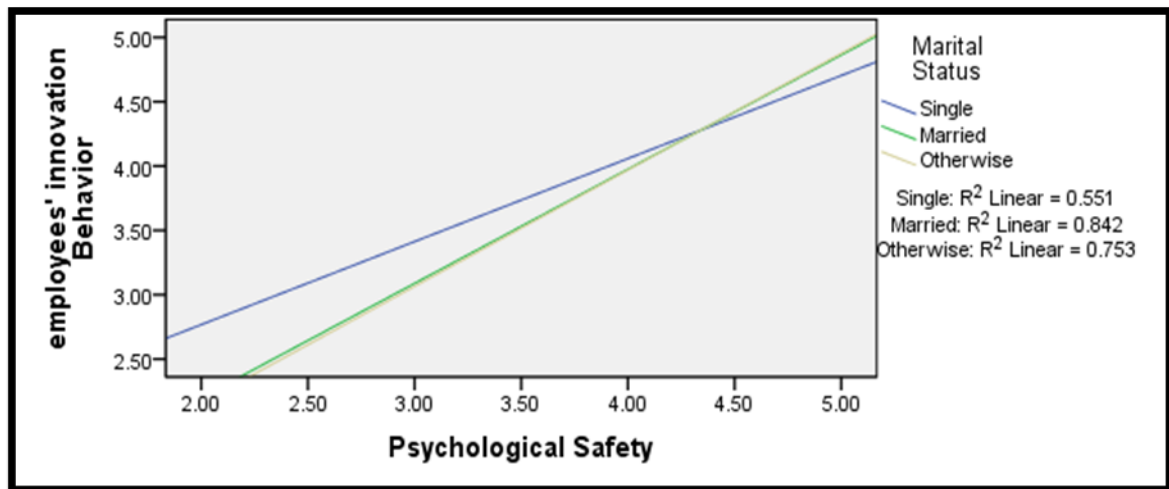
To test the second-hypotheses, the researcher used path analysis using the Smart PIS to recognize the impact of the Marital Status on the relationship between psychological safety on employee innovation behavior. The researcher explains in table 11 the results of path analysis of the effect Marital Status can have on the relationship that exists between psychological safety and employee innovation behavior.

**Table 11: Path Coefficients for the Moderating Effects of Marital Status on the Relationship between Psychological Safety and Employee Innovation Behavior**

Dependent Variable	Moderator Variable		Independent Variable	B	T-Value	Sig.
Employees' Innovation Behavior	Marital Status	W1	Psychological Safety	0.242	2.875	0.0064
		W2		0.260	3.420	0.0007

As far as testing the moderating role of Marital Status on the relationship existing between psychological safety and employee innovation behavior, the results in table 11 indicate that There is a statistically significant moderating role for marital status in the relationship existing between psychological safety and employee innovative behavior at a significance level of 0.05, as shown in figure 11, which means that the relationship between psychological safety and employee innovation behavior change according to employee's marital status. It has been shown that this positive relationship is greater among married people than among single ones.

**Fig. 2. Role of marital status in the relationship between psychological safety and employee innovation behavior**



Considering the above, it is possible to accept the second hypothesis of the study which states that **"Marital status moderates the relationship between psychological safety and employee innovation behavior in the food companies under study"**.

## 11. Conclusion and Discussion

The research aimed to identify the effect that psychological safety has on employee innovation behavior in the sector of food industries in Egypt, and the researcher reached a number of results that can be explained as follows:

- It shows that employees in the companies under study feel an average level of psychological safety, which is not considered acceptable for keeping employees in a good psychological state that qualifies them to work in the current favorable and rapidly changing conditions (Rabiul et al., 2023; Kızrak et al., 2023). This indicates that the companies under study do not pay extensive attention to the psychological state and psychological safety of employees, which indicates that employees work under a state of fear of the consequences of their suggestions, actions, and opinions at work, which may affect their career path (Liu et al., 2023; Plester and Lloyd, 2023). That may cause employees to lose their sense of importance at work and the feasibility of their jobs and their opinions and proposals, which may make them disappointed with their work (Mitterer and Mitterer, 2023; Lee, 2022; Wang et al., 2021).

- It was also found that there is an average level of innovative employee behaviors in the companies under study, which does not fit the nature of the fierce competition that these companies are experiencing today and the forces of global competition that confront them day after day (Wang and Tang, 2023; Miao et al., 2023; Zhou et al., 2021). This indicates that the Innovative behaviours of employees in the companies under study do not rise to the required level, as it is clear that employees do not pay much attention to introducing valuable and creative ideas in the workplace contexts or trying to bring them into action (Shi, 2012; Zhou and Wu, 2018), including generating, promoting and realizing innovative thinking (De Vries et al., 2016; Liu et al., 2023).
- It becomes clear that the psychological safety of employees encourages them to practice more innovative behaviours in the companies under study; after it was shown that the psychological safety of employees positively affects their innovative behaviours. Innovative behaviours may entail high risks, and several studies have demonstrated that employees may abstain from taking part in any creative idea since they fear to incur the negative impact of failure (Ahmad et al., 2023).
- The feeling of mutual trust and respect penetrates the concept of psychological safety, which reflects the confidence of the employee that they will not be blamed due to any negative consequences that may result from applying creative ideas or adopting innovative behavior (Sagnak et al., 2017). When the feeling of psychological safety is high, employees' feelings toward the organization will be positive. They will also be confident to perform any organizational tasks in a creative and innovative way, no matter what the consequences may be (Wadei et al., 2021). In addition, when subordinates believe that they have psychological safety in the workplace, they become more enthusiastic to take risks (Malik and Nawaz, 2018), they will not be afraid to incur the consequences of failure, and they can suggest and advocate new innovative ideas. So, employees who enjoy a high level of psychological safety believe that they are free to speak up their ideas and are ready to provide new suggestions and creative ideas (Liu et al., 2023).
- The researcher found that the psychological safety of employees positively affects their innovative behaviour dimensions such as idea generation, idea promotion, and idea realization. That means that the feeling of psychological safety helps the employees avoid fear of perceived personal risks and



encourages them to participate in any activities that are deemed new and creative.

