Chapter four

Results

&

Discussion

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Results & Discussion

4-1 Results and Discussion:

Will discuss this Chapter to see the stakeholders in the city of Khartoum, the labor market, whether engineers or contractors and their views in this regard, depending on the companies that they work according to survey results, which were based on a survey over the understanding and knowledge of companies and institutions construction in Khartoum, the risks of construction and what are the obstacles that prevent the use of application tools risk management.

Table and Fig :(4-1) . Shows (Years of Experience for sample):

By reference to the table, we find that those who experience ranging from 5-10 years are the most in the research sample, followed by those who experience more than 10 years of experience and who is less than 5 years.

Table:(4-1): (Years of Experience for sample).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 5 years	20	28.6	28.6	28.6
	between 5-10 years	26	37.1	37.1	65.7
	more than 10 years	24	34.3	34.3	100.0
	Total	70	100.0	100.0	

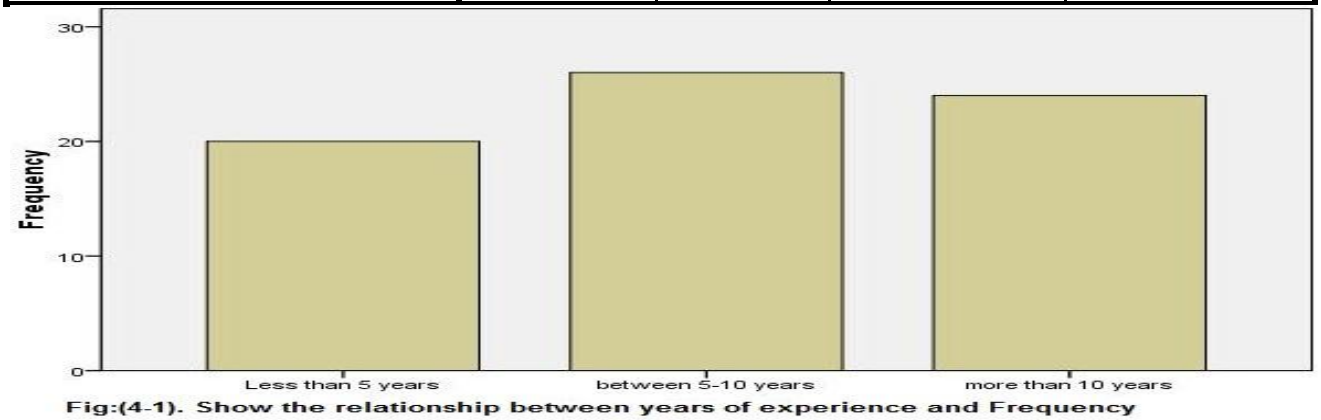

Fig:(4-1). Show the relationship between years of experience and Frequency

Table and Fig :(4-2) . shows (Age of the respondents members):

As shown on the table, we find that half of the sample individuals under the age of 30 years and a minimum ratio gradually until it reaches the lowest number in the sample of individuals who vary in age from 50 years.

Table : (4-2): (Age of the respondents members).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 30 years	32	45.7	45.7	45.7
	30-40 years	21	30.0	30.0	75.7
	40-50 years	10	14.3	14.3	90.0
	More than 50 years	7	10.0	10.0	100.0
	Total	70	100.0	100.0	

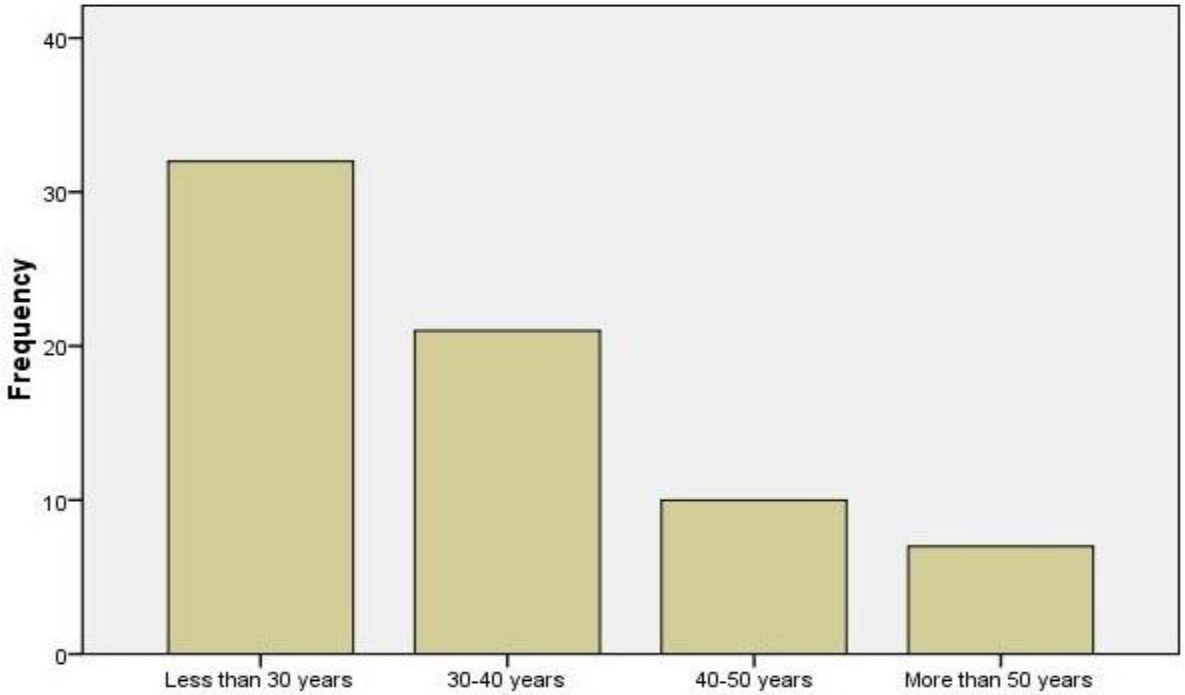

Fig:(4-2). show The relationship between age of the sample and frequency.

Table and Fig:(4-3) . shows (a disciplinary work for members of the sample):

When asked about the sample members disciplines in which they operate answered (41) on an individual architect engineers and they replied (23) civil engineers while they answered (6) of them with different specialties, namely, (2) planners (2) Mechanics Engineers (2) Electricity Engineers.

Table :(4-3): (a disciplinary work for members of the sample).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	architect	41	58.6	58.6	58.6
	civilian	23	32.9	32.9	91.4
	Other	6	8.6	8.6	100.0
	Total	70	100.0	100.0	

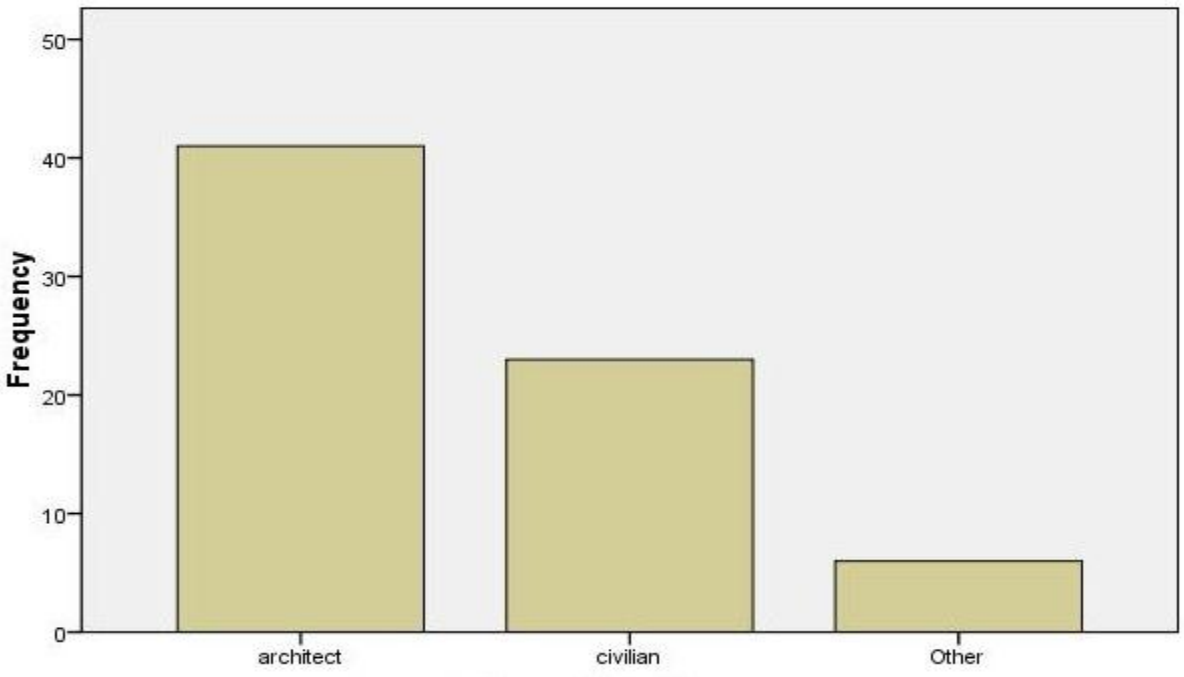

Fig:(4-3). show the relationship between a disciplinary work for members of the sample and frequency

Table and Fig (4-4) . shows (a field of work institution):

We find that the majority of institutions in the sample specializes in contracting and consulting together, where the proportion was almost half (45.7%), and then came after construction companies (30%), and finally by consulting firms (22.7%).

Table (4-4) : (afield of work institution).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Consulting	16	22.9	23.2	23.2
	Contracting	21	30.0	30.4	53.6
	Other	32	45.7	46.4	100.0
	Total	69	98.6	100.0	
Missing	System	1	1.4		
Total		70	100.0		

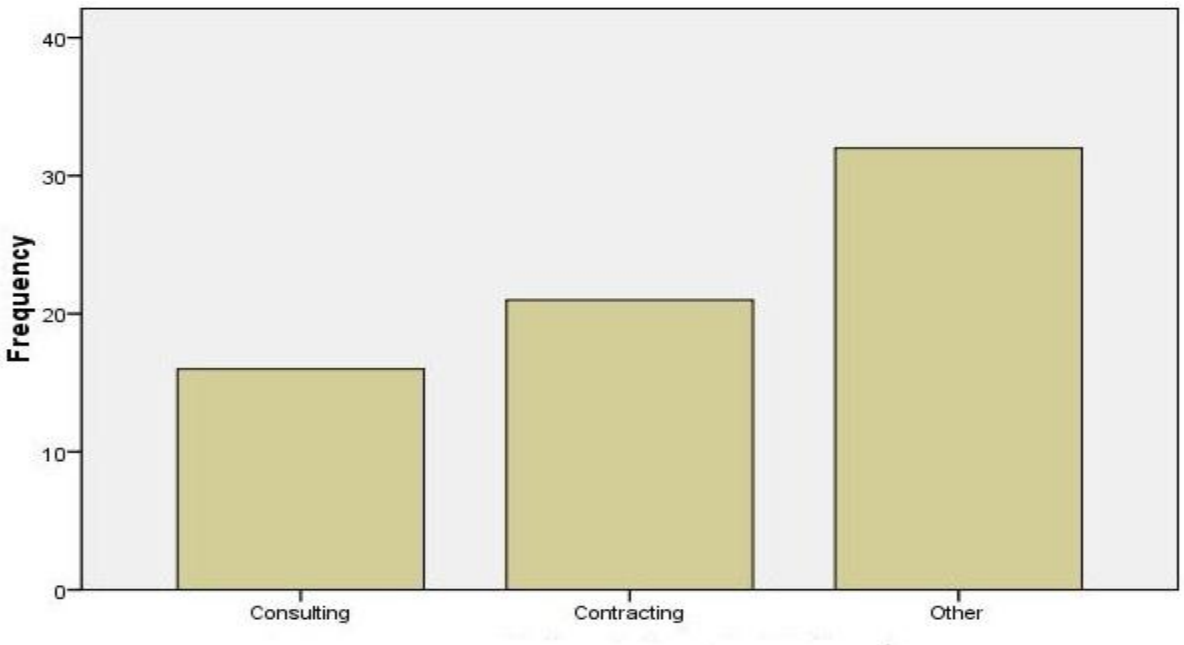

Fig: (4-4) .show relationship between afield work of institution and frequency .

Table and Fig:(4-5) . shows (education level) :

The results show that obtaining a bachelor's degree are the most members in the sample rate (45.7%), followed by obtaining a master's degree (30%), followed by obtaining a diploma (17.1%), and finally obtaining A Ph.d degree rate (5.7%)

Table : (4-5) : (education level) .

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	12	17.1	17.4	17.4
	Bachelor	32	45.7	46.4	63.8
	Master	21	30.0	30.4	94.2
	Ph.D.	4	5.7	5.8	100.0
	Total	69	98.6	100.0	
Missing		1	1.4		
Total		70	100.0		

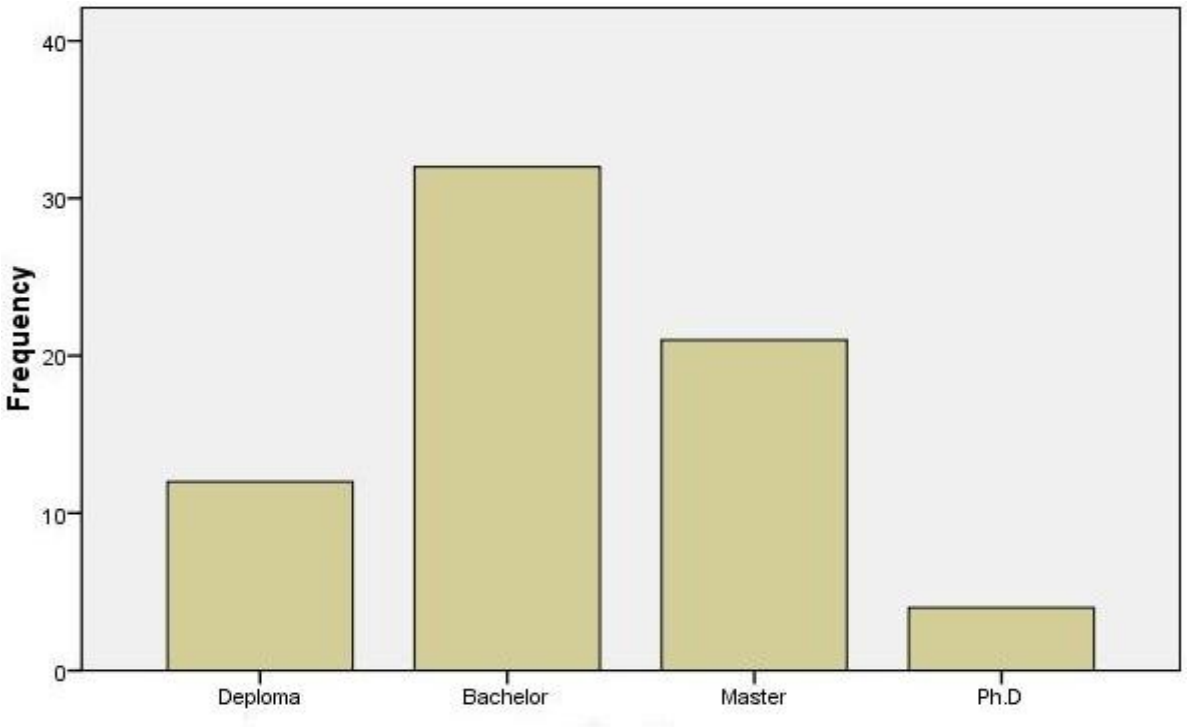

Fig:(4-5) . show relationship between education level and frequncy.

