CHAPTER III

RESEARCH METHODOLOGY

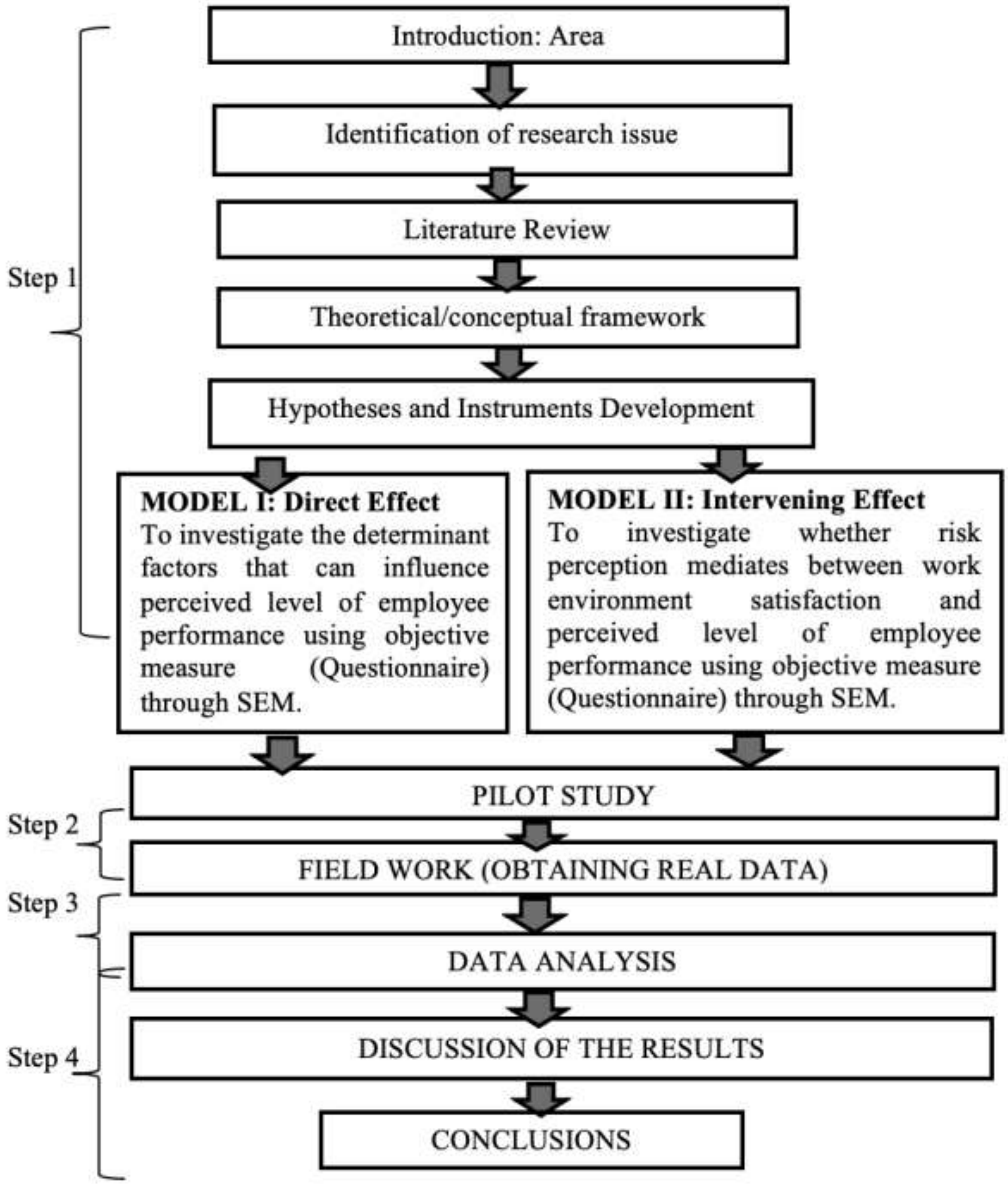
3.1 Introduction

This chapter outlined the research design, the research method, the population under study, the sampling procedure and the method that was used to collect data. The reliability and validity of the research instrument are addressed. Ethical considerations pertaining to the research are also discussed.

3.2 Research Process

Figure 3-1 depicts the research process which highlights the different stages the research employed. The first stage denotes the research's area, this is followed by a thorough assessment of the research literature from earlier chapters. The theoretical and conceptual framework was developed and discussed. Pilot research investigations, preliminary data testing, and instrument modification followed. Fieldwork activities were the third stage and data analysis, interpretation, and conclusions were the last stages.

Figure 3-1: Research Process of the study



3.3 Research Design

The study selected survey and case-study research design under the mixed methods strategy to reach the research objectives. This method was selected because it enables the use of a triangulation strategy, which is considered the best approach to ensure the validity of research findings in social sciences (Bryman, 2008). Additionally, the approach enables the researcher to go to the field to collect data addressing the research question and discovering the effect of risk perception and work environment satisfaction on employee's performance among staffs of Skikda oil refinery in Algeria.

The design is a framework, or road map, that guides the selection of a survey sample and influences a variety of other key elements of the survey (Sutton, 2009). Therefore, the different sampling techniques and methods used in this sample design enable researchers to perform studies on staffs of Skikda oil refinery in Algeria, so that the findings may be utilized to draw conclusions that can be applied to the whole population.

The objectives of the study include descriptive and hypothesis testing. Because this kind of inquiry was correlations study, the study setting was non-contrived. A correlation study is carried out in a natural setting with little researcher intervention. The individual employees' performance level and work environment satisfaction is the unit of analysis for the population to be examined.

3.4 Population and Sample

3.4.1 Study Population

A population is a complete set of people with a specialized set of characteristics, usually defined based on certain criteria such as geographical location (Creswell, 2014), it is divided into two groups: target and accessible populations. The target population refers to the whole group of people or things from whom researchers want to derive findings. It is often referred to as the theoretical population since it has a wide range of features. The accessible population, on the other hand, is a subset of the target population from which the researcher collects his samples (Banerjee & Chaudhury, 2010). The target population of the present study included all workers of Algeria's Skikda oil plant. The sum of employees of Skikda refinery was estimated at 12,000 people (Sonatrach Annual Report, 2019).

3.4.2 Sample Size

In a quantitative research, the participation of a sufficiently large number of individuals is needed, who are basically not required to extensively describe experiences and phenomena in the study (Creswell, 2014). The sample size for this study was determined using Krejcie and Morgan (1970) table of sampling, based on the study population. For the population of 12,000 employees of the selected oil refineries, the required sample size based on Krejcie and Morgan (1970) table, is approximately 376 samples.

Although, a general rule of the thumb is to always use a larger sample size possible, as the larger the sample the more representative it be. Hence from the estimated sampled size that was determined in this study, the value was rounded up to 400 samples in order to take care of outliers, non-response and missing values and questionnaire.

Thus, the minimal sample size for this research is three hundred and seventy-six (376) respondents from a population of 12,000 workers from the chosen oil refineries (Krejcie & Morgan, 1970; Sekaran, 2003). As a result, the sample size will provide enough information for subsequent data processing. Because this research study includes testing at a certain moment in time, four hundred (400) respondents are thought to give more reliable information.

Simple random sampling is used in sampling. Random sampling is a kind of probability sampling design in which everyone has a known and equal chance of being chosen. This sample method is the least biased, and the results can be generalized.

3.4.3 Sampling Technique

Probability sampling methods were used in this research. The goal of this approach is to reduce sample bias (Sekaran, 2003). Probability sampling techniques are mostly used in quantitative studies, and they entail "selecting a relatively large number of units from a population, or from specific subgroups of a population, in a random manner where the probability of inclusion for each member of the population is determinable" (Teddlie & Yu, 2007). In the first instance, the study population was based on oil refineries in Algeria. Skikda oil refinery was selected based on production capacity and being the central and major refinery in Algeria, by which result can be generalized on other refineries. Secondly, by simple random sampling method, based on the estimated employees of the refinery, the sample size was distributed. The employees were randomly selected based on their current job level as, management staff, senior staff, and junior staff.

3.5 Research Instrument

A research instrument is a device that is used to measure natural and social phenomena (Rowold, 2008). A questionnaire, which includes questions or statements designed to assess certain constructs, was used in this research as an instrument. In this study, the questionnaire is designed based on sections with headings that reflect the name of the intended construct, with items measured in Likert scale format. The questionnaire which was adapted from previous studies comprised four (4) different section including; demographic information, work environment satisfaction (Janmaimool & Watanabe, 2014); risk perception (Raziq & Maulabakhsha, 2015) as well as employees' performance (Koopmans et al., 2014).

