

Offshore Vessels employees' perception of Housekeeping Service: Impact on Job Satisfaction and Productivity

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Abstract

Actually, the stay length of employees in petroleum offshore vessels (OSVs) lasts for many weeks. Unique hospitality services during their accommodation especially the housekeeping (HK) services may help in creating a pleasant and comfortable atmosphere during work period. That's why; the research aims to investigate employees' perception of HK service, and to explore the impact of their perception of HK services on their job satisfaction and productivity regarding the offshore industry in Egypt.

Petroleum Marine Services Company (PMS) was chosen as the main sample to conduct this research and the convenience sampling method was adopted to reach the biggest possible number of respondents in each vessel in the PMS. Using the quantitative approach;

data were collected via survey form and analyzed using SPSS.

The findings of 284 respondents revealed a good perception of HK service. Also, the results proved a positive impact of employee perception of HK service on their job satisfaction and productivity. This research presents implications for offshore decision makers.

Key Terms: Offshore, Housekeeping, Perception, job Satisfaction, Productivity.

1. Introduction

In today's business world, the petroleum industry gained rapid change and development during the last century (Grasso, 2019). The industry has developed small and

large technology to help in coping with the time change and technological revolution (marineinsight.com, 2018). One of the development revolutions in the petroleum industry is to develop offshore units that help in excavating all petroleum deposits in the sea. Offshore vessels (OSVs) are defined as "*specially designed oil and gas vessels that's main purpose is working on oil exploration besides doing more specified purposes such as transporting goods and supplies to construction and excavation units that are located at the high seas*" (EMAS, 2015; US-Legal, 2019; Mujeeb, 2020).

All types of OSVs require unique staff to operate workloads and enrich the performance of the vessel's productivity (Gibbs *et al.*, 2005 and DEWUA, 2020). Actually, housekeeping plays a vital role in maintaining and handling employees' rooms, public areas, and operating laundry besides recreational facilities (Branson, 2016). Su and Swanson (2019) stated that the type of services that are introducing for employees in their accommodations reflects the organization's success by understanding employees' needs and requirements.

One of the Egyptian market leading marine companies is "Petroleum Marine Services Company" (PMS) which operates a large number of offshore units all over Egyptian seas. PMS was chosen as the main sample of this research because all its units operate under the Egyptian flag unlike the other companies which use foreign flags. Hence, the research aims to achieve two main objectives: (1) to investigate OSVs employees' perception of housekeeping service, and (2) to explore the impact of their perception of housekeeping services on their job satisfaction and productivity.

2. Literature Review

2.1 Housekeeping services onboard offshore vessels

Housekeeping (HK) service refers to "*doing basic cleaning tasks in a house, hotel or other locations, or the department of employees who manage and perform cleaning tasks. These tasks may be performed by the household members, or by other persons hired to perform these tasks*" (Nitschke and Frye, 2008). In that context, Etcuban (2019) stated that HK service is one of the most critical departments in the hospitality and lodging field. Further, Rahman (2020) claimed that the housekeeping department plays a unique role in today's lodging industry as all housekeepers are involved in handling rooms, operate laundries and recreational facilities besides maintaining the public and special areas.

Some of the responsibilities of the HK department are described by Raghubalan (2015) as follow; (1) to ensure a high standard of cleanliness and general upkeep in all areas for which the department is responsible, (2) to guarantee that the quality of the work is maintained as at the onset of the business, (3) to achieve training, control and supervision of all staff attached to the department, (4) to establish a good working relationship with other departments, and (5) to ensure that the safety and security regulations are made known to all staff of the department. Depending on the area that needs to be cleaned, some responsibilities of the housekeeping department may be different from one contract to the other.

Many researchers have described the functions of housekeeping department in the lodging establishments (Casado, 2012) and onboard OSVs (Devrim, 2017 and Tra, 2020); these researches helped to summarize another

housekeeping areas of responsibility into major areas: (1) cleaning functions (2) room management, (3) laundry services and (4) safety and security.

In addition, good HK onboard a vessel is necessary for a safe working environment. The outward appearance of a ship and its equipment indicates how well things are running on the inside, and more importantly, it relates to the vessels and crew's wellness, safety, and satisfaction (Gondalia *et al.*, 2020). Throughout port state control or validation inspections, housekeeping oversights are rarely overlooked. A well-maintained vessel will offer a favorable first impression (Hjorth, 2015).

For the duration of their stay onboard, vessel employees act as their home. Cleaning is only one aspect of good housekeeping. It includes things like organization and preservation, as well as making optimal use of space, eliminating fire hazards, and limiting exposure to harmful. Housekeeping regulations differ based on the vessel's trade or operation (Cordeau *et al.*, 2015).

2.2 Employees' perception of housekeeping services

Service quality became the critical issue for the hospitality industry and the quality of introduced services took a long period of time to be developed and applied in all service sectors (Ladhari, 2010; Cheng, Mansori and Cham, 2014; Cheng, 2015; Ababneh, 2017). During the past few decades, there was an exceptional change in hospitality services and

the apparent cause was the prevalence of service quality and regarding to the difficulty of measuring the service quality level, the hospitality organizations relied significantly on customers to attain their perception and evaluation of the services by asking them different questions to assess their expectation and perception of the level of quality and design the services in acceptable shape (Mansori, *et al.*, 2014; Radojevic *et al.*, 2017).