Table and Fig(4-6) . shows (sectors of work sample) :

We find that two-thirds of the sample individuals working in the government sector by (67.1%) and (24.3%) working in the private sector and (7.1%) employed individual sector.

Table : (4-6) : (sectors of work sample).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government sector	47	67.1	68.1	68.1
	private sector	17	24.3	24.6	92.8
	individual work	5	7.1	7.2	100.0
	Total	69	98.6	100.0	
Missing		1	1.4		
Total		70	100.0		

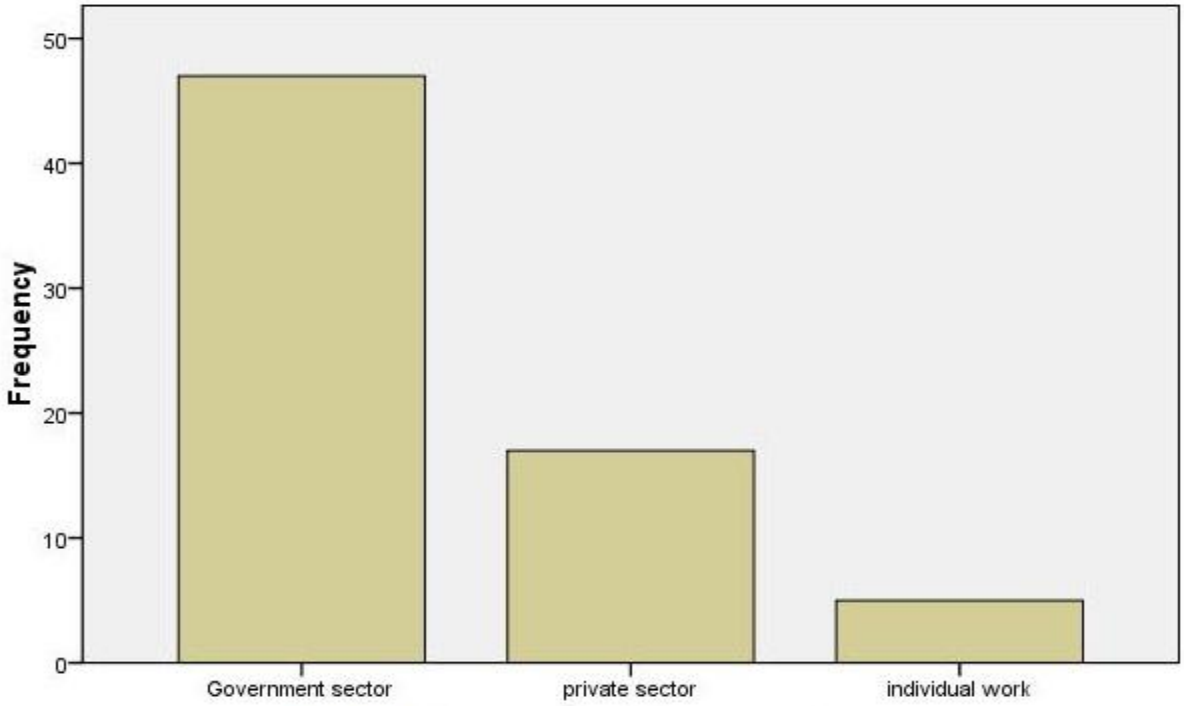

Fig :(4-6). Sector in which they operate

Table and Fig(4-7) . shows (the nature of the work):

The majority of members of the nature of the sample joint work between the office and field work by (77.1%), followed by the owners of the field work (14.3%), and finally by the owners of office work (7.1%).

Table (4-7) : (the nature of the work).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Field work	10	14.3	14.5	14.5
	office work	5	7.1	7.2	21.7
	Two togrther	54	77.1	78.3	100.0
	Total	69	98.6	100.0	
Missing		1	1.4		
Total		70	100.0		

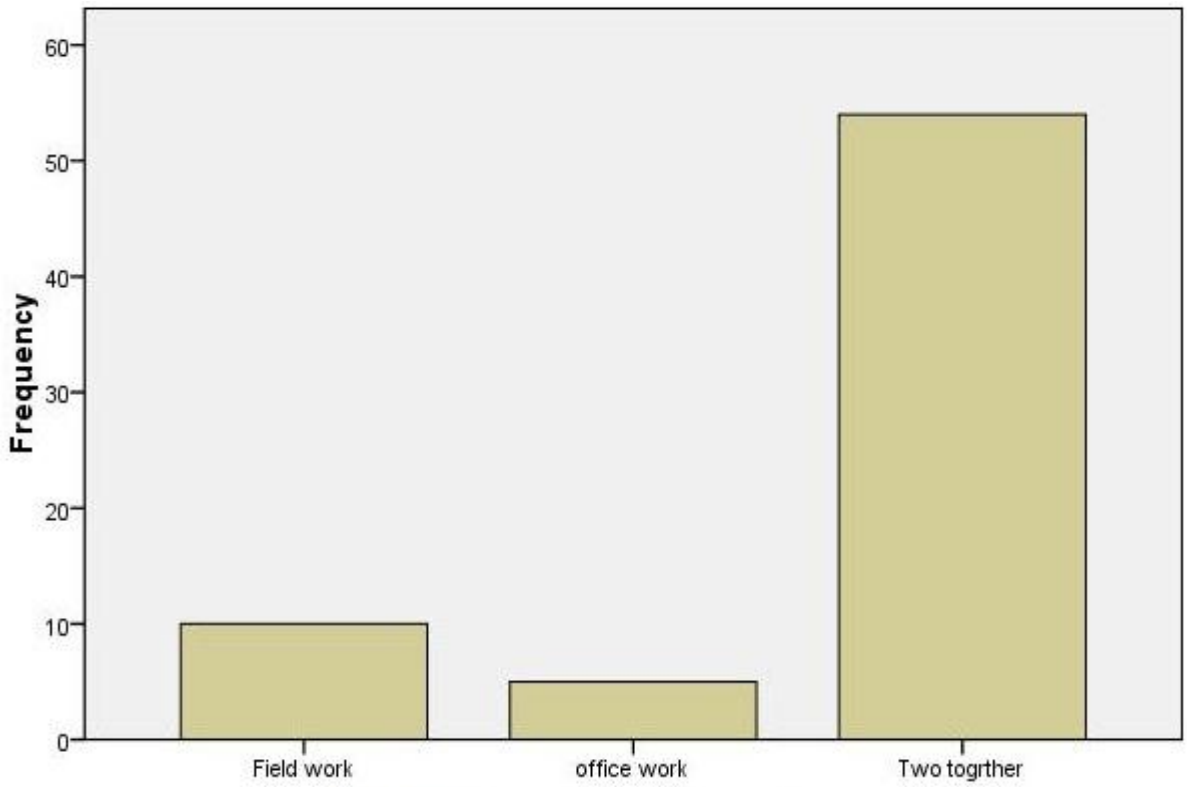

Fig :(4-7). The nature of the work

Table and Fig :(4-8) **.** shows (Is there a structuring that specializes in risk management in your institution):

Going back to the questionnaire data from the questions before the sample to extrapolate the look of the labor market to see how the presence of management specializing in institutions and found that the results suggest (72.9%) of the institutions on not by the management of a risk and (25.7%) stated that their

Organizations by the management of a risk.

Table: (4-8) **:** (Is there a structuring that specializes in risk management in your institution):

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	18	25.7	25.7	25.7
	No	51	72.9	72.9	98.6
missing		1	1.4	1.4	100.0
	Total	70	100.0	100.0	

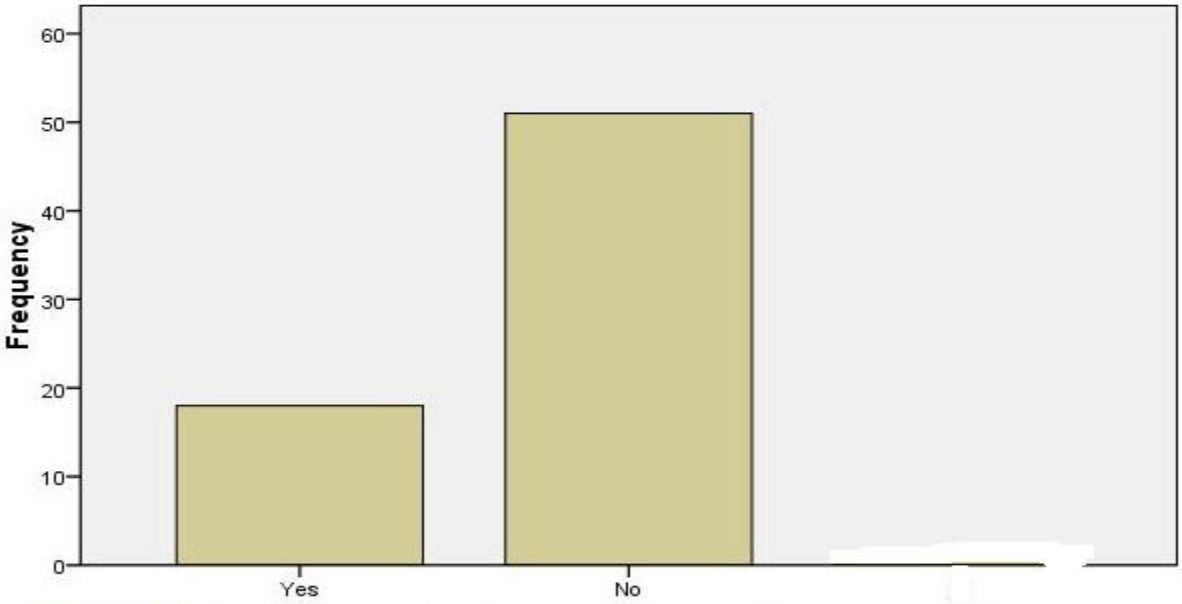

Fig :(4-8). Is there a structuring that specializes in risk management in your institution?

Table and Fig:(4-9) . shows (If you answered yes Are you satisfied with the performance of risk management in your institution)?

After asking the question how the presence of a specialized department in the institutions in which they operate sample members responded (25.7%) reported that their institutions by the management of a risk, They threw down the question regard to the extent of satisfaction with the performance of this administration in your organization, we found that (2.9%) answered completely satisfied about the performance while (5.8%) satisfied in most cases and (7.1%) satisfied in some cases, and (10%) is satisfied always.

Through the results clearly indicate that more than two-thirds of respondents answered that there is no specialized in structuring their organizations , they threw down the question, what suggestions to correct the situation?

All sample members when he had agreed by (100%) on the one answer, namely:

The establishment of a specialized department administers the enterprise risk.

Table : (4-9) : (If you answered yes Are you satisfied with the performance of risk management in your institution)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes always	2	2.9	2.9	2.9
	in the majority of cases	4	5.8	5.9	8.8
	sometimes	5	7.1	7.2	16
	not always satisfied	7	10	10.2	26.1
	Others	18	25.8	26.1	100.0
	Who answered No	51	72.9	73.9	
Missing		1	1.4	100.0	

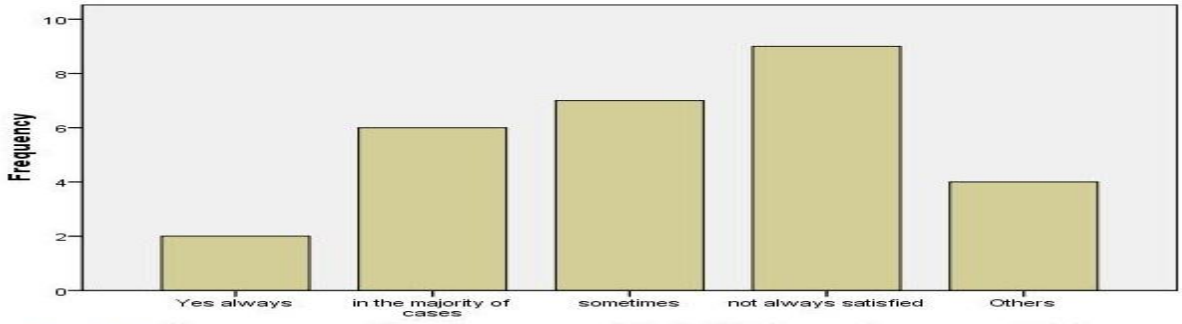

Fig :(4-9). If you answered yes Are you satisfied with the performance of risk management in your institution?

Table and Fig :(4-10) . shows (experience in the risk management process)?

Sample confirmed by the table (10-5) that the sample members low experience in the risk management process by up to (18.6%) and others experience medium up (71.4%) and those who experience high in risk management are at least (8.6%).