3.5.1 Operationalization of Data

These questionnaires were adopted from Koopmans et al. (2014) study on Employees' Performance. The 26 items questionnaire adapted from Koopmans et al. (2014) comprised questions regarding task performance, contextual performance, and adaptive performance. A 5-point Likert scale is used for evaluation as shown in Table 3-1. The Contextual and adaptive performance will be based on "Seldom" (1); "Sometimes" (2); "Frequently" (3); "Often" (4); and "Always" (5) while Task performance will be based on "Never" (1); "Seldom" (2); "Sometimes" (3); "Frequently" (4); and "Often" (5).

Table 3-1 Questions on Employees' performance

CODE	FACTORS	QUESTIONS
	Contextual Performance	
P1		I was able to meet my appointments.
P2		I was able to fulfill my responsibilities as specified.
P3		Collaboration with others reduces risk of accident.
P4		I understood others well, when they told me something.
P5		Communication with others led to improve productivity.
P6		I came up with creative ideas at work in order improve productivity
P7		I took the initiative when there was a problem to be solved.
P8		I took the risk when something had to be organized.
P9		I started new tasks myself, when my old ones were finished.
P10		I asked for help when there are leakages in LNG.
P11		I was open to criticism of my work.
P12		I tried to learn from the feedback I got from others on my work.
	Adaptive Performance	
P13		I worked at keeping my job knowledge up to date.
P14		I worked at keeping my job skills up to date.
P15		I have demonstrated flexibility.
P16		I was able to cope well with difficult situations and setbacks at work.
P17		I recovered fast, after difficult situations or setbacks at work.
P18		I came up with creative solutions to new problems
P19		I was able to cope well with uncertain and unpredictable situations at work.
P20		I easily adjusted to changes in my work
	Task Performance	
P21		I managed to plan my work so that it was done on time
P22		I worked towards the end result of my work.
P23		I kept in mind the results that I had to achieve in my work.
P24		I had trouble setting priorities in my work.
P25		I was able to separate main issues from side issues at work.
P26		I was able to perform my work well with minimal time and effort.

These questionnaires were adopted from Janmaimool and Watanabe (2014) who conducted a study on risk perception as depicted in Table 3-2. A Likert scale, a single-select, rating scale question method was used to collect the data related to respondents' attitudes about industrial risks. Respondents were asked to rate their level of concern about potential impacts of air pollutants on their health and well-being, divided into five aspects. In contrast to previous research, on risk perception, where the relevant characteristics of risk and rating scales have been based on literature, the study uses the 5- point rating scale ranged from 1 ("high impact") to 4 ("Extremely Low Impact"). Respondents were asked nine questions, and the results obtained would be tested for their correlation before being added and calculated as a mean score, representing a level of risk perception.

Table 3-2 Questionnaires on Risk Perception

CODE	FACTORS	QUESTIONS
	Risk Perception	
R1		Sometimes it is necessary to ignore safety regulations keep production going
R2		There is sometimes pressure to put production before personal safety
R3		Most accidents could be prevented if a little care and attention was paid to preventive measures
R4		Rules and instructions relating to personal safety sometimes make it difficult to keep up with the production targets.
R5		Whenever I see safety instructions being broken, I point them out.
R6		Sometimes it is necessary to take chances to get a job done.
R7		Lots of small injuries and minor accidents are a sign that more serious accidents could also occur.
R8		Accidents and near misses at the workplace are often the result of bad planning and management.
R9		Pointing out breaches of safety instructions can easily be seen as unnecessary hassle
R10		Good proposal on how to improve safety are often stopped if they cost too much
R11		Some workers are accident prone
R12		The use of machines and technical equipment make accident unavoidable
R13		Most accidents are due to human failure (negligence, inattention)
R14		I never think about the risks now that I am used to the work
R15		The permit to work system is just a paperwork system

This questionnaire was adopted from Raziq and Maulabakhsha (2015) who carried out a study on Work Environment Satisfaction. As shown in Table 3-3, the 25-item questionnaire adapted from Raziq and Maulabakhsha (2015) included questions about esteem needs, job safety and security, working hours, trust, coworker and supervisor relationships, and nature of work to determine the impact of overall working environment satisfaction. The responses were graded on a 5-point Likert scale ranging from "not at all pleased," "dissatisfied," "neither" "slightly satisfied," and "totally satisfied." Many authors opined that statistical packages are the most appropriate and consistent tools for evaluating huge set of data (Buglear, 2005). As a result, the programmed “Statistical Package for Social Sciences” was used for all statistical analyses (SPSS)

Table 3-3 Questionnaires on Work Environment Satisfaction

CODE	FACTORS	QUESTIONS
	Work Environment Satisfaction	
S1		Satisfaction with physical working conditions
S2		Satisfaction with current maintenance of the building
S3		The firm has sufficient arrangements for the health and safety of its employees
S4		Management act very fast to protect employees from accident
S5		The hygiene maintenance in the organization
S6		The company encourages a good work-life balance scheme for its employees (flexible working hours)
S7		The work activities compared to your skills and the opportunities for improving your competence level
S8		Access to equipment necessary for performing your tasks
S9		The firm is committed to employee's development through trainings and workshops
S10		Teamwork in the institution
S11		Possibilities to receive assistance from co-workers when necessary
	Top Management & Esteem Needs	
S12		Supervisor provides me with sufficient information related to work
S13		Supervisor has reasonable expectations of work
S14		Immediate supervisors' trust in fellow co-workers
S15		Responsibility of immediate supervisors toward employees
S16		Opinion regarding the Trust in the Head of the Department
S17		Responsibility in the organization as a whole
	Job Safety Security & Work Hours	
S18		Training helped in advancement of career
S19		Training helped to improve work efficiency
S20		Employees spend their working time effectively
S21		Organization as a work environment meet expectations
S22		There is trust among employees in general
	Relationship with Co-workers	
S23		Conflict resolution skills of immediate supervisor
S24		The career advancement opportunities or your competence in general
S25		Management and professional skills of immediate supervisor
S26		Communication between the immediate supervisor and employees
S27		Satisfaction with the human resources management and the communication between employees

3.6 Data Collection

The collection of data was conducted using random sampling method. The researcher and two enumerators who were trained about the content of the questionnaire visited Skikda oil refinery in Algeria and distributed the questionnaire to the accessible group. Their consent were seek to take part in the survey and they were informed that all the information would be exclusively used for academic purpose only and would be kept confidential. This was done to reduce possible strategic bias. If they understand that their responses would be made available, they might ignore or avoid taking part in the exercise.

3.7 Pilot-Testing

In social science research, the term pilot study is referred to as the pre-testing of a particular research instrument (Baker, 2016). The pilot test aim to ensure, among other things, clarity (i.e., the questionnaire's instruction is clear to the respondents), comfort (i.e., the respondents are comfortable about answering the questions), necessary for proper recording of data (Bryaman, 2018). It also suggested that experts, professionals and potential respondents involved enabling early assessments of the validity and reliability of the research instrument.

These determined the respondents' degree of comprehension and plausibility of the questionnaire's contents and help to improve the questionnaire by identifying and eliminating problems. Previous research has recommended using 10% for the sample size (Connelly, 2008). However, Hertzog (2008) recommended a sample size of 10 to 30 participants for survey research pilot studies to evaluate internal consistency or test–retest reliability. The questionnaires were given to arbitrators for expert review. Part of the observations raise on some of the questions that related to oil pollution were suggested to be removed, the questions on risk perceptions should be clear and unambiguous and should be based on the objectives of the study.

Their observations were adhered to, and the questionnaires were modified before the pilot study was carried out. In this regard thirty (30) questionnaires were distributed for pilot testing within management staff, senior staff and junior staff.

The study carried out Exploratory Factor Analysis (EFA) through SPSS 24.0 on the 30 respondents in order to test the validity of the items used. All the factors loading below 0.05 thresholds were removed. The study further tested the reliability of the data and all the items that do not fall within the Cronbach Alpha threshold were removed. All the items that were removed were shown in Table 3-4. The result of the pilot study revealed good level of internal consistency, reliability, and validity of the instrument; therefore, the data generated was considered highly valid and reliable.

Table 3-4: EFA Removed Items

Construct	Items	N	Factor Loading
Work Environment Satisfaction	S1	30	Removed
	S2	30	Removed
	S3	30	Removed
	S4	30	Removed
	S5	30	Removed
	S6	30	Removed
	S10	30	Removed
	S11	30	Removed
	S12	30	Removed
	S13	30	Removed
	S14	30	Removed
	S15	30	Removed
	S16	30	Removed
	S17	30	Removed
	S20	30	Removed
	S21	30	Removed
	S22	30	Removed
	S27	30	Removed
Employees' Performance	P5	30	Removed
	P10	30	Removed
	P18		Removed
	P20	30	Removed
	P24	30	Removed
	P27	30	Removed
Risk Perception			Removed
	R3	30	Removed
	R5	30	Removed
	R6	30	Removed
	R9	30	Removed
	R10	30	Removed
	R14	30	Removed
	R15	30	Removed

3.7.1 Validity

Validity test is intended to measure how well an instrument measures the concept expected to measure. Validity of a research instrument means that the instrument can be used to measure what is to be measured accurately and correctly. According to Creswell (2003), validity refers to the precision and accuracy of a measuring instrument.