- Introducing new ideas entails having the feeling of uncertainty and ambiguity when they are applied. Employees are required to investigate the products, services or processes found in the company to think of other possible ways to update them. When employees have the feeling of being psychologically safe, they become full of energy and enthusiasm to stop being anxious while carrying out a lot of experimentation in an atmosphere that is uncertain and ambiguous (Kark and Carmeli, 2009). Consequently, employees will succeed in generating new ideas, which entail searching for, compiling, and reorganizing information beyond the already present concepts (De Jong and Den Hartog, 2010).
- Once the employees come up with creative ideas, they engage in promoting these ideas so that they become accepted and implemented in the workplace. Besides, employees may need to overcome all parties' resistance to change (Kark and Carmeli, 2009; De Jong and Den Hartog, 2010). Thus, it can be concluded that employees who feel psychologically safe are not anxious about any possible negative consequences, feel comfortable to express different points of view and feel free to suggest new ideas (Edmondson and Lei, 2014). They also become less defensive and accept and benefit from any feedback (Schein, 1993; Carmeli et al., 2010; Javed et al., 2017). As a result, psychological safety encourages employees to use all the resources needed to foster the new ideas and, at the same time, it helps them employees reconcile with any feeling of social rejection anxiety (Agarwal and Farndale, 2017).
- It widely known that employees who fail to put forward their creative ideas or successfully implement their plans, put their careers at risk. Therefore, perceived psychological safety enhances innovative work behaviour by limiting the fear of any future risks and any costs that may be incurred due to failure in bringing innovation to light (Leung et al., 2015; Sun and Huang, 2019). Besides, employees need to be fully supported and allowed access to all required resources and allocations to successfully implement innovative ideas. Perceived psychological safety fosters the possibility that employees will get approval and allowed resources to carry out new ideas and practically benefit from them (Javed et al., 2017; Elsayed et al., 2023).

- The researcher found that marital status moderates the positive relationship between employees' psychological safety and their innovative behaviour in the companies under study. It has been shown that this positive relationship is greater among married people than among single ones. This is because married people are more stable in their families, which enhances a part of their family psychological safety. They are also more likely to look for psychological safety at work because it meets their human needs and makes them feel a state of balance between their family and professional lives, which makes them more comfortable and active in searching for new ideas presenting and applying them in work.

## **12. Recommendations**

In light of the results of the study and the findings obtained from the hypothesis analysis, and to achieve the main objective specified by the present study; the researcher presented a number of recommendations that would enhance the level of Employee Innovation in the food industries in Egypt under study, as follows:

- Providing a safe climate and a supportive and helpful work environment that will encourage them to submit new ideas and proposals that will develop work, enhance their level of professional development, and raise the level of employees' self-confidence.
- Paying attention to improving communication mechanisms between all employees and all leaders in the company by holding periodic meetings and general discussions that allow identifying employee problems and trying to deal with them and treat them to improve the level of employees' mental health.
- Spreading the values of respect, appreciation, tolerance, and non-sarcasm in the workplace.
- Ensuring that employees feel comfortable dealing with others without making them feel that they are always the subject of doubt and suspicion.
- Taking advantage of the positive psychological state of workers and their psychological well-being and using it well to encourage workers to present constructive and new ideas.
- Encouraging workshops and work groups based on fruitful cooperation to provide innovative solutions and ideas.
- Spreading a culture of error management that encourages employees to benefit from past mistakes and learn from them to correct the course of work in the future.

- Encouraging workers and creating a climate for them to learn about various new ideas in the field of work in other companies in the same sector.
- Providing employees with the opportunity to learn about various technological and scientific developments related to their field of work, which gives them a fertile infrastructure for generating new useful ideas for work.
- Encouraging employees to exchange experiences among themselves and be open to external experiences, which maximize the impact of Psychological Safety on the generation and application of new ideas.
- Holding periodic meetings between employees to discuss developments and new ideas in the field of work.
- Adopting permanent research department within the workplace to test employees' ideas and try to put them in an applicable form that is easy to test and measure.

### **13. Future Research**

Although the study at hand was concerned with identifying how far psychological safety affects employee innovation in food companies in Egypt, there are many study limitations that may present a number of areas of future studies that need research, including the following:

- The study was only limited to examine the effect of psychological safety on employee innovation, but it is useful for future studies to study the effect of many other variables on employee innovation, including the family work balance, the job demand resource model, high-performance work systems, and different leadership styles.
- It is useful to conduct a qualitative study to identify the most important actual determinants of employee innovation in food companies in Egypt.
- It is significant to measure the effect of openness to experience as a variable that mediates the relationship between psychological safety and employee innovation.
- It is recommended that other researchers conduct the same study in service sectors such as the health or banking sectors in order to ensure the accuracy of the results and their applicability to all sectors.
- Also, it is necessary to test the impact of psychological safety on many variables other than employee innovation, and these variables may include

job embeddedness, creative performance, job burnout, and intentions to leave work.

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