Table : (4-10) : (experience in the risk management process)?.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	13	18.6	18.8	18.8
	Moderate	50	71.4	72.5	91.3
	High	6	8.6	8.7	100.0
	Total	69	98.6	100.0	
Missing	System	1	1.4		
Total		70	100.0		

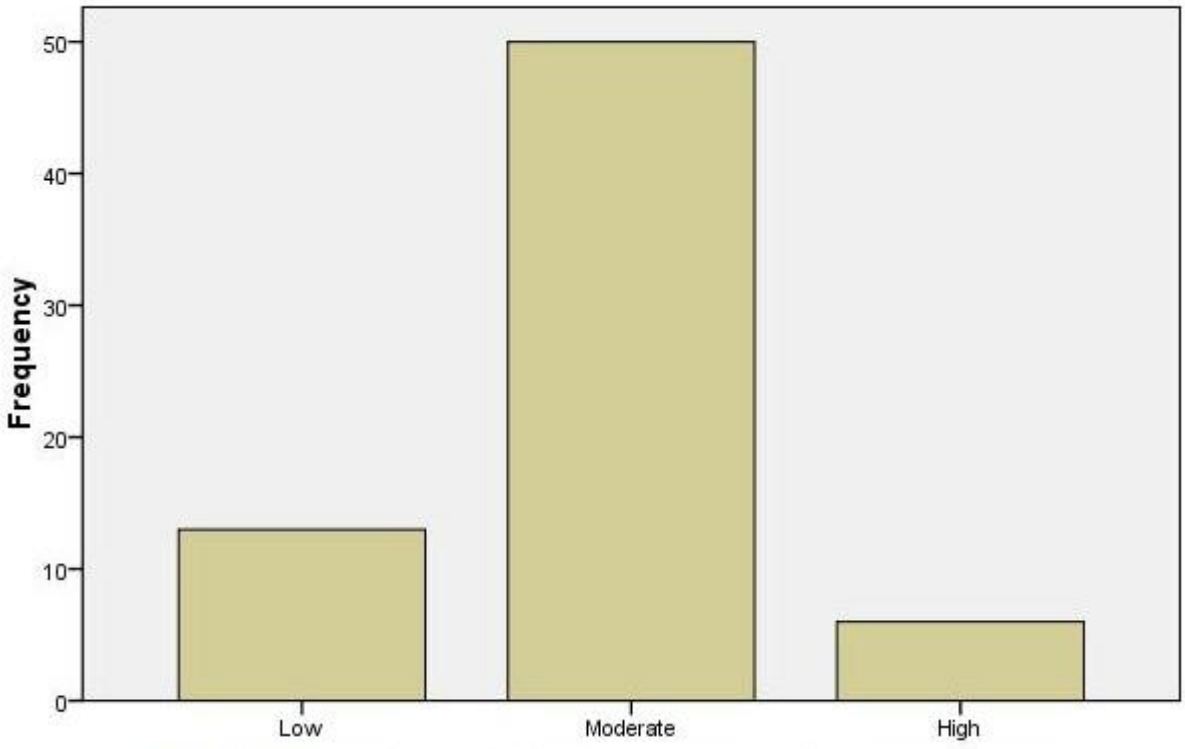

Fig :(4-10). experience in the risk management process?

Table and Fig ☹4-11) . shows (your understanding the risk management process).

By reference to data from the questionnaire to extrapolate the work to understand the risk management market, we find that there is a proportion (11.4%), their understanding is low in risk management and (67.1%) their understanding of Medium and (18.6%), highly understanding and (2.9%), very high understanding of risk management.

Table : (4-11) : (your understanding the risk management process).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	11.4	11.4	11.4
	Moderate	47	67.1	67.1	78.6
	High	13	18.6	18.6	97.1
	Very High	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

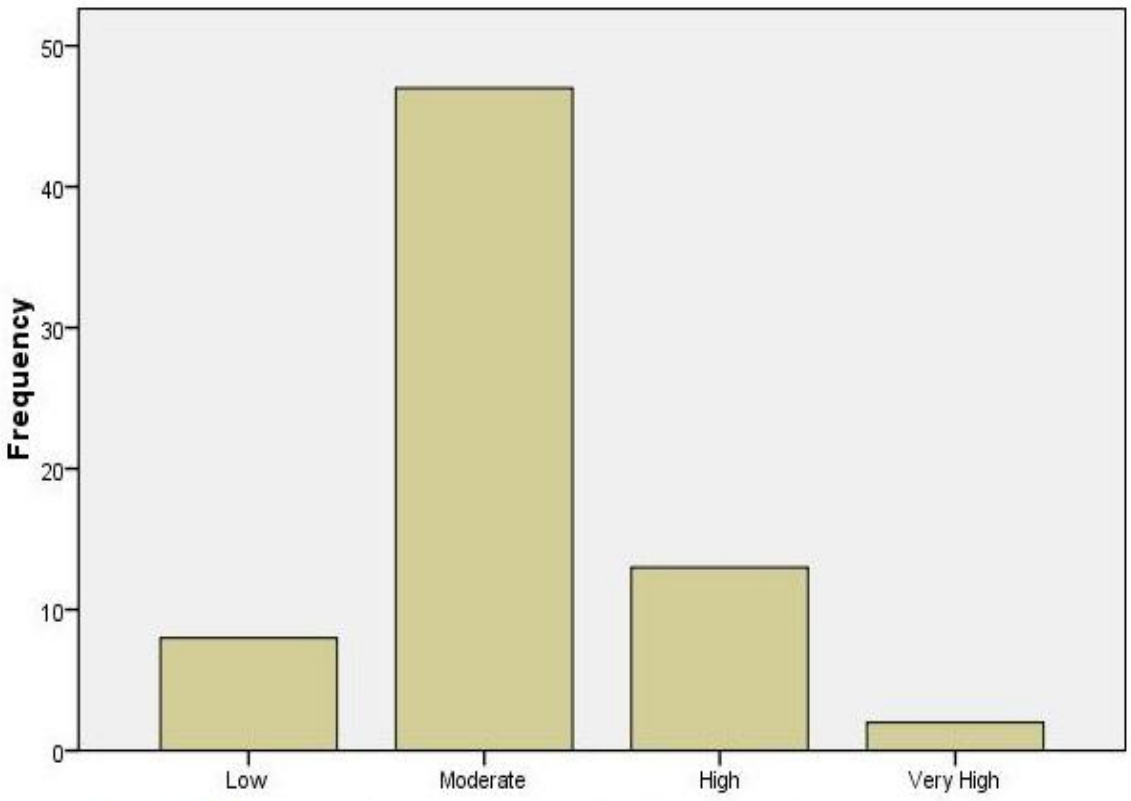

Fig :(4-11). your understanding the risk management process?

Table and Fig :(4-12) **.** Shows (Please specify the extent of your knowledge in the following activities related to risk management) :(Risk identification).

When ask questions about knowledge of activities (risk identification) related to the management of risks to sample members , we find that the response against the risks may be ranked first on the risk management activities in terms of knowledge of sample and then followed by members of hazard identification and risk rating and risk analysis, and to return to the table (4-12) Special asked sample about their knowledge actively identify risks confirmed one-third of sample said their knowledge of a medium in this activity then followed with a good knowledge of sample (30%) and sample expert (20%) and also find that the percentage of knowledge faint identifying low-risk reached (14.6%) while sample members who do not know anything of this activity by a very small group (1.4%).

Table : (4-12) : (Please specify the extent of your knowledge in the following activities related to risk management) :(Risk identification).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	10	14.3	14.5	14.5
	Average	23	32.9	33.3	47.8
	Good	21	30.0	30.4	78.3
	Very good	14	20.0	20.3	98.6
	nothing	1	1.4	1.4	100.0
	Total	69	98.6	100.0	
Missing	System	1	1.4		
Total		70	100.0		

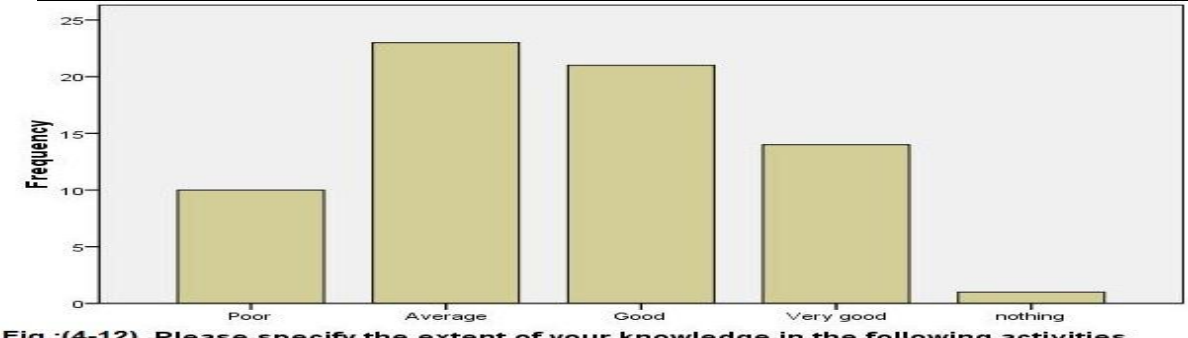

Fig :(4-12). Please specify the extent of your knowledge in the following activities related to risk management?

Table and Fig ☹4-13) . Shows (Please specify the extent of your knowledge in the following activities related to risk management): (Risk classification).

The table below indicates to the risk rating and by asking sample about their knowledge actively risk rating confirmed a third of sample said a good knowledge of this activity and then with medium knowledge of sample, followed by (30%) and sample expert by (15.7%), and we find also that the rate of knowledge owners select a few weak risk reached (18.6%), while sample members who do not know anything of this activity by a very small group (15.7%).

Table : (4-13) : (Please specify the extent of your knowledge in the following activities related to risk management): (Risk classification).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	13	18.6	18.6	18.6
	Average	21	30.0	30.0	48.6
	Good	24	34.3	34.3	82.9
	Very good	11	15.7	15.7	98.6
	nothing	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

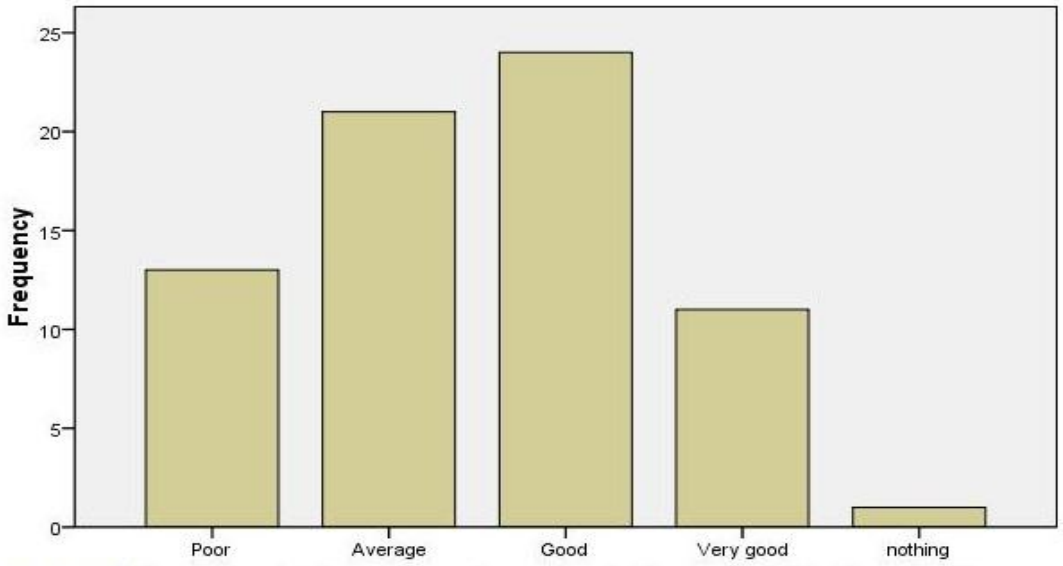

Fig :(4-13). Please specify the extent of your knowledge in the following activities related to risk management? (Risk classification)

Table and Fig ☹4-14) . Shows (Please specify the extent of your knowledge in the following activities related to risk management): (Risk Analysis).

Table below refers to the risk analysis and asking the sample about their knowledge of risk analysis actively third of the sample confirmed that the knowledge of this activity is weak and intermediate knowledge of sample, followed by (34.4%) and good sample rate (18.6%), and we find that the percentage of knowledge as well as owners expert analysis of low-risk reached (15.7%), while sample members who do not know anything of this activity by a very small group (1.4%).

Table : (4-14) : (Please specify the extent of your knowledge in the following activities related to risk management): (Risk Analysis).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	21	30.0	30.0	30.0
	Average	24	34.3	34.3	64.3
	Good	13	18.6	18.6	82.9
	Very good	11	15.7	15.7	98.6
	nothing	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

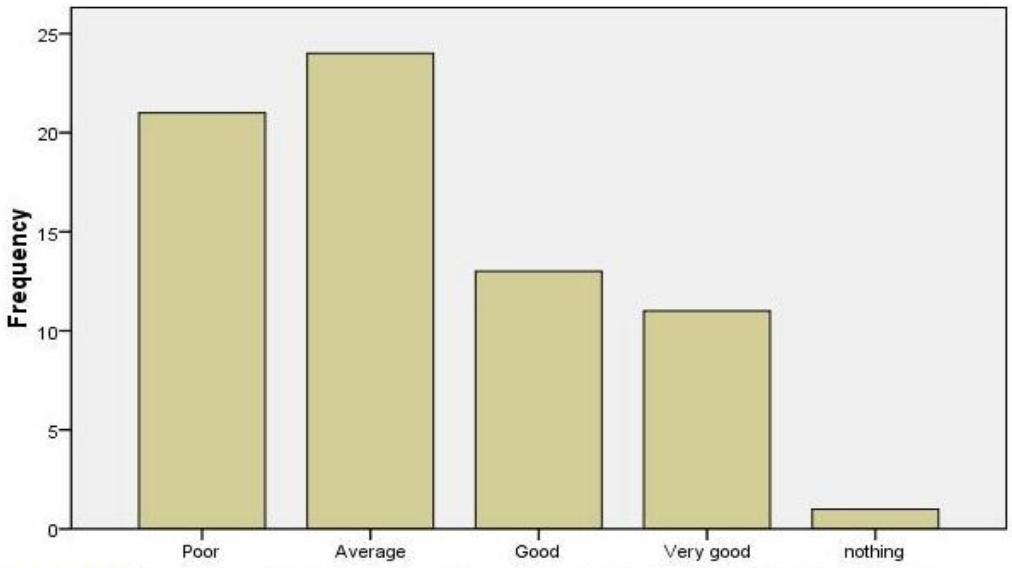

Fig :(4-14). Please specify the extent of your knowledge in the following activities related to risk management? (Risk Analysis)

Table and Fig ☹4-15) . Shows (Please specify the extent of your knowledge in the following activities related to risk management): (Risk response).

The table (4-15) points to another activity (risk response) relevant to the management of risk and displays the results have been reached and shows good knowledge category this activity first increased activities (30 percent), followed by middle-class knowledge and then by the weak (28.6%) and Category expert and finally the category that do not have knowledge of this activity, a rate of (2.9%).