Factorial validity was demonstrated in this research by imputing the data for factor analysis. The quality of research data is determined by the quality of the instruments used to collect data. In order to test the quality of the research data before it is processed and analyzed, there is also the need for considering the concept of measuring data quality namely: validity and reliability. Factor analysis (a multivariate method) findings will validate whether or not the hypothesized dimension developed. As a result, factor analysis will show if the dimensions are, as predicted, accessed by the items in the measure. The following is how each element is evaluated:

3.7.1.1 Discriminant Validity

When the measurement model is devoid of redundant elements, this validity is attained. In terms of high Modification Indices, AMOS will detect the pair of redundant elements in the model (MI). The researcher may run the model after removing one of the components. The correlated pair may alternatively be specified as a "free parameter estimate" by the researcher. The correlation between exogenous constructs should be smaller than 0.85, which is another criterion for discriminant validity. Validity is attained, according to James (2011), when the measurement model is devoid of redundant elements. The first step is to achieve one-dimensionality, which could be achieved when the measuring items have acceptable factor loadings for the respective latent construct. In order to ensure one-dimensionality of a measurement model, any item with a low factor loading should be deleted. For newly developed items, the factor loading for an item should be 0.5 or higher while for already established items, the factor loading for an item should be 0.6 or higher.

The deletion should be made on one item at a time with the lowest factor loading item to be deleted first. After the item is deleted, the researcher needs to run the new measurement model. The procedure is repeated until the criterion for one-dimensionality is met. In terms of high Modification Indices, AMOS was utilized to detect a pair of redundant elements in the model (MI). As indicated in table 3-5, several items with high MI higher than 15 were given a free parameter; between e3, e21, and e34, the free parameter was added. The table 3-5 shows that the modification index varies from 4.090 to 13.803, because all the indicators are below 15 (James, 2011), and none of the elements are repetitive, the constructions are all acceptable.

Table 3-5: Modification Indices (Co variances)

			M.I.	Par Change
e34	<-->	Risk Perception	6.251	-.050
e33	<-->	Performance	4.286	-.021
e33	<-->	e34	8.678	-.046
e21	<-->	Env_ Satisfaction	4.292	-.012
e21	<-->	Risk Perception	6.898	-.042
e21	<-->	e34	8.307	.052
e20	<-->	e34	7.611	-.024
e14	<-->	Performance	6.745	.036
e13	<-->	Performance	10.237	-.021
e9	<-->	Env_ Satisfaction	5.941	.010
e9	<-->	e33	5.103	.020
e6	<-->	Env_ Satisfaction	7.016	.007
e6	<-->	e21	13.803	-.024
e5	<-->	Risk Perception	9.576	.036
e5	<-->	e13	4.718	-.013
e3	<-->	Env_ Satisfaction	5.166	.013
e3	<-->	Risk Perception	4.090	-.032
e3	<-->	e14	4.319	.034
e3	<-->	e7	5.011	-.015

The correlation between exogenous constructs should be smaller than 0.85, which is another criterion for discriminant validity (Zainuddin, 2012). Table 3-6 shows that the correlations among the exogenous variables are all less than 0.85 thresholds. All the correlation estimates are lower than James's (2011) 0.85 estimations.

Table 3-6: Discriminant Validity Results for the Model

Construct	Work Environment Satisfaction	Risk Perception	Performance
Work Environment Satisfaction	**0.71**		
Risk Perception	0.13	**0.90**	
Employees' Performance	-0.32	-0.16	**0.74**

Diagonal in bold represent the square root of AVE while the other entries represent the correlation

3.7.1.2 Convergent Validity

When all items in a measuring model are statistically significant, it is said to have convergent validity. The convergent validity of each construct may also be checked by calculating the Average Variance Extracted (AVE). For Convergent Validity to be achieved, the value of AVE must be 0.5 or greater. When all items in a measuring model are statistically significant, this validity is attained. The convergent validity of each construct may also be checked by calculating the Average Variance Extracted (AVE). For Convergent Validity to be achieved, the value of AVE should be 0.5 or greater (Hair et al., 2010). All the constructs in Table 3-7 achieved Average Variance Extraction (AVE) with values ranging from 0.500 to 0.809, which were higher than the 0.5 criterion.

Table 3-7: Results of validity of measurement model

Model Construct	Number of items	Average Variance Extracted (AVE)
Work Environment Satisfaction	4	0.500
Employees' Performance	6	0.554
Risk Perception	3	0.809
AVE=$\sum K^2/n$ where k=factor loading for every item and n=number of items in a model		

3.7.2 Reliability

Reliability on the other hand, refers to the measure of internal consistency of the items measuring particular construct. It is the extent of how reliable the said measurement model is measuring the intended latent construct. The test may be carried out either internally, by evaluating the internal consistency of the items, or externally, by testing and retesting the instrument. According to Haer and Becher (2012), measuring instrument dependability is defined as the degree of accuracy, precision, or accuracy shown by the device. The purpose of reliability testing is to see whether the instruments employed consistently give the same results on various occasions. A popular technique of reliability testing is the Cronbach's Alpha (0.05) value. Based on the aforementioned criteria, the researchers chose to utilize the SPSS program to evaluate the validity and reliability. The assessment for reliability for a measurement model could be made using the following criteria:

3.7.2.1 Internal Reliability

Internal reliability was assessed with a Cronbach's Alpha value of higher than 0.7 (measured in SPSS) indicating success (Zainudin, 2014). When the Cronbach's Alpha coefficient is higher than 0.7 (measured in SPSS 23.0), the research is considered reliable.

Table 3-8: Results of Reliability of Measurement Model

Model Construct	**Cronbach Alpha (Above 0.7)**	**Composite Reliability**	**Average Variance Extracted (AVE)**
Work Environment Satisfaction	0.789	0.662	0.500
Employees' Performance	0.885	0.876	0.554
Risk Perception	0.922	0.927	0.809

AVE=$\sum K^2/n$ and CR= $(\sum K)^2/[(\sum K)^2+(\sum 1-K^2)]$ where k=factor loading for every item and n=number of items in a model

From Table 3-8, all the constructs Cronbach's Alpha coefficients were above the 0.7 threshold. Risk perception has the highest Cronbach's Alpha coefficient of 0.922.

3.7.2.2 Composite Reliability

In addition, the study tested Composite Reliability (the measure of reliability and internal consistency for a latent construct). However, a value of CR > 0.6 (CR is calculated using the given formula) was required in order to achieve composite reliability for a construct (Zainudin, 2014). To obtain composite dependability for a build, the CR value must be greater than 0.6. It is a measure of a latent construct's internal consistency, (the provided formula is used to compute CR.). Table 3-8 shows that the composite dependability values vary from 0.662 to 0.927, which is greater than the 0.6 criteria.

3.7.2.3 Average Variance Extracted (AVE)

The Average Variance Extracted (AVE) method for assessing average proportion of variance explained by the measuring items for a construct was also tested in this research. The AVE must be more than 0.5 (the AVE is computed using the formula provided) (Zainudin, 2014). The average proportion of variance explained by the measuring items for a construct is represented by AVE. It's necessary to have an AVE of at least 0.5. (AVE is calculated using the given formula). Table 3-8 shows that risk perception has the highest AVE of 0.809, while others have AVEs higher than 0.5.

3.8 Data analysis

The data analysis in this study was majorly done with SPSS software, especially for the descriptive statistics and inferential statistics. The descriptive statistics was employed for the demographic characteristics of the respondents. In order to examine the mediating effect of the moderator (risk perception) between IV (work environment satisfaction) and DV (employees' performance), the Maximum Likelihood Estimator Structural Equation Modeling (MLE-SEM) technique was used. The statistical analysis was aided by computer software (SPSS) and the SPSS-AMOS (Version 24).

3.8.1 Structural Equation Model (SEM) Analysis:

The SEM regression Analysis was used to analyze the data obtained from the questionnaire in this research. In this research, the employees' performance in Skikda Oil Refinery of Algeria attempted to be developed. This test was used to determine the proper connection between these variables. The following is a representation of the analysis:

3.8.1.1 The Steps Involved in CFA for the Measurement Model of a Latent Construct

According to Zainudin (2014): Confirmatory Factor Analysis (CFA) should be used for the measurement mode; evaluate the measuring model's necessary for Fitness Indexes; examine factor loading; delete an item with a factor loading less than 0.5 (as suggested by the literature); delete one item at a time (select the lowest factor loading to delete first); run this new measurement model (the model after an item is deleted); examine the Fitness Indexes – repeat steps until the fitness indexes are achieved. If the Fitness Index is still not met, look at the Modification Indices (MI); a high value of MI (above 15) indicates that there are redundant items in the model (The MI indicates a pair of redundant items in the model), and the study could choose one of the following options to solve the redundant items:

- Option 1: Remove one of the elements (select the item with the lowest factor loading), run the measurement model, and repeat the procedures above.