Creating service quality for the hospitality organizations is a critical issue in today's competitive business world as it the root of organizational success and the measurement depends on the user of service as a key of assessing whether the organization provides suitable service or not (Hansemark and Albinson, 2004; Sachin and Sameer, 2018). The development of service quality models started by Zeithaml (1981), then, Parasuraman *et al.* (1988) developed another service quality model which considered an advanced model for measuring the service quality in general and assessed to investigate customer perception and expectation of specific service. Parasuraman *et al.* (1988) determined the components of service perception and enlisted them as tangibility, reliability, responsiveness, assurance and empathy; and all these components are defined as SERVQUAL. These five components of SERVQUAL were used to assess service perception in all service industries such as banking, tourism, transportation and hospitality industry. Table 1 shows the elements of SERVQUAL as defined by Parasuraman *et al.* (1988).

Table (1) SERVQUAL components of perception

Component	Statements
Tangibility physical facilities, equipment, and appearance of personnel	<ul style="list-style-type: none"> - Company has modern equipment. - Company possesses visually attractive equipment and facilities - Appearance of staff - Visually appealing materials connected with service
Reliability to perform the promised service dependably and accurately	<ul style="list-style-type: none"> - Realization of assured service - Reliability in customer problems solving - delivering the appropriate service from the first visit onwards - Providing the promised service at the promised time - Insisting on zero defect policy - Willingness to help customers - Willingness of personnel to respond to customer request
Responsiveness to help customers and provide prompt service	<ul style="list-style-type: none"> - Informing the customers about the time of service delivery - Prompt service delivery to customers.
Assurance Courtesy knowledge, the ability of employees to inspire trust and confidence	<ul style="list-style-type: none"> - Personnel who instill confidence - Customers feeling about dealings with the company - Courtesy of the personnel - Knowledge of personnel to answer the customer questions
Empathy caring, individualized attention the firm provides its customers	<ul style="list-style-type: none"> - Giving individual attention to customers - offering individual or personal attention to customers - The personnel focus on customers' interests - The personnel understand specific needs of their customers - Operating hours are convenient to customers

Source: Parasuraman *et al.* (1988)

Regarding OSVs employees perception of HK services, employees' perception is an important source to the management, as they are a reflection of the employees' point of view about work conditions (Omaret *et al.*, 2017). Perception can be defined as complex process by which people select, organize, and interpret sensory stimulation into a meaningful and coherent picture of the world (Berelson and Steiner, 1964, p. 88; Fratu, 2011; Geise and Baden, 2015). In addition, Rao and Narayan (1998), Ggastil (2009) and Van (2015) stated that perception is the single most important determinant of human behavior, further they suggested that there can be no behavior without perception. As perceptions stimulate and activate our involvement with the overall environment into meaningful internal experiences (Samovar and Porter, 1981). Ramseook-Munhurrnet *et al.*

(2010) and Wilder *et al.* (2014) confirmed that staff has a thorough knowledge of internal customer expectations; therefore, the perception of service quality by employees represents the perception of external customers. Employee perception of workplace and work environment influence employee-organizational relationships and hence extremely effective organizations usually provide great advantages for motivated employees to be attracted and retained (Cha and Carrier, 2016). So, this research focuses on employees' perception of workplace and work environment that embodied in HK service introduced to them in their accommodation on board OSVs.

2.3 Employees' job satisfaction

In contemporary culture and during the rapid technological change, employers should focus

on creative staff who can easily adapt to fresh modifications. Adaptive, social and productive employees are the ones that are most satisfied with their job in addition; job satisfaction is an incredibly helpful weapon for assessing and adapting the guidelines of leadership according to the view of the employee (Cronley and Kim, 2017). The level of satisfaction of an employee is a very significant variable for a manager or organization to predict the rate of absenteeism, willingness to resign or leave the work of an employee. Employee satisfaction is also based on future growth perceptions (Mayuri and Sumedha, 2019).

Murad (2018) assessed definite factors that affect employees' job satisfaction that embodied in remuneration, quality and nature of work-life, promotion and team work. Regarding *remuneration*, its meaning may vary, however, depending on the external variables (e.g. domestic culture) and the characteristics of the employees (e.g. age or position). In addition; the effect of compensation on job satisfaction can be based on the subjective assessment of the entire payment by the staff (Rees, 1993). As for *quality and nature of work-life*, quality of work is an extensive notion consisting of physical and psychological health, financial conditions, individual convictions and environmental connections. The concept of quality of work-life has been transformed into a social issue in modern leadership, whereas in past decades only private life has been emphasized. The significance of job quality is the subjective creative capacity and the private association's view of the physical and mental attractiveness of the workplace and its working conditions (Dhamija and Singla, 2017).

As for *promotion*, it is a greater importance staff shift for the job and greater

compensation. The growth of an upward employee in the association's hierarchy, generally prompting an upgrade of duty and rank and an improved benefits package is a promotion. Another significance of promotion is "the employee's reassignment to a higher-level job (Murad, 2018). Regarding *teamwork*, the expression team generally refers to a small group in which individuals have a typical reason, related components and essential skills (Sohmen, 2013).

The relationship between service perception and job satisfaction was shown in many previous studies; Ayim (2015) investigated the relationship between perception of workplace and job satisfaction as much focus has been placed on employee perceptions of workplace health and safety. A strong correlation between work satisfaction and the environment of safety has been identified. Employees who showed greater pleasure in their jobs had optimistic views of the atmosphere of safety. They became correspondingly more committed to safety management policies and thus reported a lower incidence of participation in incidents. The findings were thus consistent with the idea that the favorable perceptions of employees of the occupational environment affect their perceptions of workplace safety. Additionally, Raab (2020) explored the degree to which the perception of the workplace impacts the perceived well-being of older employees in their workplaces. The findings indicate that the satisfaction of older employees in the workplace relies heavily on many job incentives; therefore the first hypothesis can be formulated as follows:

H1: Employees' perception of housekeeping services onboard offshore vessels has a significant positive impact on their job satisfaction

2.4 Employees' productivity

Meneze (2006), Sotonye and Konya (2020) clarified the notion of productivity as the capacity of the employee to deliver work or products and services in accordance with or beyond the anticipated norms set by the employers. According to Bojkeet *al.* (2012), productivity can be determined by comparing total output with the complete input used to generate this production, one can calculate productivity. And as a conclusion, productivity can be defined as "*the effective and efficient utilization of all resources; material, labor, capital, information and time*" (Shabanet *al.*, 2017).