Table : (4-15) : (Please specify the extent of your knowledge in the following activities related to risk management): (Risk response).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	20	28.6	29.0	29.0
	Average	18	25.7	26.1	55.1
	Good	21	30.0	30.4	85.5
	Very good	8	11.4	11.6	97.1
	nothing	2	2.9	2.9	100.0
	Total	69	98.6	100.0	
Missing		1	1.4		
Total		70	100.0		

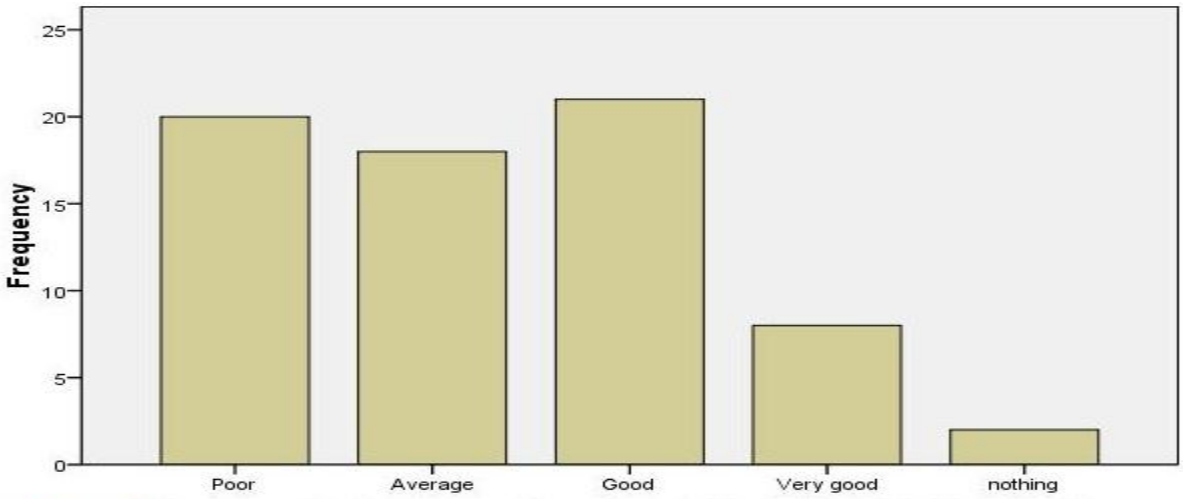

Fig :(4-15). Please specify the extent of your knowledge in the following activities related to risk management? (Risk response)

Table and Fig ☹4-16) . Shows (Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project? (Cost).

Find sample opinion in the significant impact on cost, quality and time during the construction of the expected risk. According to the results, we find that the impact of these risks on the largest time and then followed by the cost of quality.

In Table (4-16), we find that sample members point out that the risk of construction high impact on the cost by (41.4%) is very high and the impact of rate (27.1%), and some believe that his low impact (20%) and others view that the impact of risks at low cost and they (10%).

Table : (4-16) : (Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project? (Cost).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	7	10.0	10.1	10.1
	Avarage	14	20.0	20.3	30.4
	High	29	41.4	42.0	72.5
	Very High	19	27.1	27.5	100.0
	Total	69	98.6	100.0	
Missing		1	1.4		
Total		70	100.0		

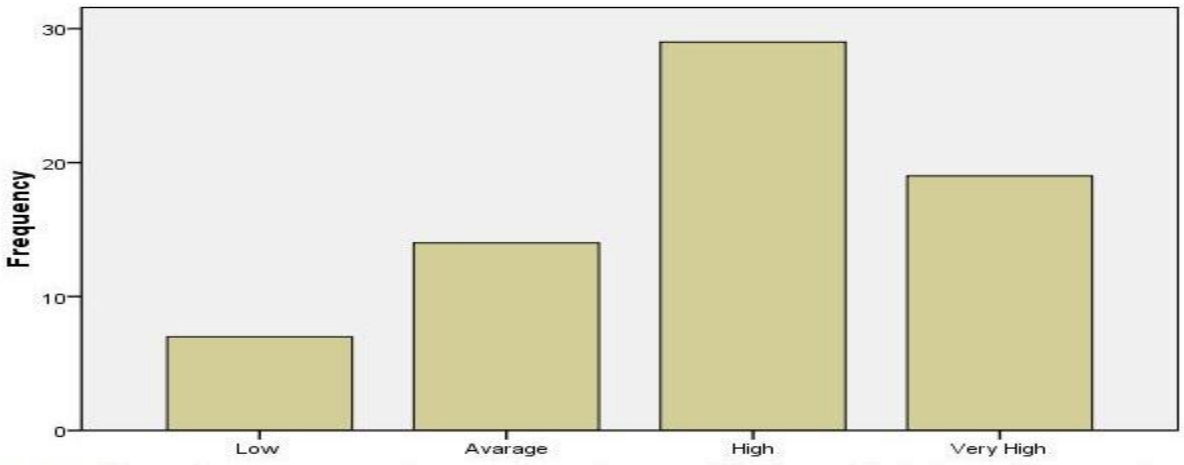

Fig :(4-16).Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project? (Cost)

Table and Fig :(4-17) . Shows (Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project)? (Quality).

In Table below which saw the proportion (38.6%) that the risk of construction high impact on the quality and proportion (22.9%) that have a very high average at the same time the impact, while the saw proportion (11.4%) that have a low impact on quality.

Table : (4-17) : (Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project)? (Quality).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	11.4	11.9	11.9
	Avarage	16	22.9	23.9	35.8
	High	27	38.6	40.3	76.1
	Very High	16	22.9	23.9	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

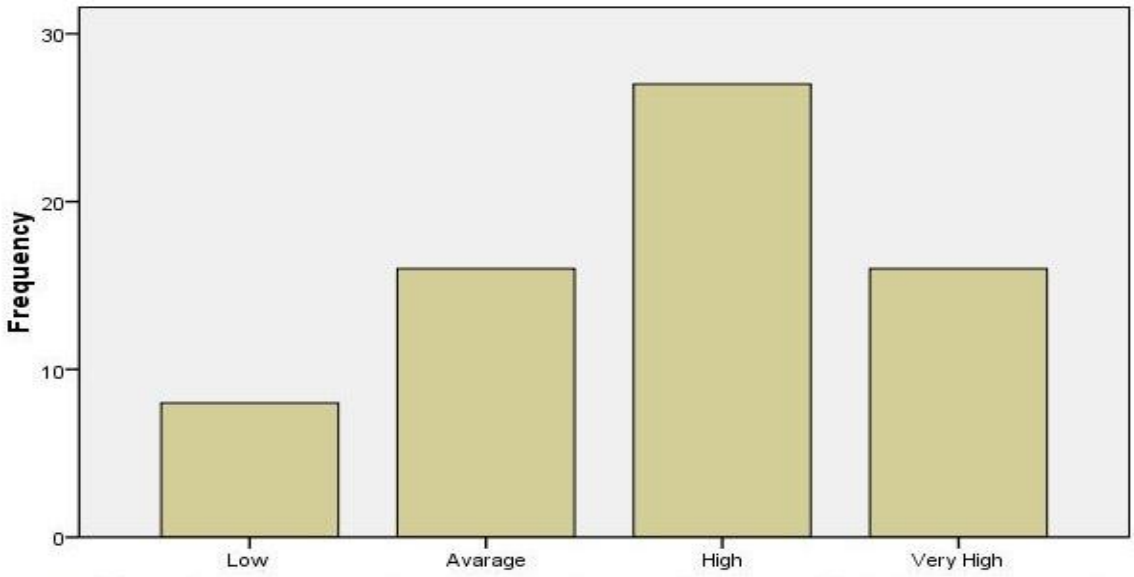

Fig :(4-17). Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project? (Quality)

Table and Fig :(4-18) . Shows (Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project)? (Time).

In Table below we find that the ratio (32.9%) believe that the risk is very high impact on time, and the proportion (37.1%) sees high effect only while the proportion (14.3%) confirms that the risk impact on the time Medium, and low rate of (11.4%) believes that the impact of construction on a low-risk time.

Table : (4-18) : (Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project)? (Time).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	11.4	11.9	11.9
	Avarage	10	14.3	14.9	26.9
	High	26	37.1	38.8	65.7
	Very High	23	32.9	34.3	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

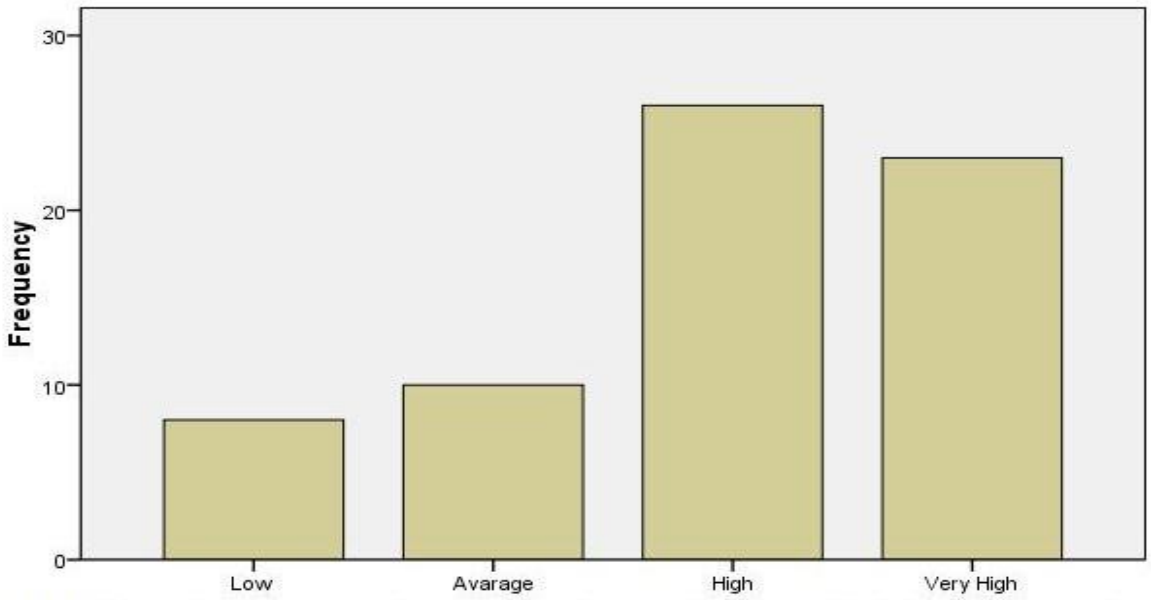

Fig :(4-18). Based on your experience, please be noted in the table below with regard to the impact of the risks of cost, time and quality to any project? (Time)

Table and Fig :(4-19) . Show (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction)?(Cultural).

Review the results of the questionnaire to see sanctions that prevent companies from the application of risk management systems, we find that knowledge was ranked first among the obstacles by (62.8%), followed by structuring (55.7%) and then obstacle culture by (52.9%).

Table : (4-19) : (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction)?(Cultural).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	14	20.0	21.5	21.5
	Low	14	20.0	21.5	43.1
	Moderate	18	25.7	27.7	70.8
	High	13	18.6	20.0	90.8
	Very High	6	8.6	9.2	100.0
	Total	65	92.9	100.0	
Missing		5	7.1		
Total		70	100.0		

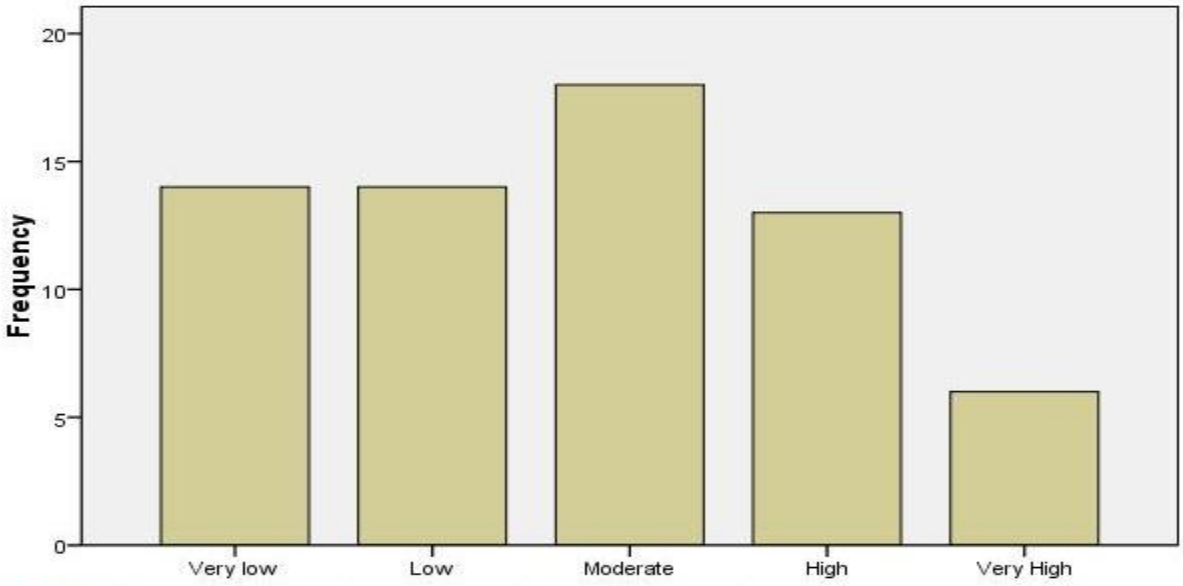

Fig :(4-19). From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction?(Cultural)

Table and Fig :(4-20) **.** Shows (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction):(Structural).

Table : (4-20) : (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction):(Structural).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	7	10.0	10.4	10.4
	Low	21	30.0	31.3	41.8
	Moderate	17	24.3	25.4	67.2
	High	18	25.7	26.9	94.0
	Very High	4	5.7	6.0	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

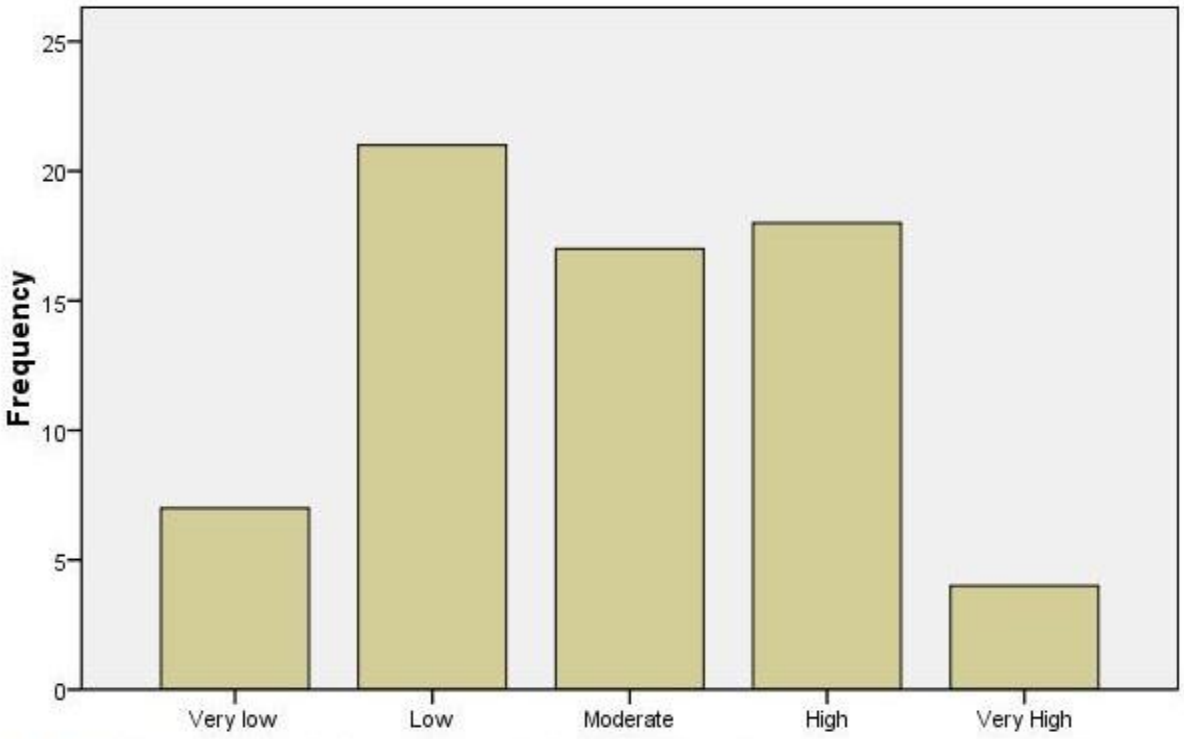

Fig :(4-20). From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction?(Structural)

Table and Fig :(4-21) **.** Shows (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction:(Knowledge).