- Option 2: Run the measurement model and repeat the previous steps with the pair of redundant items set as "free parameter estimate."

The permissible amount of factor loading, the level of fitness indices, and the technique of modifying the measurement model differs across literature's (Zainudin, 2014). The Cronbach's Alpha, CR, and AVE for the final measurement model was be obtained and the report of the normality assessment for all measurement models involved was assessed

3.8.1.2 Analyzing the intervening variable for Latent Constructs: The Multi-Group CFA

Multi-Group CFA may be broken down into a few steps:

i. Based on the variable to be examined, divide the data into three groups.
ii. Separate the data into two files: The files should be labeled dataset 1, dataset 2, and dataset 3.
iii. To test the intervening variable, choose the route of interest in the model.
iv. Create three different AMOS models: Model 1, Model 2, and Model 3 have been renamed.

3.8.2 Justification for Using Maximum Likelihood Approach (MLE-SEM) with AMOS

The Maximum Likelihood Estimator (MLE) method via Structural Equation Modeling (Chumney, 2012) utilizing AMOS 24.0 software was the second statistical technique utilized. The MLE analysis was performed to evaluate the measurement model, including its validity, reliability, and structural model, as well as the study's assumptions. This research utilized the maximum likelihood estimators (MLE) method via structural equation modelling to analyze survey data (SEM). Because of its capacity to assess systems of variables and connections concurrently, SEM overcomes the constraints of Ordinary Least Square (OLS) or first-generation methods such as Logistic Regression, Multiple Regression, Hierarchical Regression, and others (Chumney, 2012). The SEM technique was created as an OLS extension to address OLS's limitations (Zainudin, 2014). Therefore, SEM is recognized as second generation statistical technique used to analyze interrelationships among multiple variables and simultaneous modeling of relationships among constructs (Gefen, 2000).

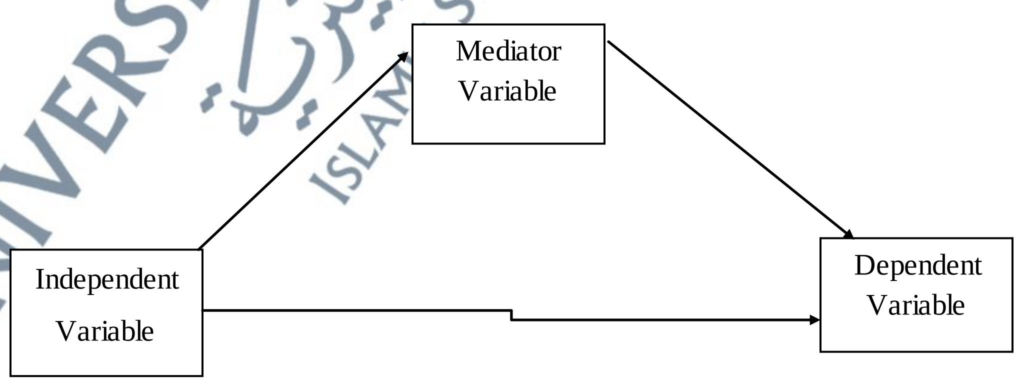
3.8.2.1 Direct Effect of the Constructs

The direct impact on measurement for the pooled constructs was investigated in this research. The route analysis result as well as the regression estimate values was shown. All of the fitness index's requirements were met.

3.8.2.2 Mediating Effect of the Constructs

According to Zainudin (2012), using Maximum Likelihood Estimator, firstly, the study should begin by modelling the simple direct effect of work environment satisfaction on employees' performance as shown in Figure 3-2.

Figure 3-2: Mediating Effect of the Constructs



According to Zainuddin (2012), from Figure 3-2, when the mediator variable (risk perception) enters the model, the direct effect (β1) would be reduced since some of the effect has shifted through the mediator. If it is reduced but still significant (p-value < 0.001), the mediation effect here is called "partial mediation". However, if the direct effect (β1) is reduced and no longer significant (p-value > 0.05), then the mediation is called "complete mediation".

3.9 Chapter Summary

This chapter provided details about the procedure and methodology used in the study. Information about research process, research design, population and sampling procedure were provided to give clear picture of how the study was carried out. Research Instruments were fully explained, and the pilot study was carried out to test the validity as well as reliability of the instrument. Data collection procedure and method of data analysis used in this research was fully explained. A justification for using Maximum Likelihood Estimator was also explained.

CHAPTER IV

DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents analysis of the collected about the research questions and objectives of the study. Data cleaning, coding, screening, and response rate were all covered in this chapter. Demographic features and descriptive analysis were also covered. The findings of the research utilizing SEM as an analytical technique were discussed in the last section of this chapter. This is divided into two stages: measurement model evaluation and structural equation model evaluation (SEM) evaluation through direct and mediated effects.

4.2 Data Cleaning and Coding

After gathering data from Skikda Oil and Gas Refinery employees, data cleaning was carried out to verify the correctness and consistency of the information gathered. Cleaning is an essential component of data analysis and data processing (Zikmund (2000). Sekaran (2000) elaborates on this point, stating that questionnaires with more than 25% unanswered items should be rejected, while respondents who completed at least 75% of the questionnaire are acceptab le. The coding methods in this research were carried out by creating a data file in AMOS 24.0.

4.3 Data Screening and Missing Data

Data screening is a crucial step in the data analysis process before moving on to Structural Equation Modelling. Data screening, according to Tabachnick & Fidell (2007), include verifying data input correctness, dealing with missing numbers, and identifying outliers. Data that has not been filtered may have an impact on the analyses' outcome. This may have an impact on the data's outcome. Before the appropriate analysis, it is critical to verify that data is properly gathered, and that the distribution is normal. For the purposes of this research, mean and standard deviation were utilized to screen and evaluate the correctness of the data supplied. All the answers fell inside the 5-point Likert scale. According to Kline (2005), if missing values account for less than 5% of a single variable, the missing data are deemed to be incidental and not systematic, and there is no cause for worry. Cohen and Cohen (1983) endorse this perspective, stating that a missing data value of up to 10% is not regarded significant and unlikely to be harmful. The missing value in this research is approximately 6%, which is far below the prior study's estimate of 10% (Kline, 2005).

4.4 Response Rate

Data was collected from the employees of Skikda Oil and Gas Refinery. Four hundred (400) questionnaires were distributed and 376 were useable after cleaning the missing data. This represents 94% response rate. The survey has an effective sample size of 376 useable completed questionnaires since only 6% of the questions were invalid.

4.5 Demographic Characteristics

As stated in previous chapter, the employees' profile information was presented in this study. The employees' characteristics sample are important because the unit of analysis used in this study is at individual level (individual employees). The results shown in Table 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8 indicate differences in the demographics of the respondents including Gender, Age, Marital Status, Income, Educational Level, Job Position, Department/Unit and Years in Service respectively.

4.5.1 Gender

As illustrated in the Table 4-1, the gender of the respondents indicates a higher number of males (374) respondents and (2) females representing 99.5% and 0.5% respectively.

Table 4-1: Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	374	99.5	99.5	99.5
	Female	2	0.5	0.5	100.0
	Total	376	100.0	100.0	

4.5.2 Age of the Respondents

As illustrated in the Table 4-2, the age of the individual respondents indicates most of the employees are around 28 years of age.

Table 4-2: Age of Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	22	1	.3	.3	.3
	23	3	.8	.8	1.1
	24	7	1.9	1.9	2.9
	25	19	5.1	5.1	8.0
	26	16	4.3	4.3	12.2
	27	19	5.1	5.1	17.3
	28	26	6.9	6.9	24.2
	29	17	4.5	4.5	28.7
	30	14	3.7	3.7	32.4
	31	11	2.9	2.9	35.4
	32	16	4.3	4.3	39.6
	33	20	5.3	5.3	44.9
	34	20	5.3	5.3	50.3
	35	19	5.1	5.1	55.3
	36	21	5.6	5.6	60.9
	37	24	6.4	6.4	67.3
	38	23	6.1	6.1	73.4
	39	21	5.6	5.6	79.0
	40	17	4.5	4.5	83.5
	41	13	3.5	3.5	87.0
	42	15	4.0	4.0	91.0
	43	13	3.5	3.5	94.4
	44	7	1.9	1.9	96.3
	45	9	2.4	2.4	98.7
	46	2	.5	.5	99.2
	47	2	.5	.5	99.7
	48	1	.3	.3	100.0
	Total	376	100.0	100.0	

4.5.3 Marital Status

As illustrated in the Table 4-3, the marital status of the individual respondents indicates a higher number of married workers (289) respondents than singles (84) and divorced (3) representing 76.9%, 22.3% and 0.8% respectively

Table 4-3: Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	289	76.9	76.9	76.9
	Single	84	22.3	22.3	99.2
	Divorced	3	.8	.8	100.0
	Total	376	100.0	100.0	

4.5.4 Income of the Respondents

As illustrated in the Table 4-4, the worker's income of the individual respondents indicates majority of the respondents earned around 800 and 900 representing 13% and 8.5% respectively.