Many researchers investigated the relationship between perception and productivity in light of service quality, the study conducted by Ali *et.al* (2013) analyzed the understanding of working conditions and employee productivity and concluded that the perception of working conditions has both positive and negative effects on productivity, whereas Bornstein (2008) stated that productivity is negatively impacted in organizations where workers are exposed to stressful working conditions. In the other hand, when work conditions are perceived as good and there is a favorable impact on service quality, efficiency increases. Due to the additional productivity advantages of decreases in working hours, the drop in working hours went hand in hand with rises in relative international competitiveness. In the context of employees' wellbeing, Mette *et al.* (2018) linked the concept of employees' productivity and other factors that shape their wellbeing such as awareness and the use of health promotion offers among offshore workers, therefore the second hypothesis can be formulated as follow:

H2: Employees' perception of housekeeping services onboard offshore vessels has a

significant positive impact on their productivity.

2.5 Employees' job satisfaction and productivity

Job satisfaction was viewed as the main factor that is strongly linked to the productivity of organizations. Job Satisfaction is the extent to which these staffs assess their work, and probably not (Murad, 2018). Judge *et al.* (2017) stated that when employees are happy with their work as a result of creating charming stress within the organization, they can motivate employees to work well and organization can achieve great results. Also, Boamahet *al.* (2017) stated that job satisfaction is a sort of engaged factor linked to company efficiency further, Laschinger (2017) said that a high level of job satisfaction contributes to a low level of employee turnover, which helps organizations to become productive and obtain an excellent reputation.

The study by Roseet *al.* (2011) aimed to examine the relationship between job satisfaction and work performance among a sample of Malaysian public service agents; it realizes that organizational learning has been established to be positively akin to organizational commitment, job satisfaction and job performance. In the same context, Razaet *al.* (2015) also conducted a research with the aim of investigating the relation between job satisfaction and the performance of sales representatives with organizations ' adaptive selling deeds. The study revealed that there is a strong relationship between job satisfaction and the salesperson performance. Therefore, the third and fourth hypothesis can be formulated:

H3: There is a positive relationship between employees' job satisfaction and productivity in light of housekeeping services perception.

H4: Employees' job satisfaction plays a mediating role between the perception of housekeeping services and productivity.

The hypothetical model is shown in figure 1

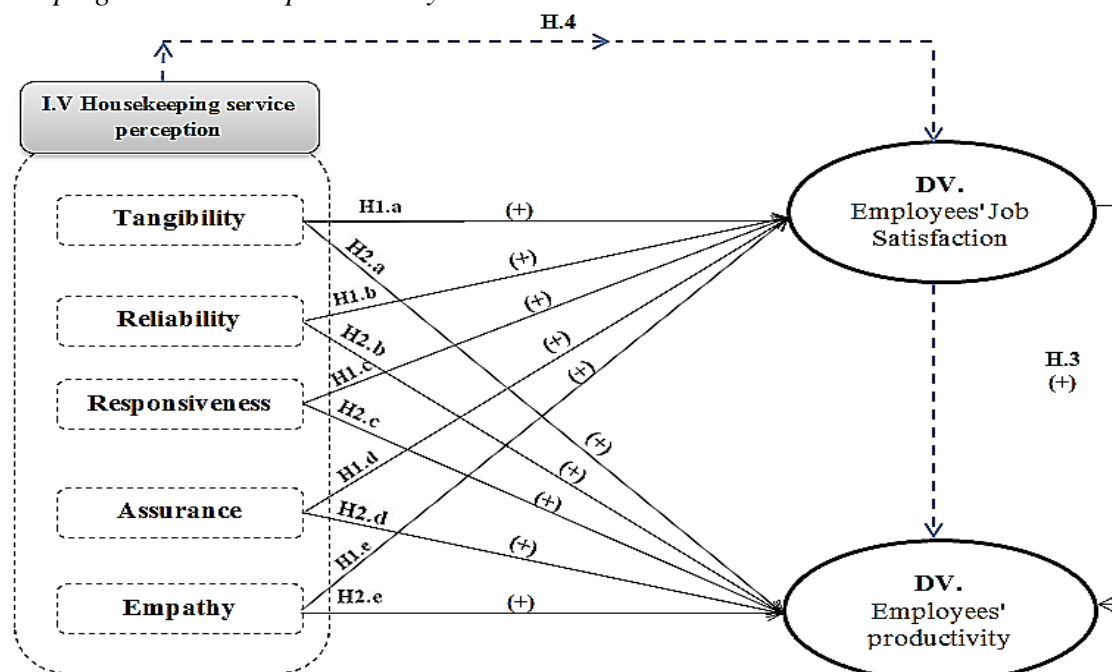


Figure 1: Hypothetical model of the research

3. The Research Methodology

The researcher assessed the quantitative approach as there is a need for a comprehensive assessment of the HK service perception and its impact on employees' job satisfaction and productivity. Therefore, the quantitative approach is the suitable solution to measure the correlation between these variables, in order to get reliable data that can be generalized. Referring to the assigned methodology, the most effective research is the descriptive-analytical one that is widely engaged in hospitality studies.