Table : (4-21) : (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction:(Knowledge).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	10	14.3	14.9	14.9
	Low	13	18.6	19.4	34.3
	Moderate	20	28.6	29.9	64.2
	High	19	27.1	28.4	92.5
	Very High	5	7.1	7.5	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

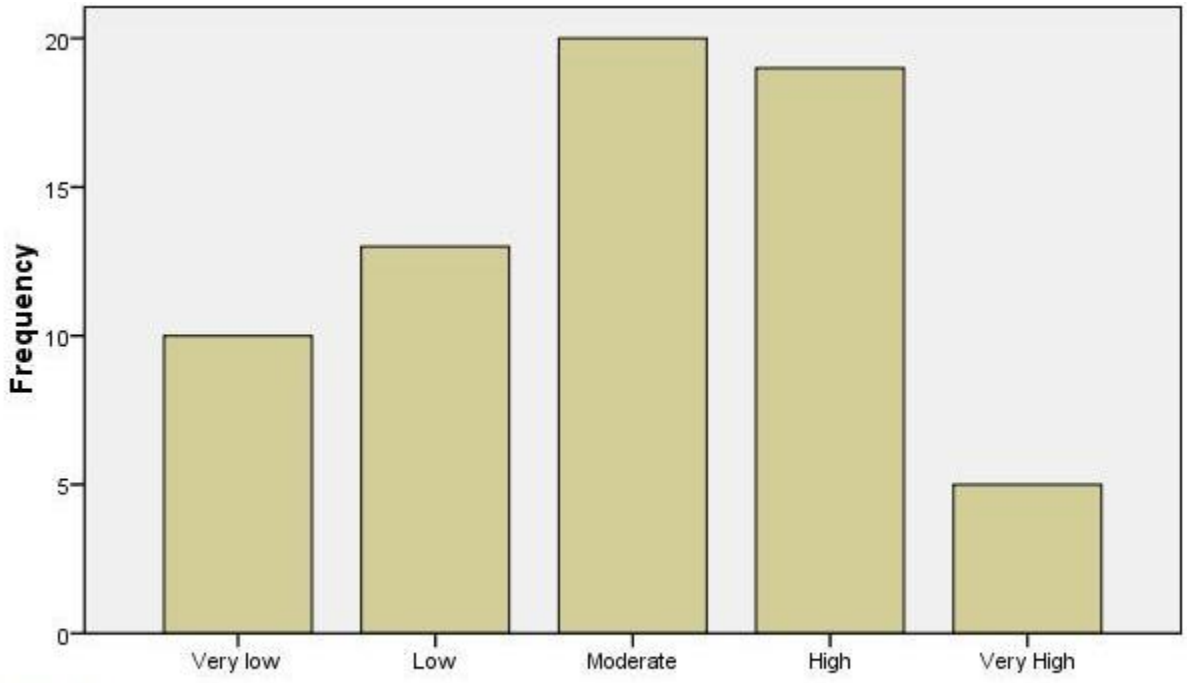

Fig :(4-21). From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction? (Knowledge)

Table and Fig :(4-22) **.** Shows (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction):(Other).

When granting the sample area members to add other obstacles can be switched between them and the application of risk management systems and found the proportion (37.1%) of respondents said they had some obstacles that were not mentioned in the questionnaire are:

- The weakness of the binding and legal penalties for infractions of law.

- Controls and legislation

- Follow-up to the competent authorities

- Financial obstacle.

Table : (4-22) : (From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction):(Other).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	5	7.1	19.2	19.2
	Low	5	7.1	19.2	38.5
	Moderate	6	8.6	23.1	61.5
	High	4	5.7	15.4	76.9
	Very High	6	8.6	23.1	100.0
	Total	26	37.1	100.0	
Missing		44	62.9		
Total		70	100.0		

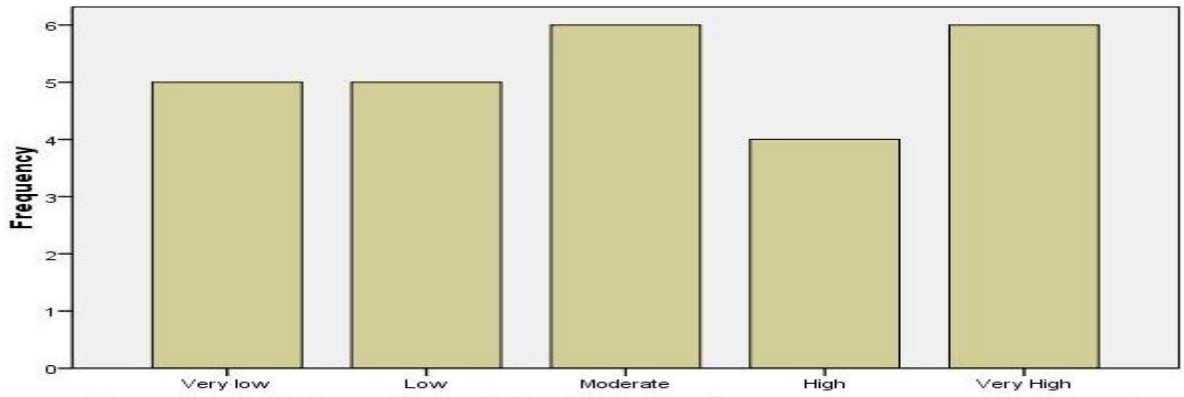

Fig:(4-22) From the list below values of the obstacles that prevent companies from the application of risk management systems in the construction?(Other)

Table and Fig :(4-23) . Shows (the application of risk management system in Construction):(Training).

In the table below evaluated more than two-thirds of the sample level personnel the importance of training as high in solutions that help the application of risk management, while the other one-third of the sample was divided between the average rate of significance (17.1%) and low importance by (14.3%).

Table : (4-23) : (the application of risk management system in Construction):(Training).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	10	14.3	14.7	14.7
	Aarage	12	17.1	17.6	32.4
	high	24	34.3	35.3	67.6
	Very high	22	31.4	32.4	100.0
	Total	68	97.1	100.0	
Missing		2	2.9		
Total		70	100.0		

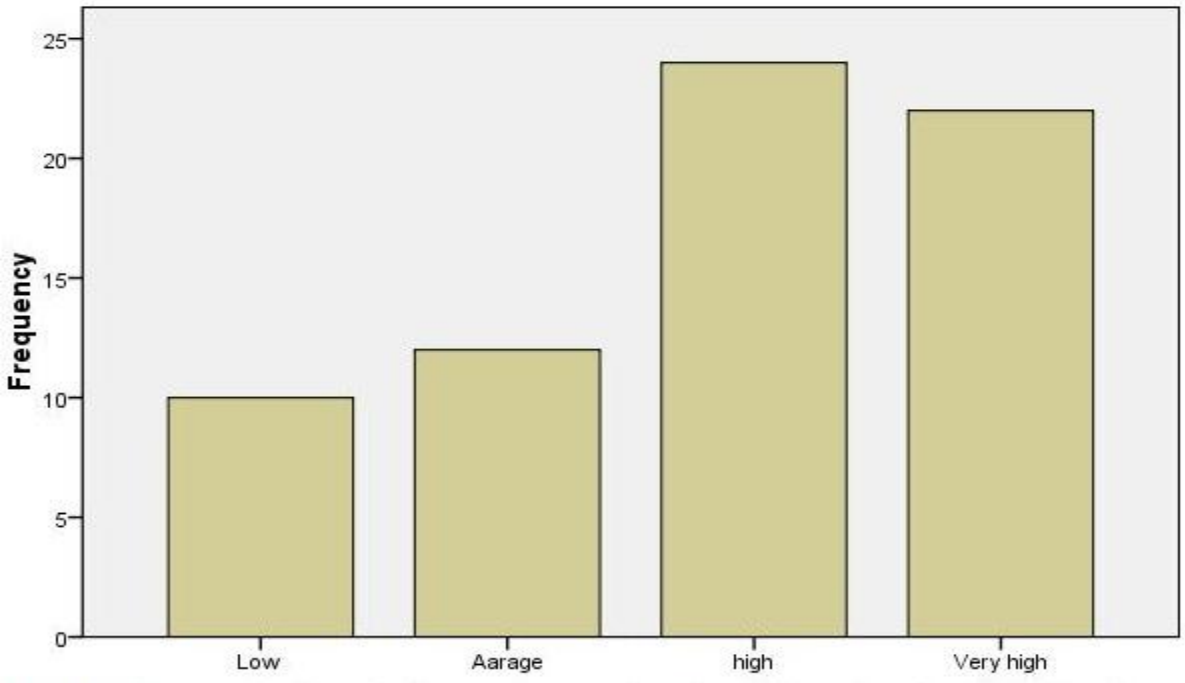

Fig:(4-23) the application of risk management system in Construction?(Training)

Table and Fig :(4-24) . Shows (the application of risk management system in Construction): (The company's ability to change).

The viability of the company to change, she believes it is one-third of the sample medium importance in solutions that help the application of risk management sees while the proportion (40%) it is highly important and the proportion (20%) It's low importance.

Table : (4-24)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	14	20.0	21.2	21.2
	Avarage	24	34.3	36.4	57.6
	high	20	28.6	30.3	87.9
	Very high	8	11.4	12.1	100.0
	Total	66	94.3	100.0	
Missing		4	5.7		
Total		70	100.0		

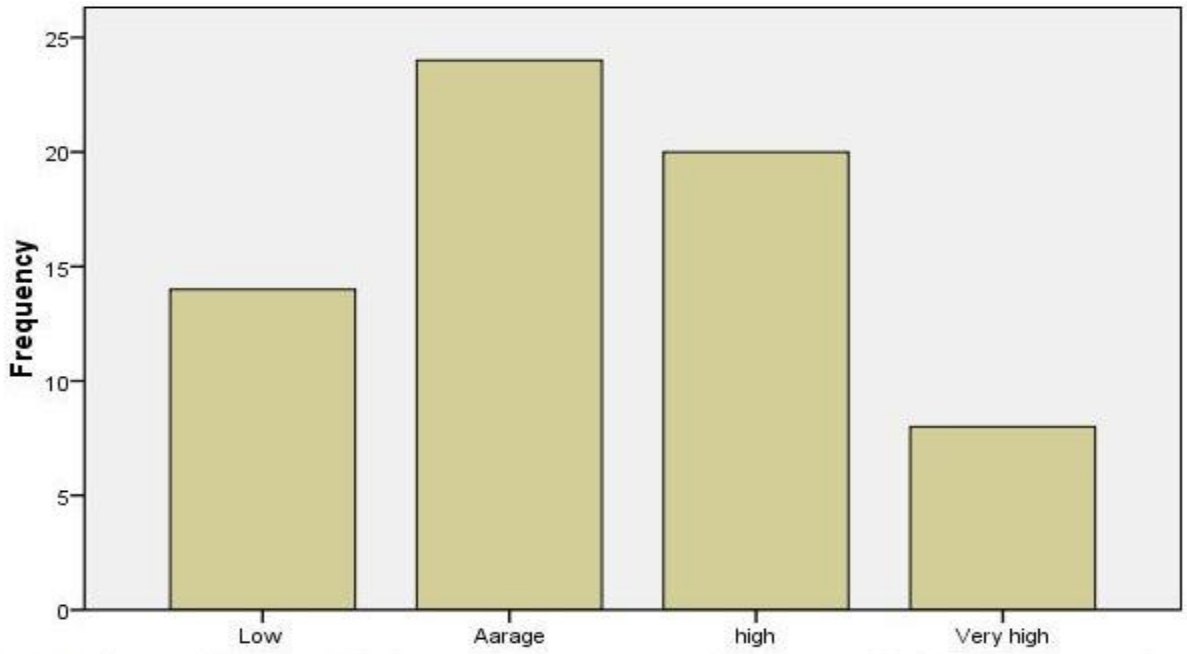

Fig:(4-24) the application of risk management system in Construction?(The company's ability to change)

Table and Fig :(4-25) . Shows (the application of risk management system in Construction)?(Accommodate importance of the application of risk management).

The absorption of the importance of risk management, we find that the sample indicated by individuals (64.3%), it's high importance in solutions that help the application of risk management, said the proportion (21.4%) It's a medium, and the percentage (11.45%) it low importance.

Table :(4-25) : (the application of risk management system in Construction)?(Accommodate importance of the application of risk management).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	11.4	11.8	11.8
	Aarage	15	21.4	22.1	33.8
	high	22	31.4	32.4	66.2
	Very high	23	32.9	33.8	100.0
	Total	68	97.1	100.0	
Missing		2	2.9		
Total		70	100.0		

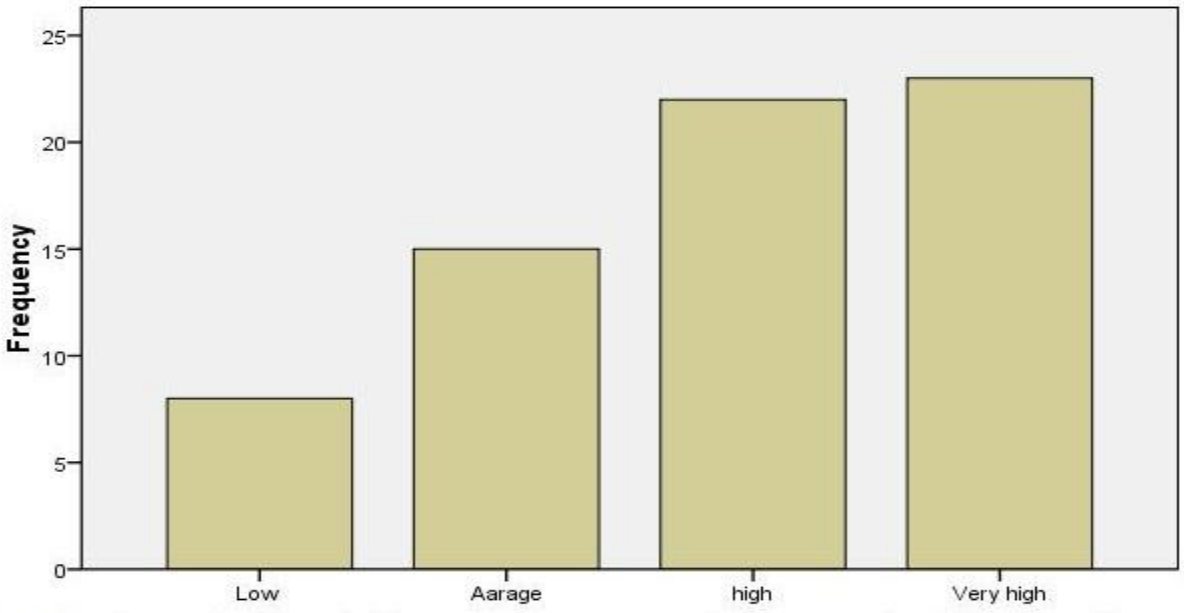

Fig:(4-25). the application of risk management system in Construction?(Accommodate importance of the application of risk management)

Table and Fig :(4-26) . Shows (the application of risk management system in construct

(Procedures of formal risk management).