Table 4-4: Income of the Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	750	13	3.5	3.5	3.5
	760	1	.3	.3	3.7
	780	8	2.1	2.1	5.9
	790	3	.8	.8	6.6
	800	49	13.0	13.0	19.7
	850	5	1.3	1.3	21.0
	860	1	.3	.3	21.3
	880	12	3.2	3.2	24.5
	890	7	1.9	1.9	26.3
	900	32	8.5	8.5	34.8
	950	4	1.1	1.1	35.9
	980	7	1.9	1.9	37.8
	1000	18	4.8	4.8	42.6
	1100	12	3.2	3.2	45.7
	1200	16	4.3	4.3	50.0
	1250	1	.3	.3	50.3
	1300	4	1.1	1.1	51.3
	1400	5	1.3	1.3	52.7
	1500	8	2.1	2.1	54.8
	1600	11	2.9	2.9	57.7
	1700	9	2.4	2.4	60.1
	1800	33	8.5	8.5	68.6
	1900	17	4.5	4.5	73.1
	2000	13	3.5	3.5	76.6
	2200	15	4.0	4.0	80.6
	2300	32	8.5	8.5	89.1
	2400	13	3.5	3.5	92.6
	2500	10	2.7	2.7	95.2
	2600	12	3.2	3.2	98.4
	2800	2	.5	.5	98.9
	3600	1	.3	.3	99.2
	4600	1	.3	.3	99.5
	4900	1	.3	.3	99.7
	Total	376	100.0	100.0	

4.5.5 Educational Level

As illustrated in the Table 4-5, the educational level of the individual respondents indicate majority of the respondents are diploma/college graduate, bachelor's degree and secondary school representing 54%, 30.9% and 15.2% respectively.

Table 4-5: Educational Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	57	15.2	15.2	15.2
	Diploma/College	203	54.0	54.0	69.1
	Bachelor	116	30.9	30.9	100.0
	Total	376	100.0	100.0	

4.5.6 Job position

As illustrated in the Table 4-6, the job position of the individual respondents indicate majority of the respondents are senior staff representing 55.9%; of which it comprises of the managerial team, and junior staff representing 44.1.%.

Table 4-6: Job position					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Junior Staff	166	44.1	44.1	44.1
	Senior Staff	210	55.9	55.9	100.0
	Total	376	100.0	100.0	

4.5.7 Department/Unit of Workers

As illustrated in the Table 4-7, the Department/Unit of the employees indicate all respondents are given equal chances representing around 5.3% to 7.2%.

Table 4-7: Department/Unit of Workers					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Technical Directorate	23	6.1	6.1	6.1
	Managing Directorate	3	.8	.8	6.9
	Regional Management	23	6.1	6.1	13.0
	SIE	21	5.6	5.6	18.6
	EP Director	27	7.2	7.2	25.8
	Directorate XP	21	5.6	5.6	31.4
	Directorate ONR	26	6.9	6.9	38.3
	TOUAT Directorate	22	5.9	5.9	44.1
	legal division	20	5.3	5.3	49.5
	IT Division	23	6.1	6.1	55.6
	Supply Division	24	6.4	6.4	62.0
	RHU Division	25	6.6	6.6	68.6
	HSE	23	6.1	6.1	74.7
	Finance Division	24	6.4	6.4	81.1
	NOC Division	24	6.4	6.4	87.5
	LOG Directorate	23	6.1	6.1	93.6
	MN Directorate	24	6.4	6.4	100.0
	Total	376	100.0	100.0	

4.5.8 Years in Service

As illustrated in the Table 4-8, the years in service of the individual respondents indicate majority of the respondents have spent 2-3 years in service representing 20.2% and 16% respectively.

Table 4-8: Years in Service					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	23	6.1	6.1	6.1
	2	76	20.2	20.2	26.3
	3	60	16.0	16.0	42.3
	4	20	5.3	5.3	47.6
	5	12	3.2	3.2	50.8
	6	35	9.3	9.3	60.1
	7	16	4.3	4.3	64.4
	8	21	5.6	5.6	69.9
	9	13	3.5	3.5	73.4
	10	24	6.4	6.4	79.8
	11	16	4.3	4.3	84.0
	12	23	6.1	6.1	90.2
	13	17	4.5	4.5	94.7
	14	11	2.9	2.9	97.6
	15	6	1.6	1.6	99.2
	16	3	.8	.8	100.0
	Total	376	100.0	100.0	

4.6 Analysis of Result

The descriptive data for the survey indicator were obtained from Table 4-9. Each indicator's mean, standard deviation, lowest value, and maximum value were calculated using SPSS version 24.0. The descriptive statistics derived from survey instruments for the model are shown in this table. The model's descriptive statistics for the construct are shown in Table 4-9. The model's indicators were all rated on a 5-point Likert scale. All the data that was measured in this model used data goals.

Table 4-9: Descriptive Statistics for Survey Indicator

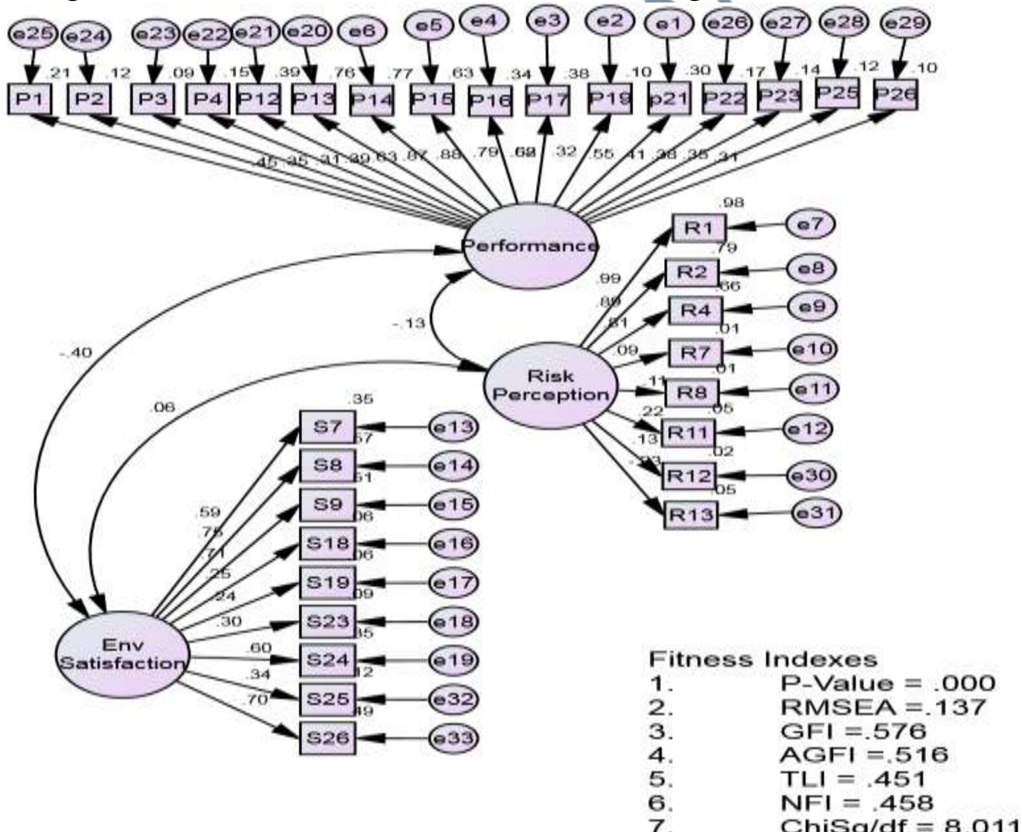
Construct	Items	N	Minimum	Maximum	Mean	Std. Deviation
Work Environment Satisfaction	S7	376	2	4	2.12	.341
	S8	376	2	4	2.53	.861
	S9	376	2	4	2.36	.651
	S18	376	2	5	3.20	.847
	S19	376	2	5	3.23	.836
	S23	376	1	4	2.11	.477
	S24	376	1	4	2.09	.798
	S25	376	1	5	2.11	.426
	S26	376	1	4	2.29	.551
Employees' Performance	P1	376	1	5	3.54	.601
	P2	376	2	5	3.78	.592
	P3	376	3	5	4.30	.605
	P4	376	2	5	3.89	.606
	P12	376	1	5	3.83	.661
	P13	376	2	5	4.04	.559
	P14	376	2	5	4.08	.531
	P15	376	2	5	3.98	.589
	P16	376	1	5	1.61	.963
	P17	376	1	4	1.57	.790
	P19	376	1	4	2.66	.584
	P21	376	2	5	4.07	.596
	P22	376	3	5	4.72	.475
	P23	376	2	5	4.71	.484
	P25	376	2	5	4.08	.543
	P26	376	2	5	3.97	.615
Risk Perception	R1	376	1	4	3.82	.591
	R2	376	1	5	3.80	.620
	R4	376	1	5	3.84	.631
	R7	376	1	4	2.06	.399
	R8	376	1	4	2.13	.559
	R11	376	1	4	2.00	.310
	R12	376	1	4	2.00	.225
	R13	376	1	4	1.33	.518

4.6.1 Analysis of the Data

As stated earlier, the analysis and interpretation of a structural equation model involves the following processes. It begins with a review of the CFA measurement model, followed by a review of the structural equation model.