3.1 Population and sampling

The population of the research includes the Egyptian offshore leading company of marine services PMS. The justification of choosing PMS fleet is that the only company that works under the Egyptian flag and

already established under management of Egyptian Ministry of Petroleum. In addition, PMS has a large number of offshore units with accommodation services that gives more credibility to assess its accommodation related services. The convenience sampling method was adopted as the research sample including all employees onboard each vessel in the PMS fleet regardless the housekeepers aiming to reach the biggest possible number of respondents.

All employees of the PMS offshore fleet (13 vessels) were targeted as the research sample with a total number of 765 employees onboard. The 30% of the sample is 229 respondents unfortunately; only 10 vessels were easy to access and have been sampled reaching a number of 284 respondents with a 37% response rate. The research population and sample is shown in table 2.

Table (2) the target population and sampling

Vessel Classification	Vessel Name	Expected response		Actual response	%	Response rate %
		Staff	30%			
Barge (Pipe laying)	PMS 12	200	60	69	24.3	34.5
Anchor Handling Tug Supply (AHTS)	PMS 36	22	7	8	2.8	36.3
	PMS 3308	65	20	19	6.7	29.2
	PMS Abuqueer	32	10	8	2.8	25
Barge (Pipe laying)	PMS 11	137	42	42	14.8	30.6
Barge (Accommodation)	PMS 42	75	23	56	19.7	74.6
Diving support vessel (DSV)	PMS Mayo	75	23	28	9.9	37.3
AHTS	PMS Balayeem	35	11	8	2.8	22.8
Barge Diving Support	PMS 17	100	30	36	12.7	36
Anchor Handling Tug (AHT)	PMS 4	24	8	10	3.5	41.6
Total		765	229	284	100%	37%

3.2 Instrument and measures

The questionnaire form was used as a major research tool. It consists of four main sections. The *first section* uses the scale of (Zeitham et al., 1988). This scale consists of 29 statements that measure employees' perception of HK

services introduced in their accommodation onboard OSVs. With the application of SERVQUAL dimensions on HK service perception onboard OSVs, the questionnaire items are formulated

Table (3) Items distribution on the constructs of SERVQUAL model

Dimension	Constructs	No. of items
1. Tangibility	Perception of Tangibility	5
2. Reliability	Perception of Reliability	6
3. Responsiveness	Perception of Responsiveness	5
4. Assurance	Perception of Assurance	7
5. Empathy	Perception of Empathy	6
The overall number of items		29

The *second section* of the questionnaire measures employees' job satisfaction; it contains 17 statements divided into four main areas. The first is "*remuneration*" which includes 3 statements, the second is "*nature of work*" which includes 6 statements, the third is "*promotion*" which includes 5 statements, and the fourth is "*teamwork*" which includes 3 questions. The scale of job satisfaction adapted from Shinnar (1998) besides García et al. (2016). This scale widely used by many previous studies in hospitality including Harunet al., (2014) and other studies concentrated on measuring job satisfaction

among offshore personnel such as Yuen et al., (2018).

The *third section* of the questionnaire contains 21 statements that measure employees' productivity using different mixed items adapted from the scale of Fry et al. (2005), Ajala (2012) and Djellal and Gallouj (2013) which were used widely in hospitality studies besides adapting the scale of previous studies of Menelaou and Violaris (2012), Tsai and Liou (2017) and Liravi and Baradaran (2019) that aimed to measure employees productivity on the offshore industry. The *fourth section* contains 7 items that ask for employees' demographic data. All sections of

the questionnaire require an answer with 5-points Likert scales which starts with (1) strongly disagree to (5) strongly agree.

4. Results and Discussion

4.1 Reliability

Table (4) Reliability analysis

Measures	No. of Items	Cronbach`s alpha
Overall Questionnaire	67	0.979
Employees perception	29	0.976
Tangibility	5	0.979
Reliability	6	0.978
Responsiveness	5	0.979
Assurance	7	0.977
Empathy	6	0.976
Employees job satisfaction	17	0.976
Remuneration	3	0.978
Nature of work	6	0.977
promotion	5	0.979
Teamwork	3	0.979
Employees productivity	21	0.977

4.2 Analysis of demographic data

The respondents' profile contains the personal related data (age and educational level) and the job related data (position, years of experience in PMS and onboard vessel in general and cabin type of accommodation). Regarding personal related data, table 5 shows that (29.2%) of respondents are aged between 25 and the most

A reliability analysis (Cronbach's Alpha) was conducted to ensure the reliability of the questionnaire items. Regarding items reliability, all values are above 0.70 (Table 4).

cluster of the sample is aged between 36 - 45 years old representing the youth stage (63.4%). Concerning respondents' educational level, (27.8%) are in mid-level education while (72.2%) are highly educated and their degrees ranged between bachelor and post studies degrees. The respondents' educational level is considered a strength point in the research that gives the research results more credibility to build recommendations upon it.

Table (5) Respondents' personal and job related data

Item	No. of Respondents	%
Age		
25-35	83	29.2
36-45	180	63.4
46-60	21	7.4
Educational level		
Mid-level education	79	27.8
University graduate	205	72.2
Position		
Entry employees	77	27
Supervisor/senior	183	64.5
Management level	24	8.5

Years of experience in PMS		
1-5	102	35.9
6-10	101	35.6
11-15	81	28.5
Years of experience onboard vessel		
1-5	238	83.1
6-10	35	12.3
11-15	13	6.4
Accommodation type		
Single cabin	37	13
Double cabin	166	58.5
Triple cabin	10	3.5
Quad cabin	71	25

Regarding job-related data, table 2 reflects also that (27%) of respondents are entry employees while the majorities (64.5%) are at the supervision level. In addition, a percentage of (8.5%) are management level. Further, regarding the years of experience in PMS Company, a percentage of (83.1%) has 1-5 years of experience besides a percentage of (12.3%) has 6-10 years of experience and a percentage of (6.4%) have 11-15 years of experience. In the same context, and regarding the years of experience onboard the same vessel, (83.1%) of respondents have 1-5 years of experience besides (12.3%) have 6-10 years of experience besides (6.4%) have 11-15 years of experience. These data indicate that there's a slight employee rotation among the PMS vessel fleet, as the majority of respondents (83.1%) have only 1-5 years of experience onboard the current vessel. Furthermore, regarding the accommodation type, a percentage of (13%) of respondents resides in a single cabin, besides the

percentage of (58.5%) of respondents resides in a double cabin, in addition to (3.5%) of respondents resides in a triple room and (25%) resides in a quad cabin.