Table below refers to the importance of formal risk management procedures and the re show that half of the sample members emphasize the importance of formalities in the application of risk management, while the proportion (11.4%) do not share that opinio it's not relevant.

Table : (4-26) : Shows (the application of risk management system in construction):

(Procedures of formal risk management).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	11.4	12.1	12.1
	Avarage	17	24.3	25.8	37.9
	high	20	28.6	30.3	68.2
	Very high	21	30.0	31.8	100.0
	Total	66	94.3	100.0	
Missing		4	5.7		
Total		70	100.0		

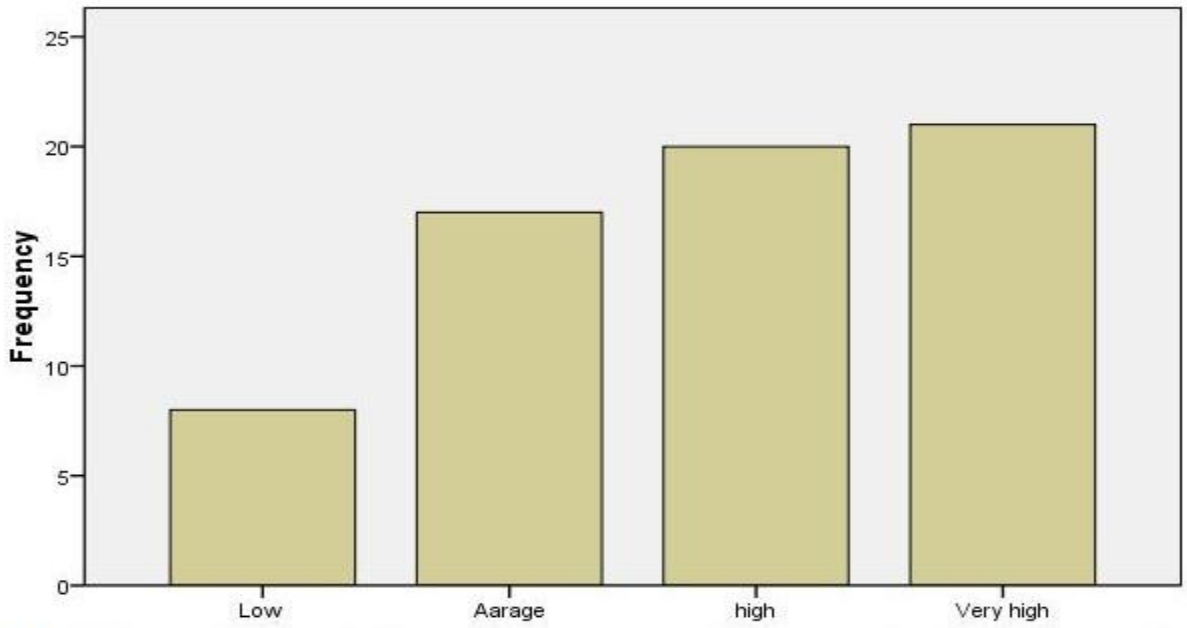

Fig:(4-26) the application of risk management system in Construction?(Procedures of formal risk management)

Table and Fig :(4-27) **.** Shows (the application of risk management system in Construction): (Use of information systems to increase the sensor danger).

As for the importance of the use of information systems to increase the risk sensor sample, we find that in the opinion that the percentage (60%) emphasize its importance and high proportion (17.1%) see it is of importance in weak solutions that help the application of risk management.

Table : (4-27) : Shows (the application of risk management system in Construction): (Use of information systems to increase the sensor danger).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	12	17.1	17.6	17.6
	Avarage	14	20.0	20.6	38.2
	high	18	25.7	26.5	64.7
	Very high	24	34.3	35.3	100.0
	Total	68	97.1	100.0	
Missing		2	2.9		
Total		70	100.0		

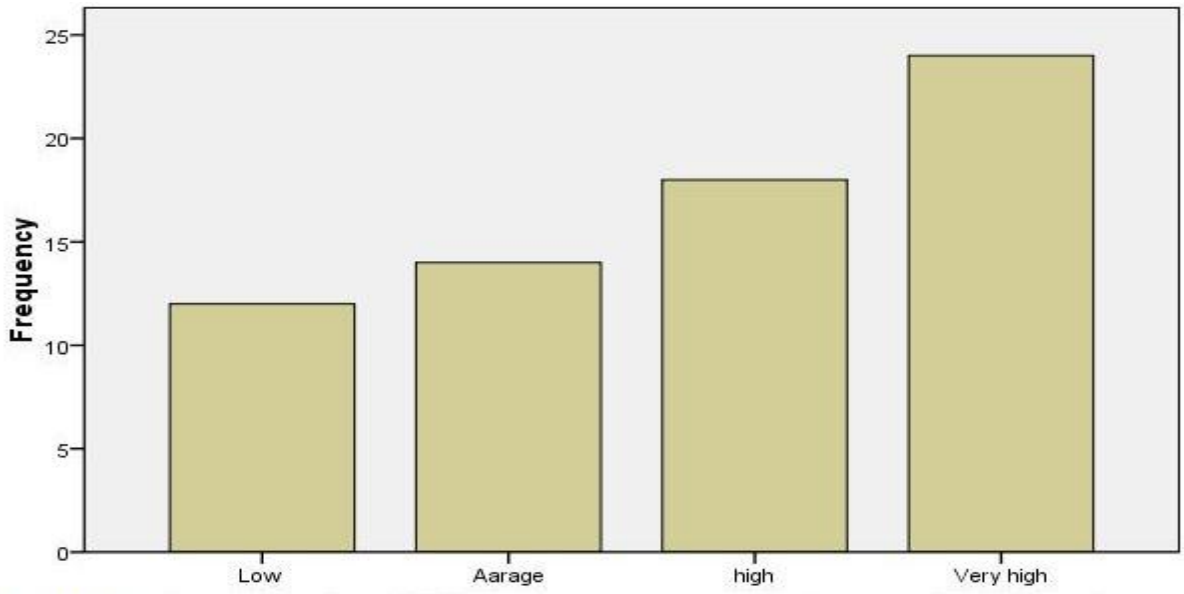

Fig :(4-27). the application of risk management system in Construction?(Use of information systems to increase the sensor danger)

Table and Fig :(4-28) . Shows (have you ever applied risk management techniques during your business)?

Look after the cancellation of the results of the questionnaire to extrapolate the work over the application of the sample members for market risk management techniques replied (78.6%) of respondents said they did not apply management techniques in their work while replied (20%) of them they applied these techniques in their work.

Table : (4-28) : Shows (have you ever applied risk management techniques during your business)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	20.0	20.3	20.3
	No	55	78.6	79.7	100.0
	Total	69	98.6	100.0	
Missing		1	1.4		
Total		70	100.0		

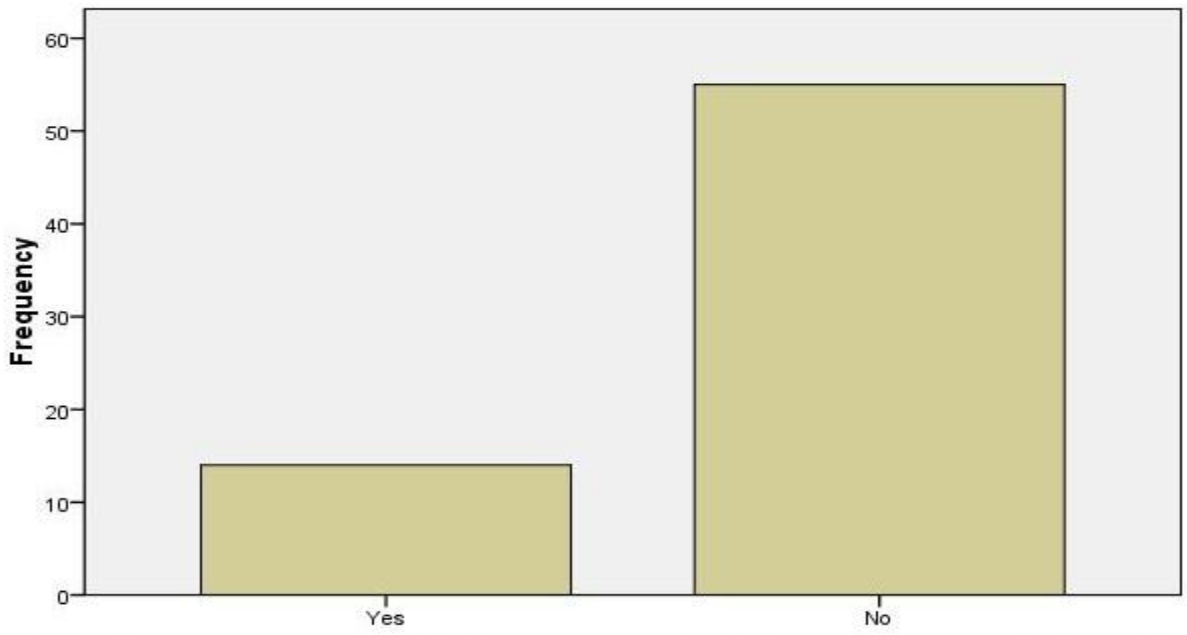

Fig:(4-28) Have you ever applied risk management techniques during your business?

Open-ended question was directed to members of the sample who answered that they applied risk management techniques in their work on what are the techniques they used their answers were as follows:

- Project management time – the proportion (14.2%) of the sample

- Cost control – the proportion (42.9%) of the sample

- The use of safety tools – by (35.7%) of the sample

- methods educational for workers – by (7.2%) of the sample

It was an open question to ask members of the sample to see decisions usually take in order to mitigate risks during the construction process? Their answers were as follows:

- To check on the movement of workers – the proportion (15.7%) of the sample.

- Make sure wrenches concrete – the proportion (5.7%) of the sample.

- Ensure easy flow of movement of construction materials – the proportion (8.6%) of the sample.

- The application of standards and guidelines for safety – the proportion (42.9%) of the sample.

- Raise the level of knowledge workers the site – the proportion (11.4%) of the sample

- Risk treatment instantly before the development of the site – the proportion (4.3%) of the sample

- Schedule control and prevent it from any deviation – the proportion (15.7%) of the sample.

Table and Fig(4-29) . Show (during the construction phase Are the risks participating or transmitted to another party)?

Through the results, we find that more than two-thirds of the sample (71.4%) indicated that they participate in risks resulting during the construction process and they gave the reason that the risk address the responsibility of everyone and must carry and help solve them to gain confidence and knowledge to meet the later risk, and pointed out the remaining third of the sample (22.9%) they transferred the risk to another party (experienced) illustrating that the responsibility of the competent authorities to address the risks assigned to it.

Table : (4-29) : (during the construction phase Are the risks participating or transmitted to another party)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Transfer	16	22.9	28.6	28.6
	participation	40	57.1	71.4	100.0
	Total	56	80.0	100.0	
Missing		14	20.0		
Total		70	100.0		

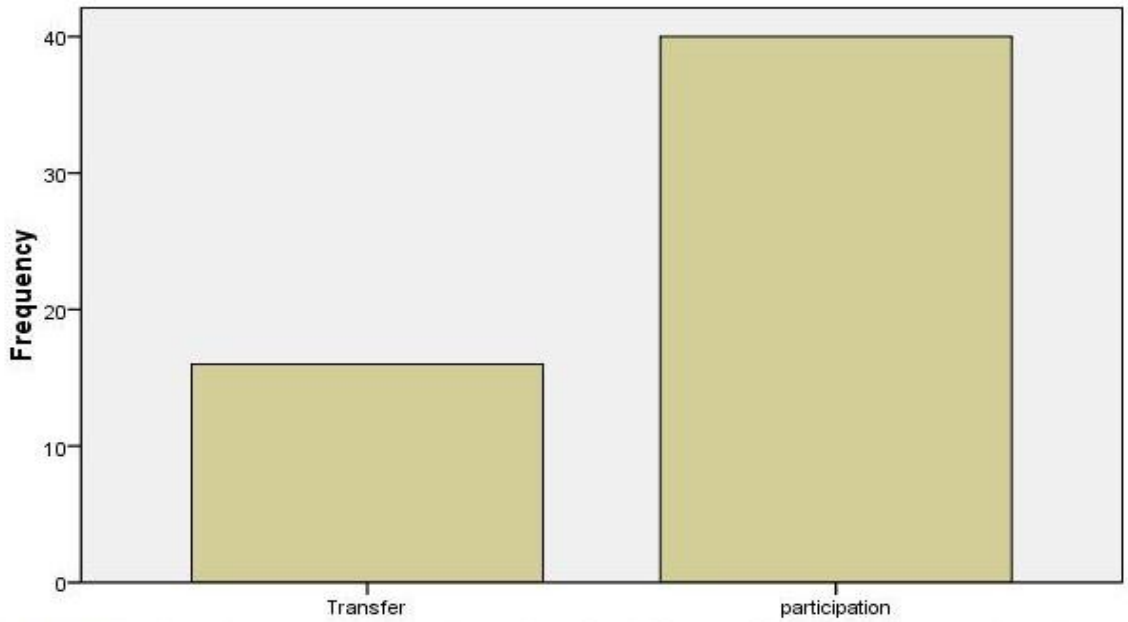

Fig:(4-29) During the construction phase Are the risks participating or transmitted to another party?

Table and Fig (4-30) **.** Shows (based on your experience how to assess the risk management systems in construction projects in the state of Khartoum).

Evaluated nearly two-thirds of the sample (60%) followed weakness Systems Risk Management in Khartoum state, while the other saw a third from the sample said existing regulations medium level, a very small percentage of total sample (1.4%) management systems evaluated as good.