4.6.1.1 The CFA Measurement Model Combining All Latent Constructs Simultaneously

Figure 4-1: Pooled Measurement Model Combining All Latent Constructs



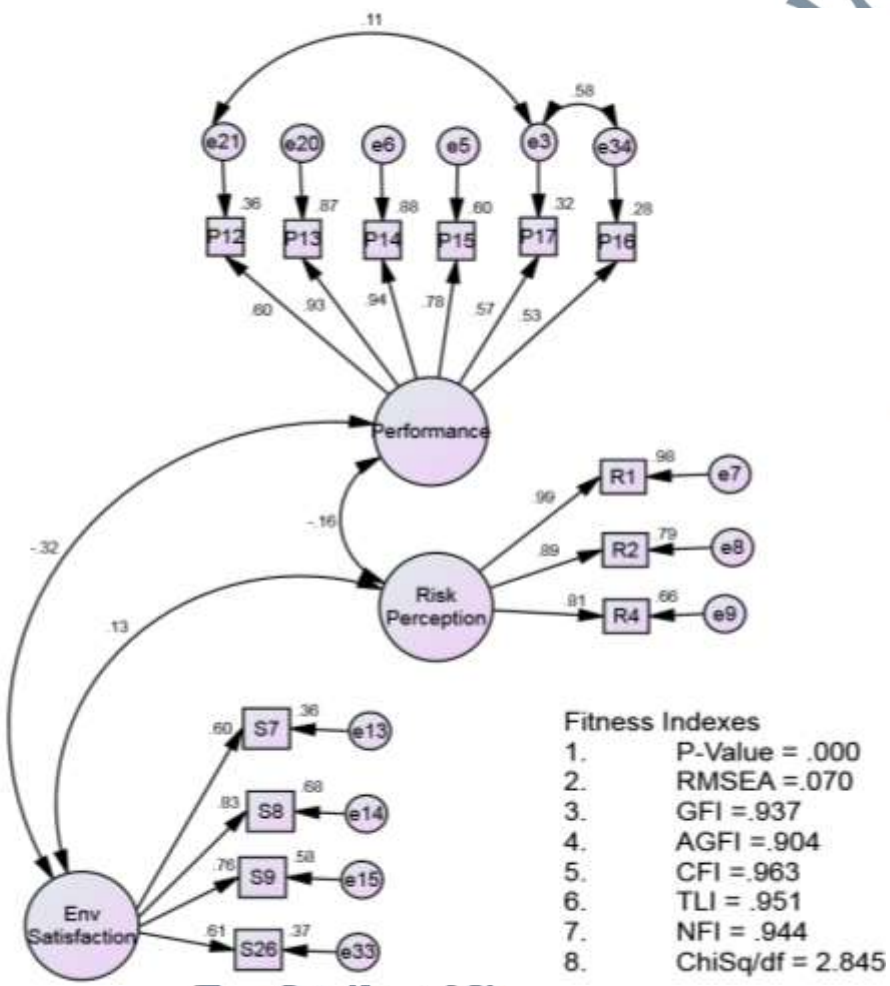
Certain fitness indices for the pooled constructs do not meet the necessary threshold in order to determine the factor of this research (as indicated in Figure 4-1). When the researchers looked at the factor loading, they found that, the loading for item P1, P2, P3, P4, P19, P21, P22, P23, P25, P26 (from construct Performance), items R7, R8, R11, R12, R13 (from construct Risk perception); and item S18, S19, S23, S24, S25 (from construct Work Environment Satisfaction) are below 0.5. These items have caused the measurement model for the constructs to be poorly fit. Therefore, the items were deleted one by one, and the new measurement model was re-run as shown in Figure 4-2.

After the deletion of all the stated items, the fitness index for AGFI is still below the required level even though the factor loading for all items are above 0.5. Thus, one might suspect that certain items were redundant of each other in the measurement model. The items redundancy was examined through inspecting the Modification Indexes (MI). These factors contributed to the measurement model's poor fit.

Because the fitness index AGFI did not reach the necessary level of 0.9 owing to superfluous elements, the research changed the measuring methodology. According to Zainudin (2012), the researcher has two options when dealing with the redundant items in the model: delete one of the two redundant items and run the new measurement model or set these two correlated measurement errors of redundant items as a "free parameter" and run the new measurement model.

For the purpose of this study, the redundant items were not deleted, and free parameters was introduced between (P12 and P17) and (P16 and P17). The fitness index conditions were achieved. Consequently, as shown in Figure 4-2, a new measuring model has been developed.

Figure: 4-2: The New Measurement Model for Pool Construct: ***Factor loading, correlation and R^2***



After achieving factor loading, the research moves on to checking the data's unidimensionality.

4.6.1.2 Unidimentionality

Unidimentionality is achieved when the measuring items have acceptable factor loadings for the respective latent construct. In order to ensure unidimentionality of a measurement model, any item with a low factor loading should be deleted (Zainudin, 2012). For already established items the factor loading for an item should be 0.5 or higher. All the other variables in table 4-10 met the Unidimentionality criteria and were over the 0.5 limits. Thus, all item removed are with low factor loading below 0.5

Table 4-10: Factor Loading for the Model

Construct	**Factor Loading**	**N**
	Items	**Loading**
		1
Work Environment Satisfaction		
	S7	0.60
	S8	0.83
	S9	0.76
	S18	Removed
	S19	Removed
	S23	Removed
	S24	Removed
	S25	Removed
	S26	0.61
Employees' Performance	P1	Removed
	P2	Removed
	P3	Removed
	P4	Removed
	P12	0.60
	P13	0.93
	P14	0.94
	P15	0.78
	P16	0.53
	P17	0.57
	P19	Removed
	P21	Removed
	P22	Removed
	P23	Removed
	P25	Removed
	P26	Removed
Risk Perception	R1	0.99
	R2	0.89
	R4	0.81
	R7	Removed
	R8	Removed
	R11	Removed
	R12	Removed
	R13	Removed

4.6.1.3 Fitness Index of the Model

When the Fitness Indexes for a construct reach the necessary level, construct validity is established. Table 4-11 shows the fitness indices and degree of need for this research.

Table 4-11: Fitness Index for the Model

Type	**Name of Index**	**Acceptable Fit**	**Index value of the study**	**Comments**
1. Absolute fit	Chisq		Sample size=376	The required level is achieved
	p-value	P greater than 0.05	0.000	
	RMSEA	RMSEA less than 0.080	0.070	
	GFI	GF1 greater than 0.90	0.937	
	AGFI	AGF1 greater than 0.90	0.904	
2. Incremental fit	CFI	CF1 greater than 0.90	0.963	The required level is achieved
	TLI	TF1 greater than 0.90	0.951	
	NFI	NF1 greater than 0.90	0.944	
3.Parsimonious fit	Chisq/df	Chi square/df less than 5.0	2.845	The required level is achieved

In the Table 4-11, the required level of the absolute fit such as the p-value of the study is significant at 5% level. The RMSEA should range between 0.050 and 0.080. While 0.050 is a good fit, value that falls within 0.080 is an acceptable fit (Zainuddin, 2012). However, the study RMSEA is 0.070 a value that meet the required level. The GFI and AGFI are greater than 0.90 required threshold. In order to measure the incremental fit, the CFI, TFI, NFI are greater than 0.90 thresholds as required. The parsimonious fit shows that chi square/df of the study 2.845 is less than the 5.0 as required. This shows that the data are fit for the structural equation modeling. As a consequence of the model's sufficient unidimensionality and fitness index, all of the constructs were valid measures based on their parameter estimations (Chow & Chan, 2008).