4.3 Data analysis for the research variables

4.3.1 Employees' perception of housekeeping service

The overall mean score of employees' perception is (3.88); it indicates the attitude of "agree". Table 6 shows the ranking of perception dimensions. "Reliability" is the top-ranked item of employees' perception as when housekeepers promised to do something by a certain time, they do so, housekeepers show sincere interest on meeting employees' needs, the HK service is dependable, housekeepers perform their tasks right from the first time, and provide correct and accurate information to vessel employees. On the other hand, the last ranked item is "empathy" in spite of recording an attitude of "agree".

Table (6) Employees' perception of housekeeping service

	Mean score	Attitude	Ranking
Reliability	4.03	Agree	1
Assurance	3.97	Agree	2
Responsiveness	3.87	Agree	3
Tangibility	3.81	Agree	4
Empathy	3.74	Agree	5
Overall Perception	3.88		

4.3.2 Employees' job satisfaction

The overall mean of job satisfaction is (3.87); it indicates the attitude of "agree". Table 7 shows the ranking of job satisfaction dimensions. "Nature of work" is the top-ranked item of employees' job satisfaction as employees are satisfied with work schedule onboard vessel, they are satisfied with the

working environment in PMS Company, they are satisfied with workload onboard vessel and onboard OSVs in general in addition, PMS Company seeks to the commitment of quality and welcomes employees suggestions and recommendations to improve work performance.

Table (7) Job satisfaction

	Mean score	Attitude	Ranking
Nature of work	4.00	Agree	1
Teamwork	3.96	Agree	2
Remuneration	3.91	Agree	3
Promotion	3.59	Agree	4
Overall Jon satisfaction	3.87		

4.3.3 Data analysis for employees' productivity

Regarding employees' productivity, 21 different mixed statements were used to measure employees' productivity. The overall mean for all statements of productivity is (3.86); it indicates the attitude of "agree".

4.4 Testing hypotheses and discussion

In order to determine the relationships among study variables, the multiple linear regression analysis results were interpreted in terms of their statistical significance to p-values (probabilities of relationships) and its R^2 (R-Square). Each hypothesis may be supported or not supported according to the overall

significance variance of the variable in general and to the value of R^2 . When the p-value is (<0.05), a significant correlation exists; if the p-value gets close to 0, the significance becomes stronger, but when the p-value is (>0.05), this means that no significance exists (Gall *et al.*, 2003).

Testing H1:

Hypothesis 1 proposed that perception of HK services onboard OSVs has a significant positive impact on employees' job satisfaction. In order to confirm the correlation coefficient significance and test the hypothesis, multiple linear regression analysis is done to predict the level of job satisfaction on HK service perception (Table 8).

Table (8) Regression analysis between perception of HK service and job satisfaction

Perception of HK services	R	R^2	Adjusted R^2	β	Sig.	Hypotheses test
Overall Perception	.878 ^a	.770	.769	.878	.000	H1: Accepted
Tangibility	.710 ^a	.504	.502	.710	.000	H1a: Accepted
Reliability	.767 ^a	.589	.587	.767	.000	H1b: Accepted
Responsiveness	.807 ^a	.651	.649	.807	.000	H1c: Accepted
Assurance	.887 ^a	.787	.787	.887	.000	H1d: Accepted
Empathy	.915 ^a	.837	.836	.915	.000	H1e: Accepted

Table 8 indicates that perception of HK services significantly correlates and

influence employees job satisfaction ($R^2 = .770$, $\beta = .878$, Sig.000) as the variance

between the two variables could be estimated by (76%) because the change in one unit of perception will definitely cause a change in 0.878 unit of job satisfaction, which makes H1 accepted. In the same regard, sub-dimensions results reflect the same attitude as it is noted that *tangibility* significantly correlates and influence employees job satisfaction ($R^2 = .504$, $\beta = .710$, Sig.000) which makes H1a accepted. In addition, *reliability* significantly correlates and influence employees job satisfaction ($R^2 = .589$, $\beta = .767$, Sig.000) which makes H1b accepted. *Responsiveness*

reflects a significant correlation with employees job satisfaction ($R^2 = .651$, $\beta = .807$, Sig.000) which indicates that H1c accepted. Furthermore, *assurance* significantly correlates and influence employees job satisfaction ($R^2 = .787$, $\beta = .887$, Sig.000) which makes H1d accepted, and *empathy* significantly correlates and influence employees job satisfaction ($R^2 = .837$, $\beta = .915$, Sig.000) which makes H1e accepted. All these correlations are confirmed by SCATTERPLOT (BIVAR) which indicated that (R^2) = 0.770 as shown in figure 2.