Table : (4-30) : (based on your experience how to assess the risk management systems in construction projects in the state of Khartoum).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	42	60.0	62.7	62.7
	medium	24	34.3	35.8	98.5
	Good	1	1.4	1.5	100.0
	Total	67	95.7	100.0	
Missing	System	3	4.3		
Total		70	100.0		

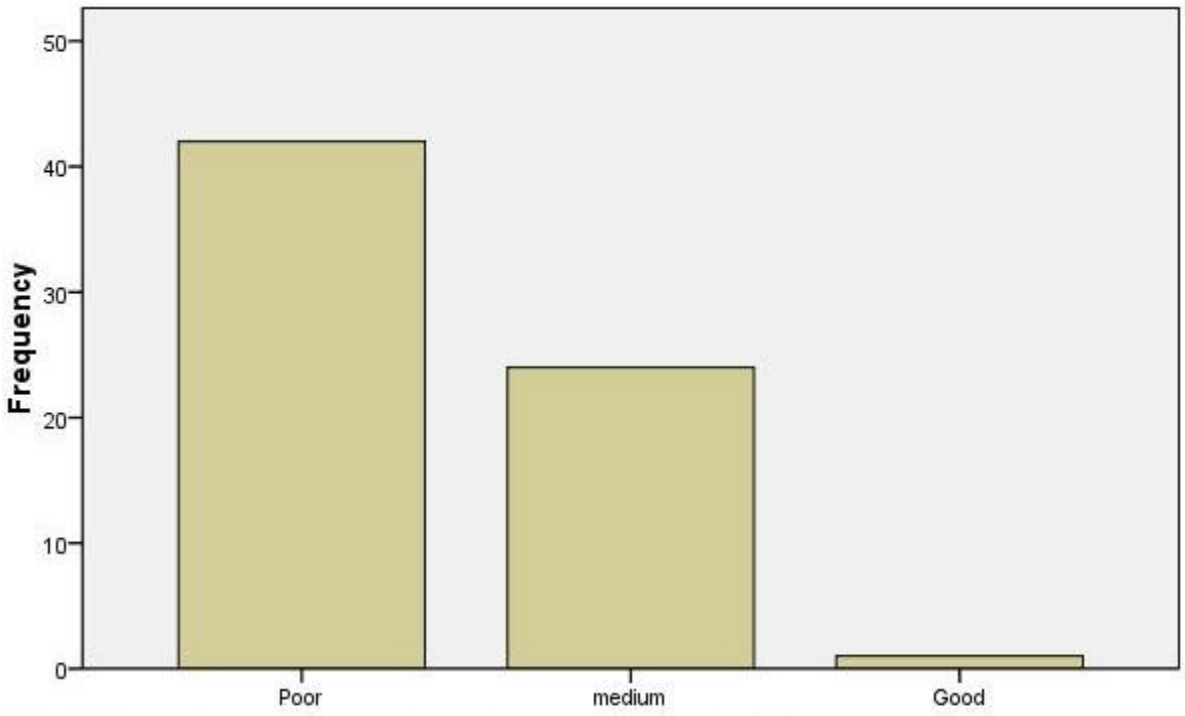

Fig:(4-30) Based on your experience how to assess the risk management systems in construction projects in the state of Khartoum

Table and Fig (4-31) **.** Shows (controls and procedures for risk management official in Sudan keep up with the global conditions)?

Observe by the results outright rejection of a large number of the sample, the percentage (65.7%), while some of them answered that OK to some extent by (25.7%). A very small percentage responded acceptance of (4.3%).

Table : (4-31) : (controls and procedures for risk management official in Sudan keep up with the global conditions)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	3	4.3	4.5	4.5
	I agree to some extent	18	25.7	26.9	31.3
	No	46	65.7	68.7	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

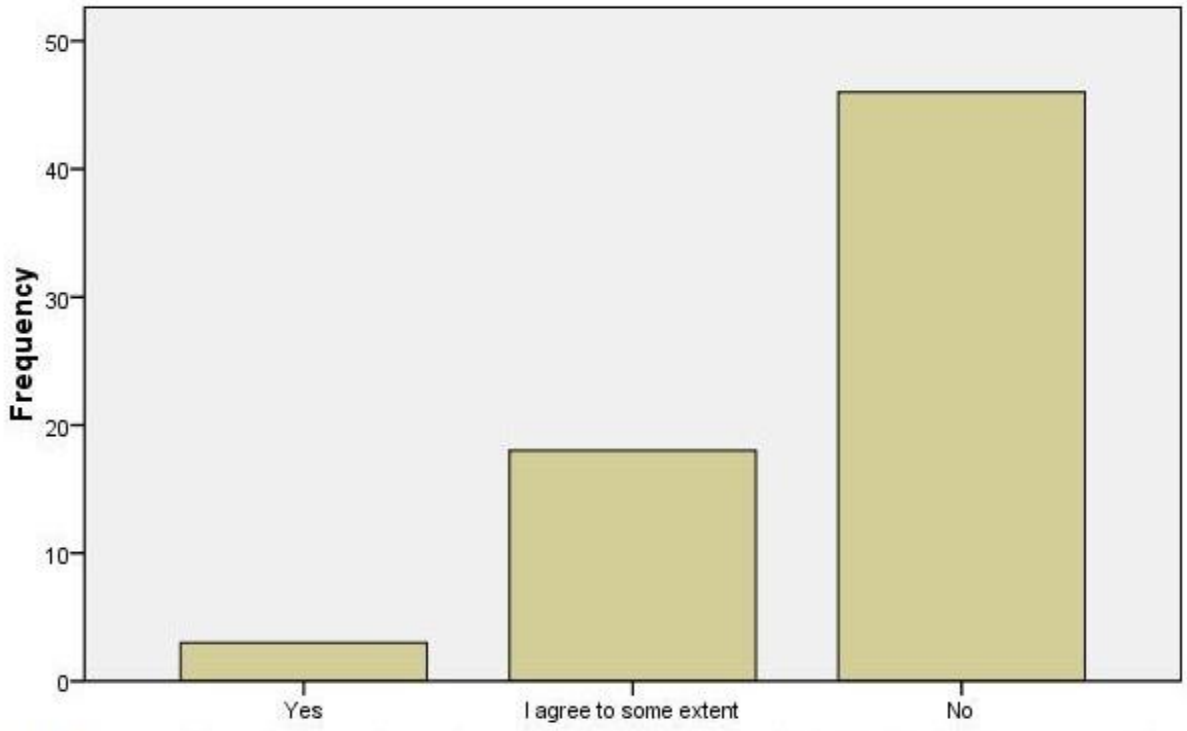

Fig:(4-31).controls and procedures for risk management official in Sudan keep up with the global conditions?

Table and Fig (4-32) **.** Shows (Is the risk management process are included in the official procedures and approved the company)?

Agreed somewhat more than half of the respondents considered risk management are included in the official procedures and approved the company 'while the rejection rate (34.3%) of the sample their presence in the official procedures of the company, a small percentage of (7.1%) responded acceptance.

Table : (4-32) : (Is the risk management process are included in the official procedures and approved the company)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	7.1	7.5	7.5
	to some extent	38	54.3	56.7	64.2
	No	24	34.3	35.8	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

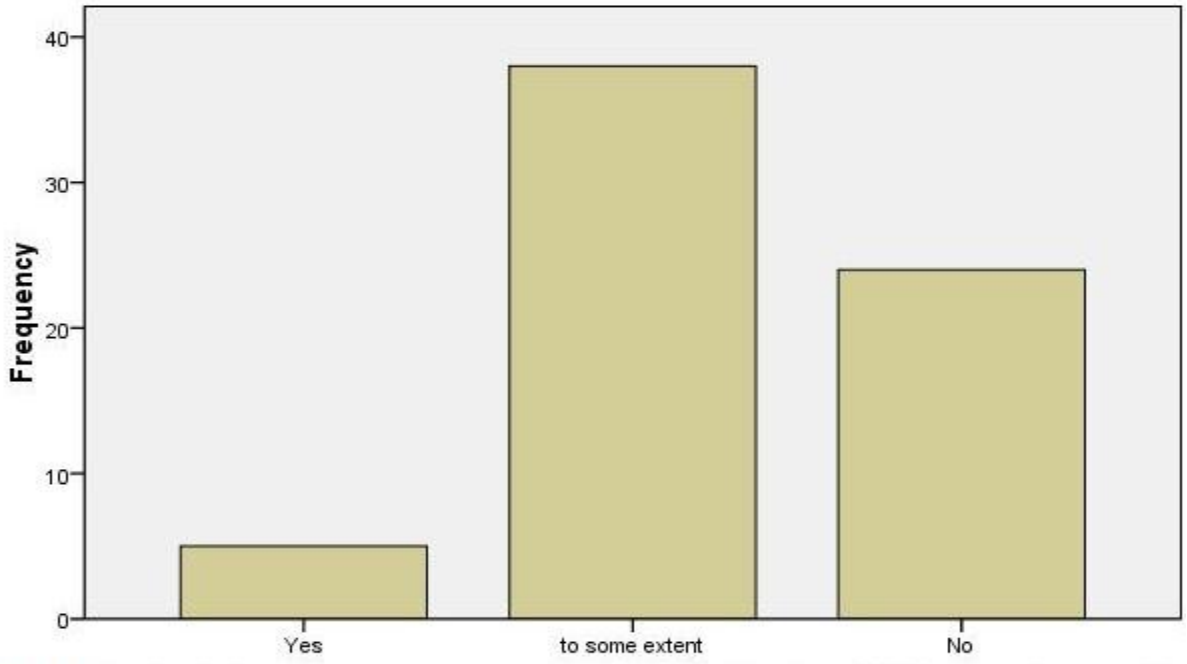

Fig:(4-32). Is the risk management process are included in the official procedures and approved the company?

Table and Fig (4-33) **.** Shows (Is the entry of foreign companies helped to raise interest in the management of risk scores in the construction industry of Khartoum state)?

Answered very large percentage of (87.2%) of the sample fully accepted or somewhat that the entry of foreign companies to help raise interest in degrees of risk management in the construction industry in Khartoum, while a very small percentage of respondents rejected.

Table : (4-33) : (Is the entry of foreign companies helped to raise interest in the management of risk scores in the construction industry of Khartoum state)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	44.3	45.6	45.6
	to some extent	30	42.9	44.1	89.7
	No	6	8.6	8.8	98.5
					100.0
	Total	68	97.1	100.0	
Missing		2	2.9		
Total		70	100.0		

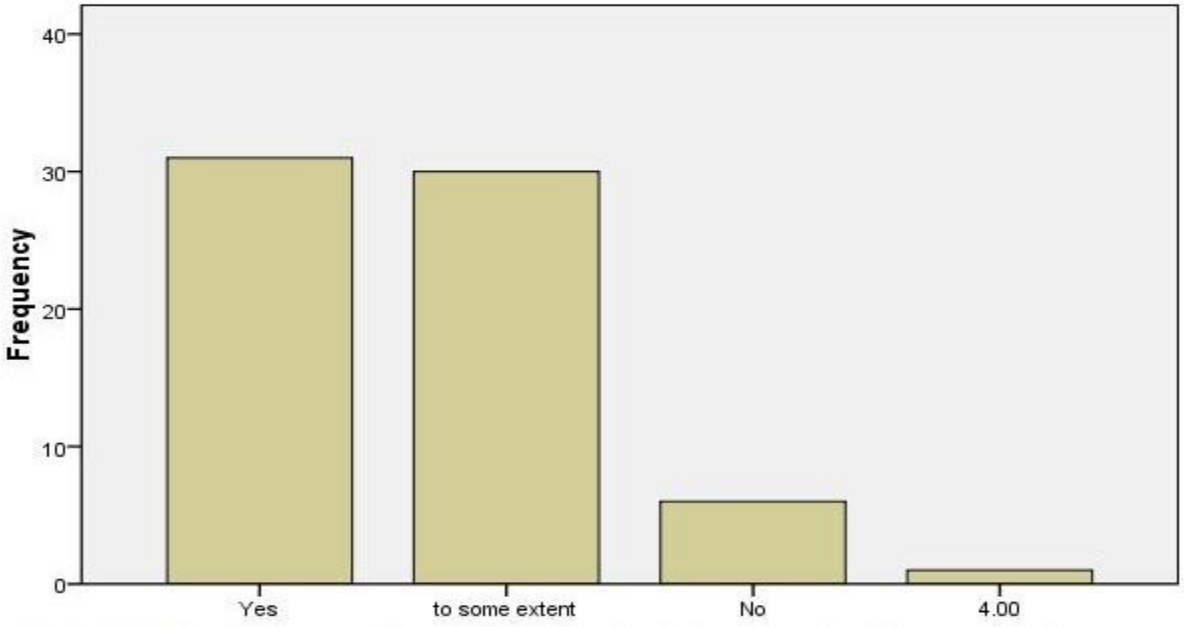

Fig :(4-33). Is the entry of foreign companies helped to raise interest in the management of risk scores in the construction industry of Khartoum state?

Table and Fig(4-34) . Shows (Sudanese custom frequently governs in cases of damages resulting from poor risk management).

In the table below we find that it refers to the approval rate (40%) of the sample that the Sudanese custom often governs in damages resulting from poor risk management, while the proportion (50%) agree somewhat oligo, and minority by (5.7%) rejects this principle.

Table : (4-34) : (Sudanese custom frequently governs in cases of damages resulting from poor risk management).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	28	40.0	41.8	41.8
	somewhat agree	26	37.1	38.8	80.6
	agree oligo	9	12.9	13.4	94.0
	never agree	4	5.7	6.0	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

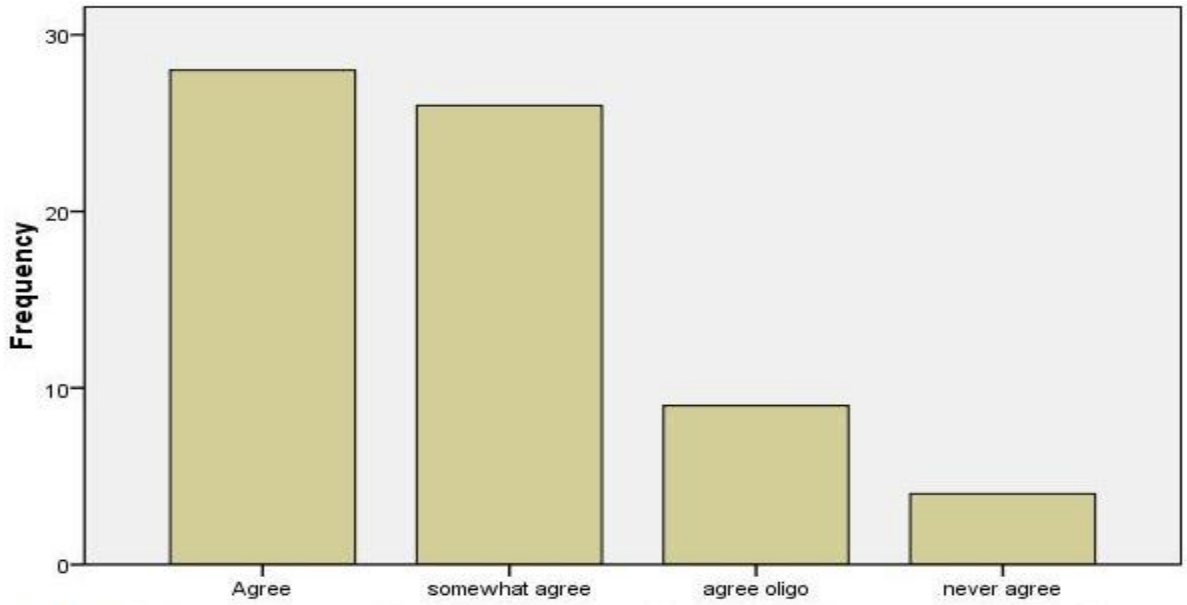

Fig:(4-34). Sudanese custom frequently governs in cases of damages resulting from poor risk management.