4.6.2 Measurement of Structural Equation Model (Hypothesis Testing)

The next stage after analyzing the CFA measurement model is to create a structural equation model by analyzing the model. In order to test for significance, the data was tested using 1000 bootstrapped samples as suggested by Davidson and Mackinnon (2000) with 376 cases for the model sample.

Structural equation model was used in this study to determine the overall direct effect of the factors affecting the employees' performance at Skikda Oil and gas refinery and to assess the mediating effect of the risk perception on employees' performance.

4.6.2.1 Direct (Unconstrained) Effect of the Constructs

The findings demonstrated sufficient unidimensionality and the model's fitness index, indicating that all constructs were legitimate measures based on their parameter estimates (Chow & Chan, 2008)

H_1: There is significant difference in employees' risk perception and their performance among staff of Skikda oil refineries in Algeria

Figure 4-3: Regression Weights: Employees' Risk Perception and their Performance

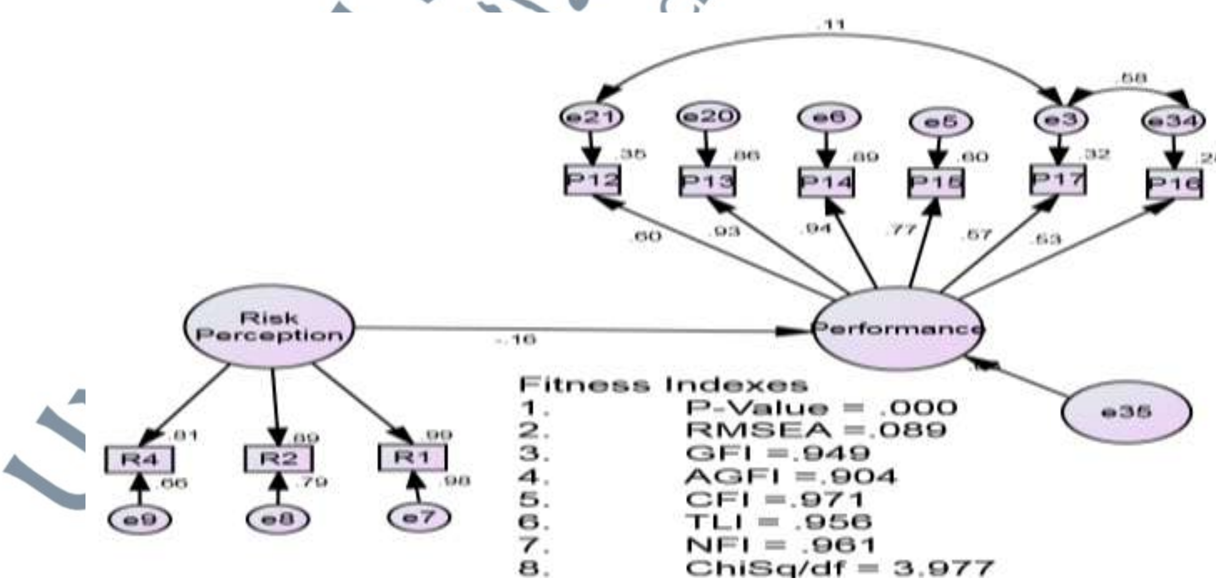


Table 4-12: Regression Weights: Employees' Risk Perception and their Performance

			Estimate	S.E.	C.R.	P-value	Result on hypothesis
Employees' Performance	<---	Risk Perception	-0.163	0.042	-3.881	.003	Significant

The study models the simple effect of risk perception on employees' performance as shown in Figure 4-4. As illustrated in Figure 4-4, the research investigates the direct impact of risk perception on employees' performance. B1 is -0.163, and it has a significant impact on employees' performance (p-value 0.05), as shown in Table 4-13. In other words, the regression weight for the risk perception in the prediction of perceived level of performance is significantly different from zero at the 0.05 level (two-tailed). In other words, the hypothesis stated above is significant.

H_2: There is significant difference in the effect of work environment satisfaction and employees' performance among staff of Skikda oil refineries in Algeria.

Figure 4-4: Regression Weights: Work Environment Satisfaction and Employees' Performance

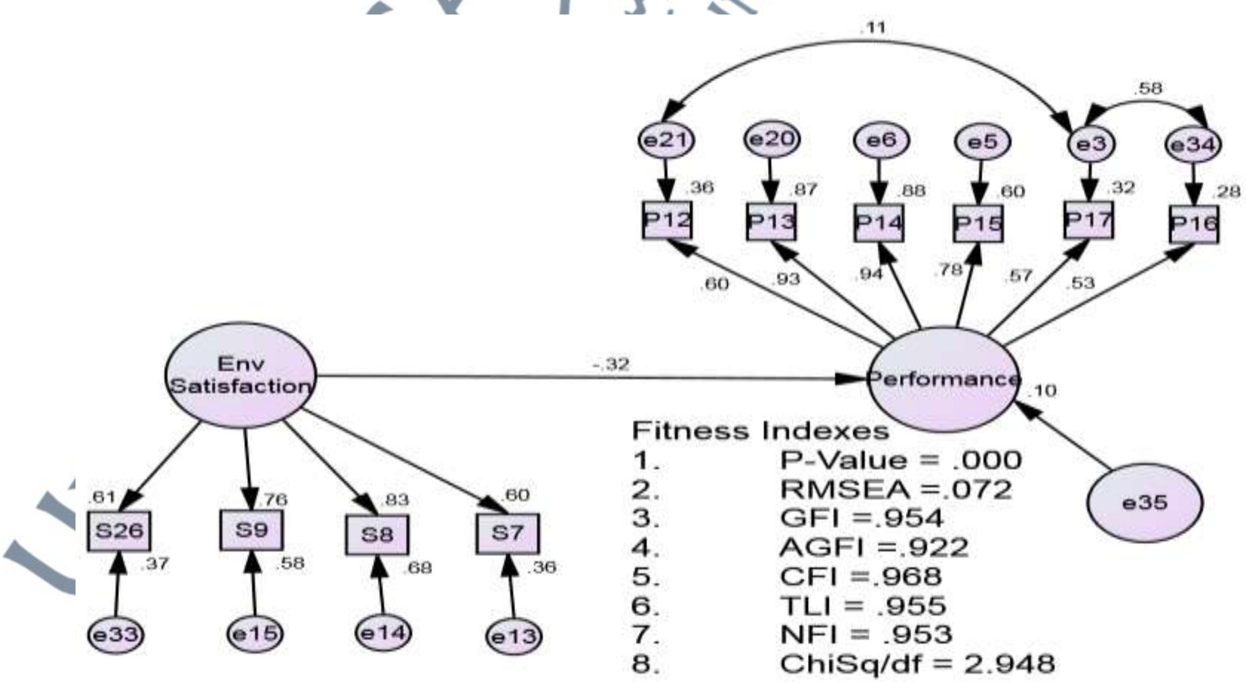


Table 4-13: Regression Weights: Work Environment Satisfaction and Employees' Performance

			Estimate	S.E.	C.R.	P-value	Result on hypothesis
Employees' Performance	<---	Env_ Satisfaction	-0.324	.144	-2.500	0.000	Significant

To begin, as illustrated in Figure 4-3, the research models the basic impact of work environment satisfaction on employees' performance. As illustrated in Figure 4-3, the research investigated the direct impact of work environmental satisfaction on employees' performance. B1 is -0.324, and it has a substantial impact on employees' performance (p-value 0.001), as shown in Table 4-12. In other words, the regression weight for work environment satisfaction in the prediction employees' performance is significantly different from zero at the 0.001 level (two-tailed). In other words, the hypothesis stated above is significant.