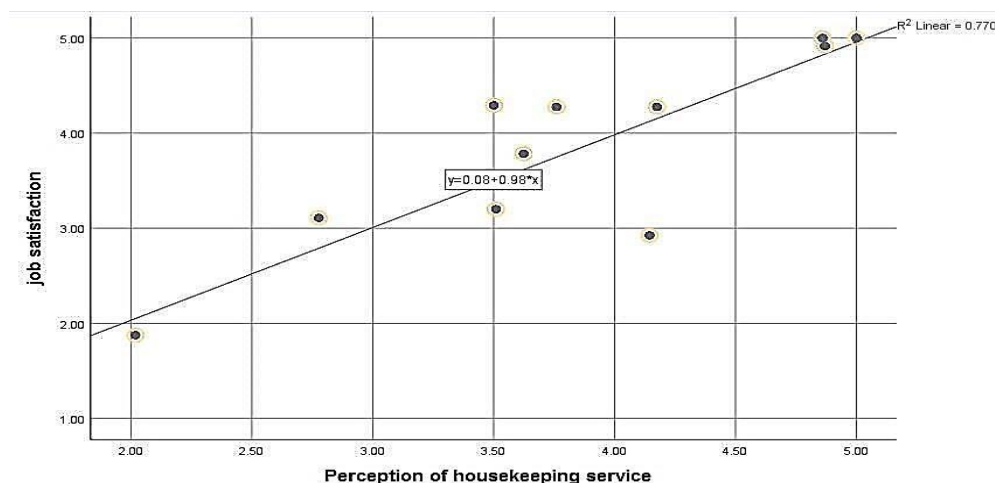


Figure 2: Scatter plot (BIVAR) for the first hypothesis

The relationship between employees' perception of HK service and their job satisfaction was in agreement with many previous studies. Wang (2012) found that satisfying internal-service quality has a significant interactive influence on employee job satisfaction at Taiwan-listed international tourist hotels. Al-Ababneh *et al.* (2018) also agreed that job satisfaction is affected by the perception of service quality factors among hotel employees in Jordanian hotels. Further, Dedy *et al.* (2016) confirmed that a clear correlation between an organization implementing quality practice and employee job satisfaction with quality is expected to exist. Other research results showed that

internal service quality is a strong predictor affecting employees' job satisfaction. (Ping *et al.*, 2010; Khan *et al.*, 2011; Pantouvakis, 2011; Pasebaniet *al.*, 2012; Naseret *al.*, 2013; Nazeeret *al.*, 2014; Sharma *et al.*, 2016).

Testing H 2:

Hypothesis 2 proposed that employees' perception of HK services onboard OSVs has a significant positive impact on their productivity. In order to confirm the correlation coefficient significance and test this hypothesis, multiple linear regression analysis is done to predict the level of job satisfaction on HK service perception (Table 9).

Table (9) Regression analysis between perception of HK service and productivity

	R	R ²	Adjusted R ²	β	Sig.	Hypotheses test
Overall Perception	.880 ^a	.774	.773	.880	.000	H2: Accepted
Tangibility	.849 ^a	.720	.719	.849	.000	H2a: Accepted
Reliability	.842 ^a	.709	.708	.842	.000	H2b: Accepted
Responsiveness	.705 ^a	.496	.495	.705	.000	H2c: Accepted
Assurance	.853 ^a	.728	.727	.853	.000	H2d: Accepted
Empathy	.853 ^a	.728	.727	.853	.000	H2e: Accepted

Table 9 indicates that perception of HK services significantly correlates and influence employees productivity ($R^2 = .774$, $\beta = .880$, Sig.000) as the variance between the two variables could be estimated by (77%) because the change in one unit of perception will definitely cause a change in 0.880 unit of productivity, which makes H2 accepted. Continuously, the results of sub-dimensions reflect the same attitude. It is noted that **tangibility** significantly correlates and influence employees productivity ($R^2 = .720$, $\beta = .849$, Sig.000) which makes H2a accepted. **Reliability** also significantly correlates and influence employees productivity ($R^2 = .709$, $\beta = .842$, Sig.000)

which makes H2b accepted. In addition, **responsiveness** reflects a significant correlation with employees productivity ($R^2 = .496$, $\beta = .705$, Sig.000) that indicates that H2c accepted. Furthermore, **assurance** significantly correlates and influences employees' productivity ($R^2 = .728$, $\beta = .853$, Sig.000) which makes H2d accepted, and **empathy** significantly correlates and influences employees productivity ($R^2 = .728$, $\beta = .853$, Sig.000) which makes H2e accepted. All these correlations are confirmed by SCATTERPLOT (BIVAR) which indicated that (R^2) = 0.770 as shown in figure 3.

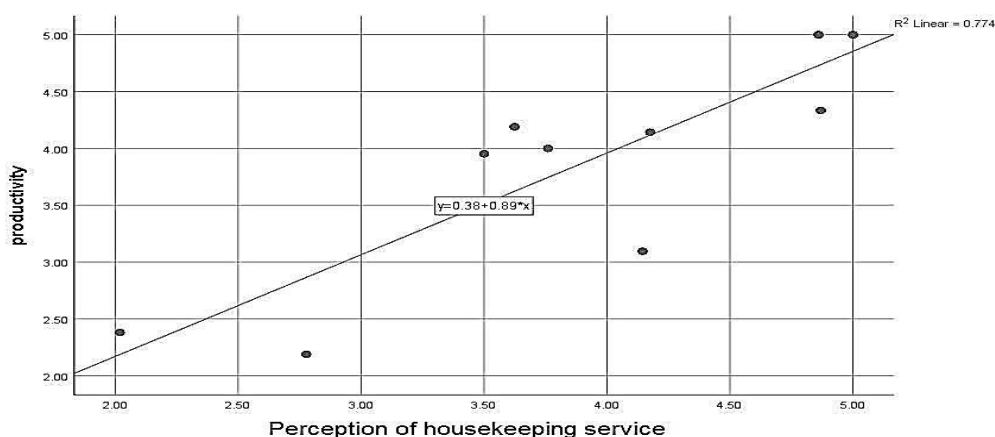


Figure 3: Scatter Plot (BIVAR) for the second hypothesis 2

The relationship between employees' perception of HK service and their productivity is supported with other previous research results in the hospitality industry such as Sarwa and Muhammad (2020) who affirmed the impact of employee perceptions of mistreatment on their performance in the

hotel industry. As for the petroleum industry, Aletaibyet *et al.* (2017) confirmed that total quality management with employee performance. In the same context, a study conducted in South Africa manufacturing companies by Ali *et al.* (2013), they examined working conditions perception and the

productivity of employees and found that perception of working conditions has impacts on productivity.

Testing H3:

Hypothesis 3 proposed a positive relationship between employees' job satisfaction and their

productivity in light of HK services perception. Multiple linear regression analysis is done to predict the level of productivity on job satisfaction (Table 10).

Table (10) Regression analysis between job satisfaction and productivity

DV. Employees job satisfaction	R	R ²	Adjusted R ²	β	Sig.	Hypotheses test
	.909 ^a	.826	.825	.909	.000	H3: Accepted

Table 7 indicates that employees job satisfaction significantly correlates and influence employees productivity ($R^2 = .826$, $\beta = .909$, Sig.000) as the variance between the two variables could be estimated by (83%) because the change in one unit of job

satisfaction will definitely cause a change in 0.90 unit of productivity, which makes H3 accepted. This correlation is also confirmed by Scatter plot (BIVAR) which indicated that (R^2) = 0.826 as shown in figure 4.

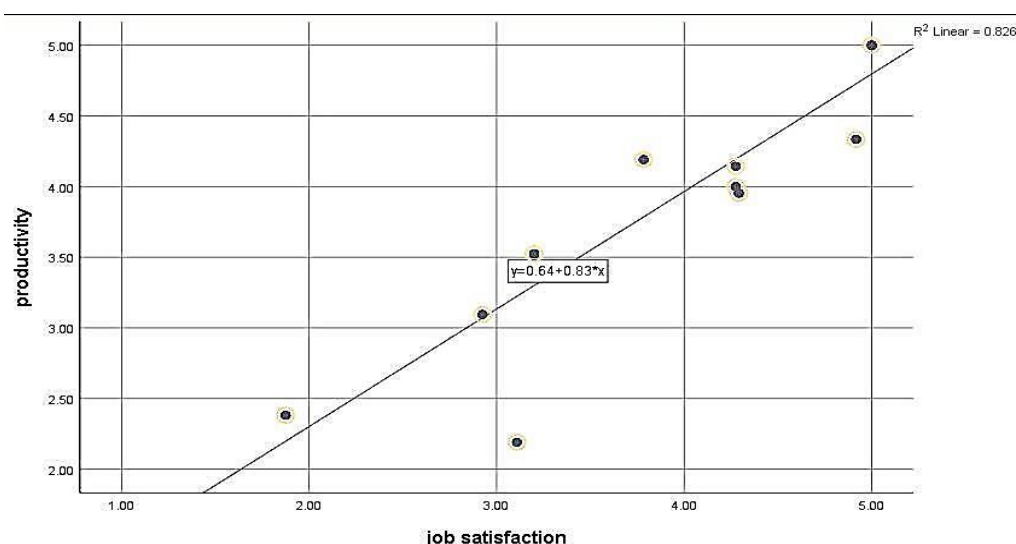


Figure 4: Scatter Plot (BIVAR) for the third hypothesis

The significant relationship between job satisfaction and productivity is in agreement with the findings of previous studies such as Onyebu and Omotayo (2017) who investigated employee job satisfaction and its impact on organizational performance in Nigerian Hotels. Results showed that employee job satisfaction influences employees' productivity and organizational performance. Shaju and Subhashini (2017) also investigated the impact of job satisfaction

on the job performance of employees working in the Automobile Industry and stated that the effect of work satisfaction on the severity of employee performance is often overlooked by organizations. According to them, there is a clear connection between the rate of job satisfaction and the output of an employee. Almutairiet *al.* (2013) stated that high-level performance through productivity and efficiency has always been an organization's goals. Their findings revealed that there is a

significant positive relationship between job satisfaction and job performance among Saudi Arabia hotels.

The outcome of this hypothesis is also in line with other studies; Al-Ahmadi (2009), Vermeeren *et al.* (2014), Kumar *et al.* (2011) and Aziri (2011) which indicated that job satisfaction has a significant and direct association with employee performance, indicating that a happier employee is assumed to have a higher level of performance. The same correlation between work satisfaction and job performance was also expressed by Bahani (2013) and Copeland (2020).

Testing H4:

Hypothesis 4 proposed that employees' job satisfaction plays a mediating role between perception of HK services and productivity. Baron and Kenny (1986)'s test is performed to assess the multiple regression between HK service perception and employees

productivity with the existence of employees job satisfaction as a mediator as shown in table 8. The mediating effect of employees' job satisfaction is confirmed by following Baron and Kenny (1986) model test, which relies on establishing four conditions:

1. Show that the independent variable is significantly related to the dependent variable (path c).
2. Show that the independent variable is significantly related to the mediator (path a). This step involves treating the mediator as if it was an outcome variable.
3. Show that the mediator is significantly related to the dependent variable (path b).
4. When controlling for the effects of the mediator on the dependent variable, the effect of the independent variable on the dependent variable (path c') is no longer significant.

The results confirmed the acceptance of the fourth hypothesis as shown in figure 5.