H_3: There is significant difference in employees' risk perception level and work environment satisfaction among staff of Skikda oil refineries in Algeria

Figure 4-5: Regression Weights: Risk Perception and Work Environment Satisfaction

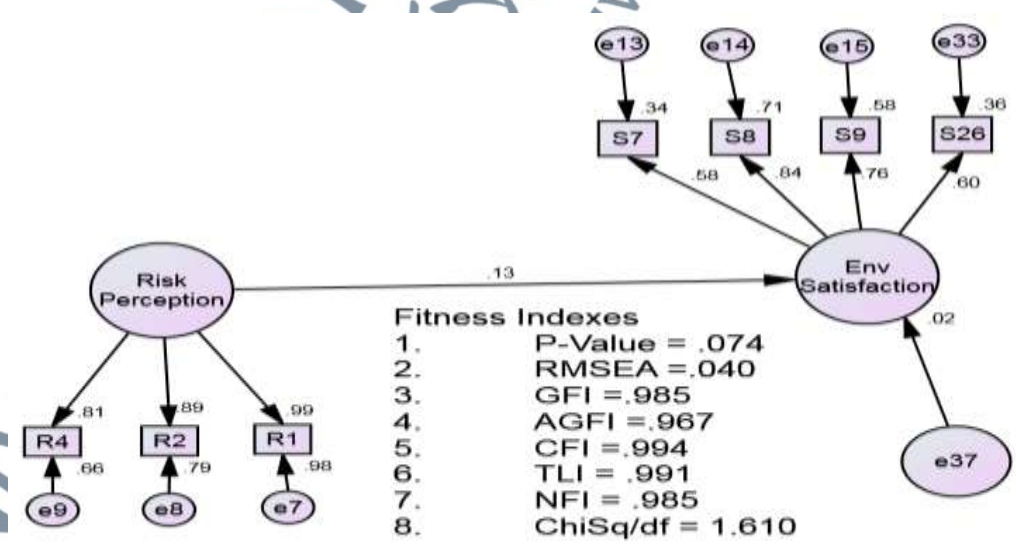


Table 4-14: Regression Weights: Risk Perception and Working Environment Satisfaction

			Estimate	S.E.	C.R.	P-value	Result on hypothesis
Env_ Satisfaction	<---	Risk Perception	0.126	0.020	6.300	0.029	Significant

The study models the simple effect of work environment satisfaction on risk perception, figure 4-5 depicts this view. As illustrated in Figure 4-5, the research investigates the direct impact of work environmental satisfaction on risk perception. B1 is 0.126, and it has a substantial impact on risk perception (p-value 0.05), as shown in Table 4-14. In other words, the regression weight for work environment satisfaction in the prediction of risk perception is significantly different from zero at the 0.05 level (two-tailed). In other words, the hypothesis stated above is significant.

4.6.2.2 Mediating Effect of Latent Constructs

After running the model for direct effect (unconstrained), the next is the inclusion of risk perception to test the mediating effect on the employees' performance. First, the direct effect of independent variable on dependent variable is significant. When the mediator variable "risk perception" enters the model, the direct effect would be reduced since some of the effect has shifted through the mediator. If it is reduced but still significant, the mediation effect here is called "partial mediation". However, if the direct effect is reduced and no longer significant, then the mediation is called "complete mediation" (Zainudin, 2012). The mediation effect was tested through Hypothesis 4.

H4: Employees' risk perception mediates the relationship between work environment satisfaction and employees' performance among staff of Skikda oil refineries in Algeria.

Figure 4-6: Regression Weights: Mediating Effect of Latent Constructs (Risk Perception)

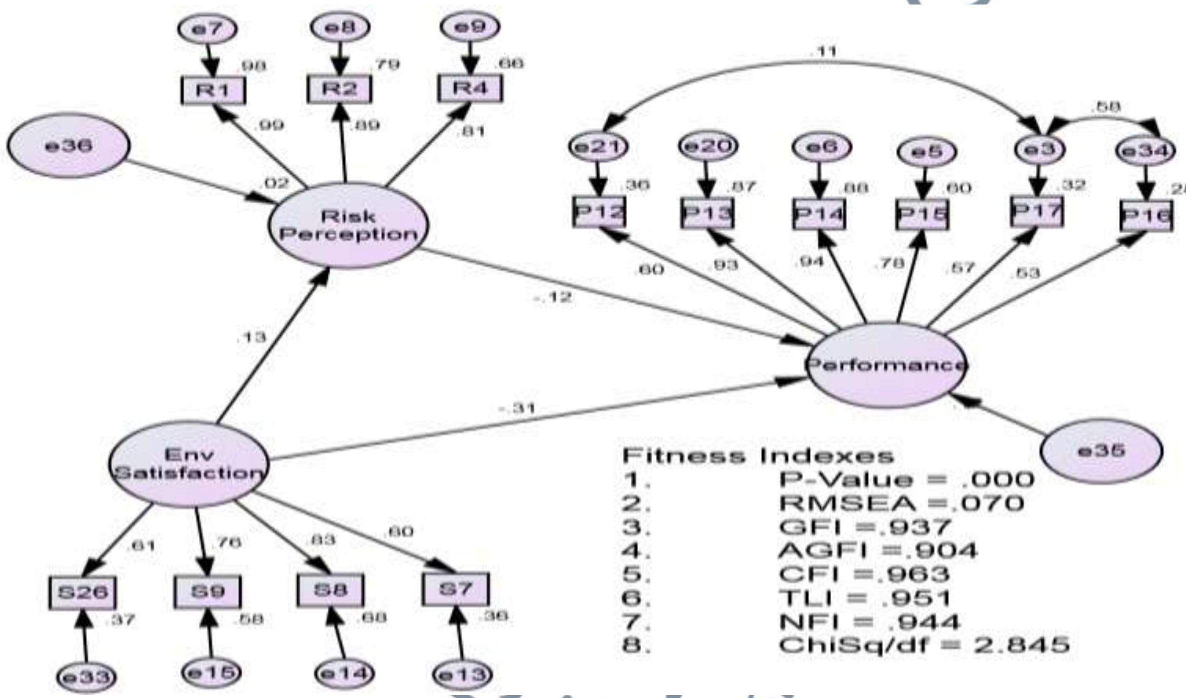


Table 4-15: Regression Weights: Mediating Effect of Latent Constructs (Risk Perception)

			Estimate	S.E.	C.R.	P-value	Result	Result on hypothesis
Employees' Performance	<---	Env_Satisfaction	-0.308	.143	-2.154	***	Significant	Partial mediation
Risk Perception	<---	Env_Satisfaction	0.128	.166	0.771	.027	Significant	Indirect effect
Employees' Performance	<---	Risk Perception	-0.124	.040	-3.100	.019	Significant	Indirect effect

***Observe that the direct effects of work environment satisfaction are reduced from 0.324 to 0.308 after Risk perception entered the model

The hypothesis testing for a direct effect of work environment satisfaction on the employees' performance and work environment satisfaction has significant and direct effects on employees' performance. Beta coefficient is reduced from 0.324 in Table 4-12 to 0.308 in Table

4-15. The Hypothesis is supported. In examining, the hypothesis testing for the causal effect of environmental satisfaction on risk perception, work environment satisfaction has significant and direct effects on risk perception; the hypothesis was supported. However, in order to test the hypothesis for the causal effect of risk perception on employees' performance, risk perception has significant and direct effects on employees' performance. However, the hypothesis was supported. Finally, the concept 'risk perception' does influence the connection between the employees' performance and work environment satisfaction. Because all the three propositions are significant, the type of mediation used here is called "partial mediation," because the direct effect of work environment satisfaction on employees' performance is still significant after the risk perception was included in the model, even though the beta coefficient for work environment satisfaction was reduced from 0.324 to 0.308 in Figure 4-3. In Figure 4-6, work environment satisfaction has a substantial direct impact on the employees' performance in this instance, as well as a significant indirect effect on the employees' performance through the mediator variable, risk perception.

4.6.2.3 The Result of the Hypothesis Testing

The model results are summarized in Table 4-16 and Table 4-17 thus:

Table 4-16: The Results of Hypothesis Testing for Respected Direct Path Analysis

Hypothesis Statement	**Estimate**	**P-Value**	**Result On Hypothesis**
H_1: There is significant difference in employees' risk perception and their performance among staff of Skikda oil refineries in Algeria	0.126	0.029	Supported
H_2: There is significant difference in the effect of work environment satisfaction and employees' performance among staff of Skikda oil refineries in Algeria.	-0.324	.000	Supported
H_3: There is significant difference in employees' risk perception level and work environment satisfaction among staff of Skikda oil refineries in Algeria	-0.163	.003	Supported

Table 4-17: The Summary Results of Hypothesis Testing for Mediated Path Analysis

			Estimate	P-value	Result	Result on hypothesis
employees' Performance	<---	*Env_Satisfaction*	-0.308	0.000	significant	Partial mediation
Risk Perception	<---	*Env_Satisfaction*	0.128	0.027	significant	
employees' Performance	<---	*Risk_Perception*	-0.124	0.019	significant	

From the result above, hypothesis H1 to H3 are significant and supported. Hypothesis H4 showed partial mediation between the risk perception and the relationship between work environment satisfaction and employees' performance among staff of Skikda oil refineries in Algeria.

4.7 Chapter Summary

Chapter 4 explained how the data was analyzed, including data cleaning, coding, and screening. On the model, the profile features of respondents were given. Finally, the SEM was utilized to figure out what factors influence the employees' risk perception and their performance. The data was checked for reliability and validity in the initial round of the study. In the following analysis, only items that met the necessary criteria was considered. The items loading must be at least 0.5, the composite reliability values must be more than 0.7, and the AVE value must be at least 0.50. The data was then utilized to test the hypotheses that had been established. All of the model's assumptions were found to be true. The last chapter presented the results of the study, their implications, limitations, and recommendations for further research.