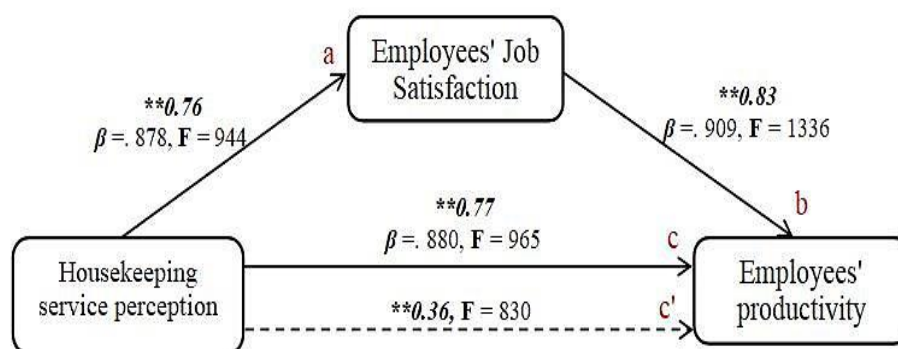


Figure 5: Testing the fourth hypothesis

Table 11 indicates that service perception significantly correlates and influences employees' productivity ($R^2 = .855$, $F = .830$,

Sig.000) which confirms the mediating role of job satisfaction to affect the perception of HK service and productivity.

Table (11) Regression analysis for hypothesis four

<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	<i>F</i>	Sig.	Hypotheses test
.925 ^a	.855	.854	830	.000	H4: Accepted

a. Dependent Variable: Productivity

b. Predictors: (Constant), Perception, Satisfaction

5. Conclusion and Recommendations

One of the important hospitality services that are introduced for employees onboard OSVs is HK service during work accommodation. HK plays a vital role in maintaining and handling employees' rooms, public areas, and operating laundry besides recreational facilities. The type of services that are introducing for employees in their accommodations reflects the organization's success by understanding employees' needs and requirements. Thus, this research aimed to investigate employees' perception of HK services and the impact on their job satisfaction and productivity regarding the offshore industry in Egypt. Adopting SERVQUAL dimensions to measure the HK service perception onboard OSVs, the research findings revealed that there is a positive impact of employee perception of HK service on their job satisfaction and productivity. Results confirmed that hospitality services are considered the backbone of petroleum OSVs so that employees are in need to unique hospitality services during their accommodation especially the HK services that help in creating a pleasant and comfortable atmosphere during work period that last for weeks. In addition, petroleum companies have to consider employees satisfaction level about services that they get during their stay onboard, so as the productivity level increase also, HK is the core services onboard OSVs especially during the current COVID-19 pandemic, so as HK has to maintain the cleaning and proactive procedures to keep all employees safe.

Figure 6 represents the research conclusion:

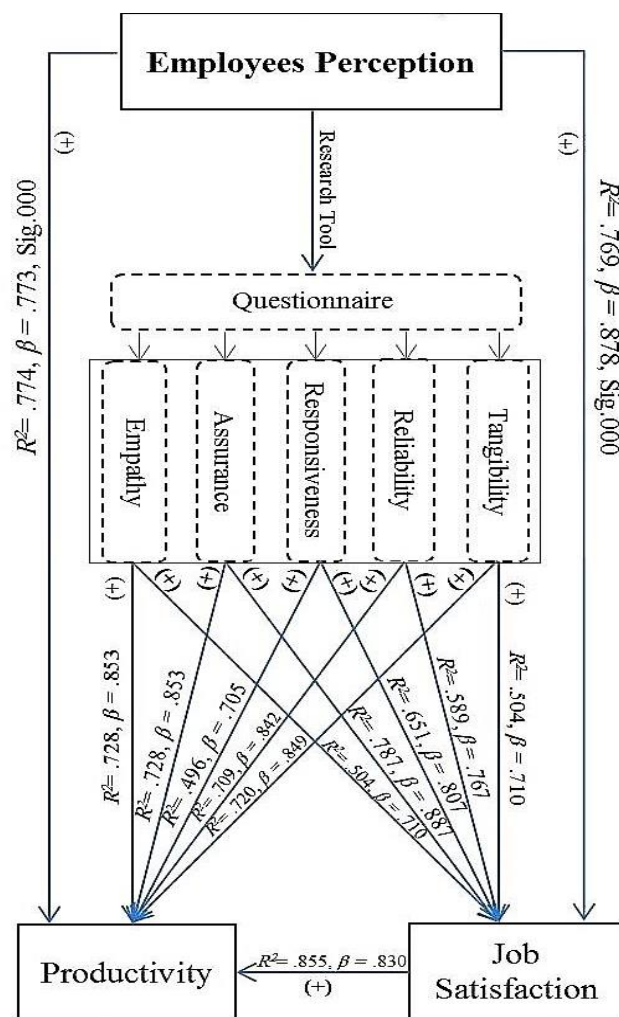


Figure 6: The research conclusion

6. Research Limitations

The limitations of the research can be concluded in lack of resources regarding the literature, as there are no sufficient sources that identified the hospitality services on board OSVs and lack of maritime hospitality data. In addition, the research was conducted in only one national company that is considered the leading national marine service company so; the research is limited to expand the sample to more than one company. Further, the research concentrated only on investigation HK service and the sample didn't reach the percentage of 100% as it was a real difficult to reach the number of three vessels to complete the research sample.

7. Future Research

The research focused on investigating the current status of HK services onboard OSVs besides the impact of employees' perception of service on their job satisfaction and productivity. The research concentrated on one of the most vital services regarding hospitality and accommodation which is housekeeping. As the hospitality service, onboard OSVs include many areas such as catering, guest service, excursion, food and beverage; further research may be devoted to studying any hospitality area. In addition and regarding employee outcomes, the research focused on employees' job satisfaction and productivity so, other organizational outcomes may be considered. Regarding the research sample, the research sampled the offshore units working on the petroleum industry; further research may expand the research feed by considering the onshore units such as passenger ships, ferries and cruise ships.

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