Table and Fig (4-35) . Shows (do you think that the lack sufficient studies of the risks and how to carry around are the most important reasons for the differences in the projects)?

In Table below confirms the approval of more than half the sample rate (60%) that the lack of adequate studies of the risks and how to carry around are the most important reasons for the differences in the projects, while of a few rejected for this reason by (4.3%) and the remainder of the sample indicated that they agree to some extent they are more than one-third of the sample rate (35.7%).

Table : (4-35) : (do you think that the lack sufficient studies of the risks and how to carry around are the most important reasons for the differences in the projects)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	42	60.0	60.0	60.0
	somewhat agree	19	27.1	27.1	87.1
	agree oligo	6	8.6	8.6	95.7
	No	3	4.3	4.3	100.0
Total		70	100.0	100	

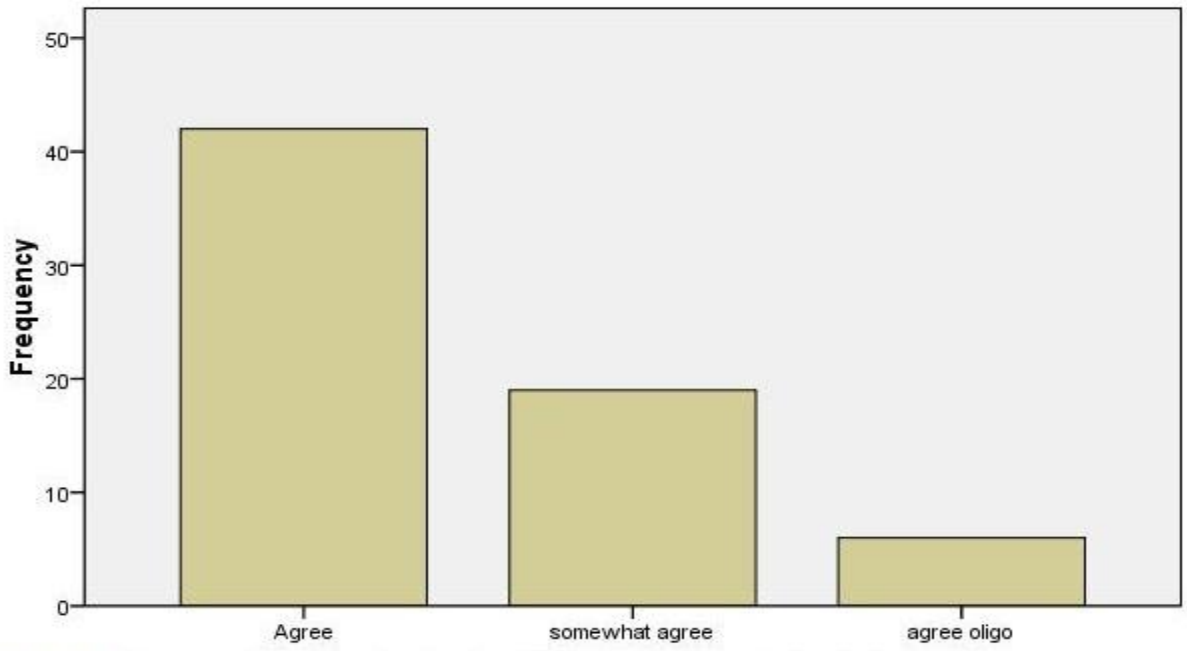

Fig:(4-35). Do you think that the lack sufficient studies of the risks and how to carry around are the most important reasons for the differences in the projects?

Table and Fig :(4-36) **.** Shows (based on opinion: from the Contact Person for the management of risks in construction projects)?

When asked the sample members from the Contact Person of risk management in construction projects, a large proportion of them replied reached (61.4%) that all parties to the project are responsible for risk management, while others threw the responsibility of risk management to the contractor by (18.6%) and engineer by (15.7%) and the owner by (4.3%).

Table : (4-36) : (based on opinion: from the Contact Person for the management of risks in construction projects)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Contractor	13	18.6	18.6	18.6
	Engineering	11	15.7	15.7	34.3
	Owner	3	4.3	4.3	38.6
	of all male	43	61.4	61.4	100.0
Total		70	100.0	100.0	

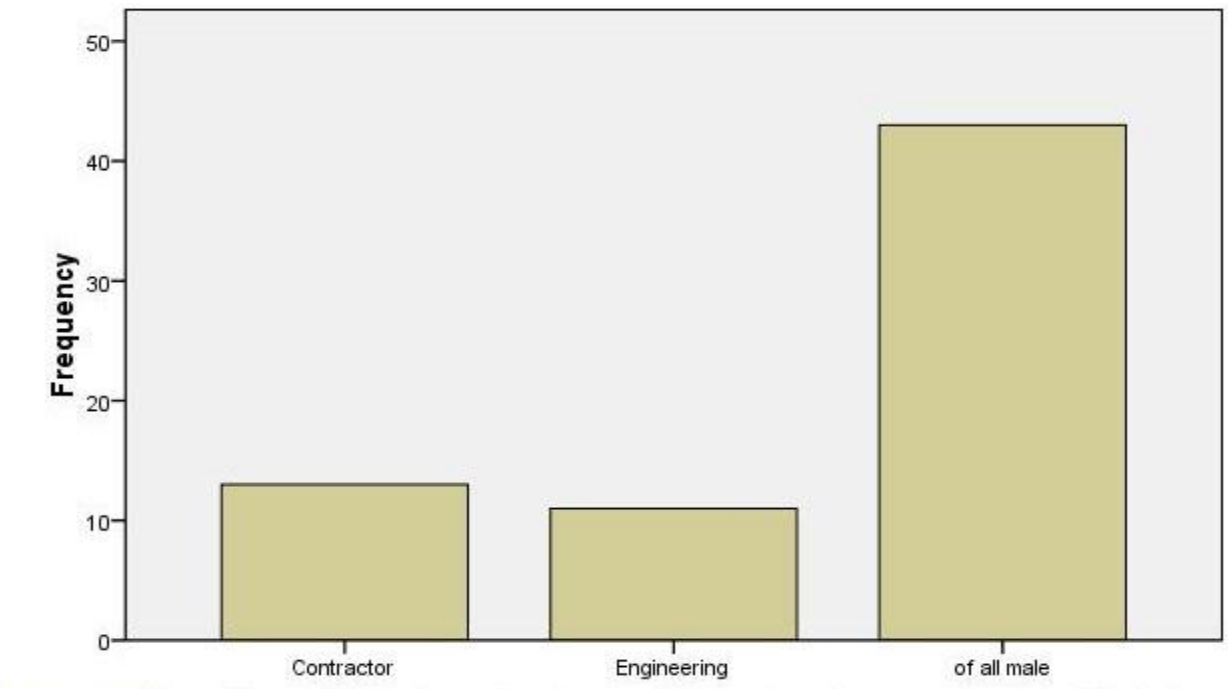

Fig:(4-36). Based on opinion: from the Contact Person for the management of risks in construction projects?

Table and Fig (4-37) **.** Show (do you think that the risk management process worthy material cost required to be used, which may reach 10% of the value of the cost of project management)?

According to the opinion of the sample results showed that the ratio of (65.7%) confirmed entitlement risk management material cost of the necessary and that an estimated 10% of the cost of project management, while ratio of (25.7%) noted out that sometimes we need the cost of risk management, a small percentage of (4.3 %) confirmed their rejection of the maturity of risk management for this money in management.

Table**:** (4-37) **:** (do you think that the risk management process worthy material cost required to be used, which may reach 10% of the value of the cost of project management)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	46	65.7	68.7	68.7
	often	12	17.1	17.9	86.6
	sometimes	6	8.6	9.0	95.5
	No	3	4.3	4.5	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

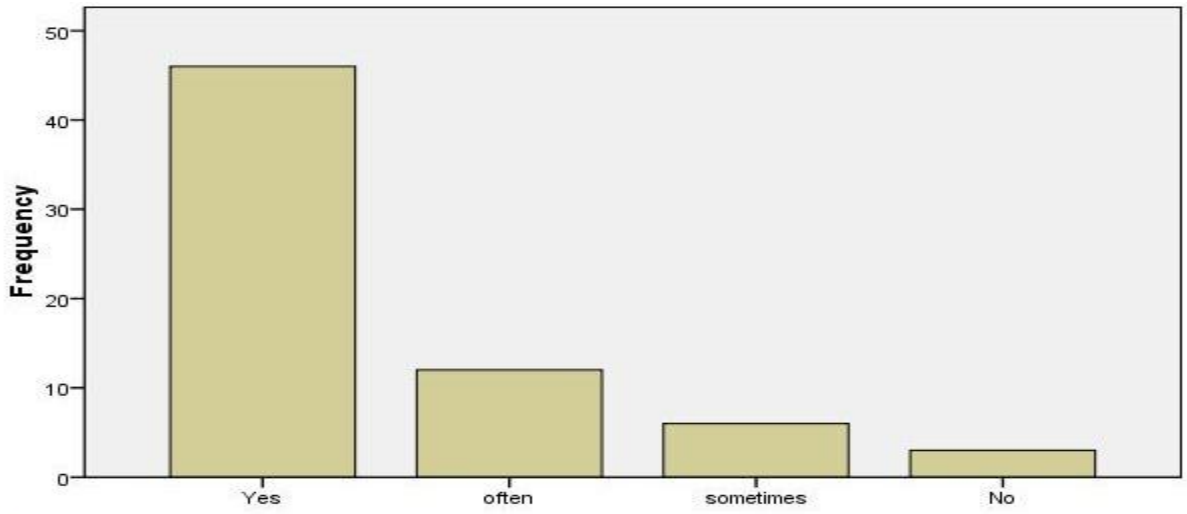

Fig :(4-37). Do you think that the risk management process worthy material cost required to be used, which may reach 10% of the value of the cost of project management?

Table and Fig (4-38) **.** Shows (based on your experience: Is risk management tools hamper and impede the construction process to some extent)?

Table below indicates that half of the sample rejected the argument that the risk management tools hamper and obstruct construction process, while Others see a rate (30%) said they sometimes hamper and obstruct, others by (8.6%) indicated that it is always and often hamper this construction process tools.

Table : (4-38) : (based on your experience: Is risk management tools hamper and impede the construction process to some extent)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6	8.6	9.0	9.0
	often	6	8.6	9.0	17.9
	sometimes	21	30.0	31.3	49.3
	No	34	48.6	50.7	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

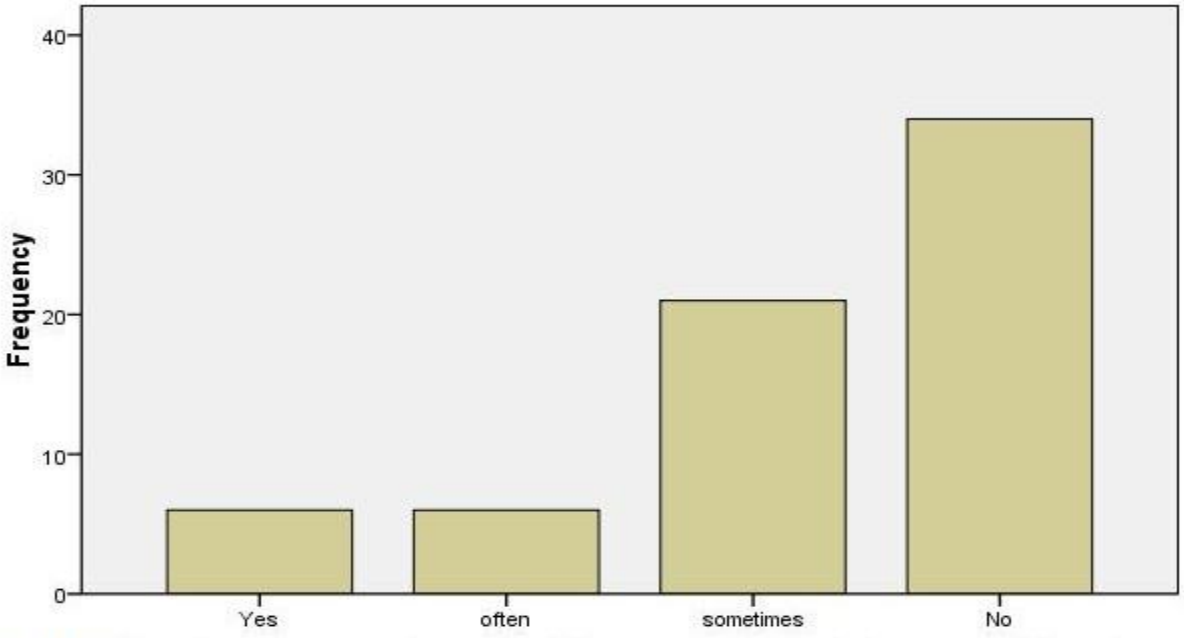

Fig :(4-38). Based on your experience: Is risk management tools hamper and impede the construction process to some extent?

Table and Fig (4-39) . Shows (do you agree that the use of the computer at the analysis increases the proportion of the health of the analysis)?

A review of the last question in the questionnaire, we find that more than two-thirds of the sample individuals and by (72.9%) answered emphasizing that the use of the computer at the analysis increases the validity of the analysis, and the proportion (12.9%) answered often and (7.1%) are sometimes, and very small percentage (2.9%) are that replied rejection.

Table (4-39) : (do you agree that the use of the computer at the analysis increases the proportion of the health of the analysis)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	51	72.9	76.1	76.1
	often	9	12.9	13.4	89.6
	sometimes	5	7.1	7.5	97.0
	No	2	2.9	3.0	100.0
	Total	67	95.7	100.0	
Missing		3	4.3		
Total		70	100.0		

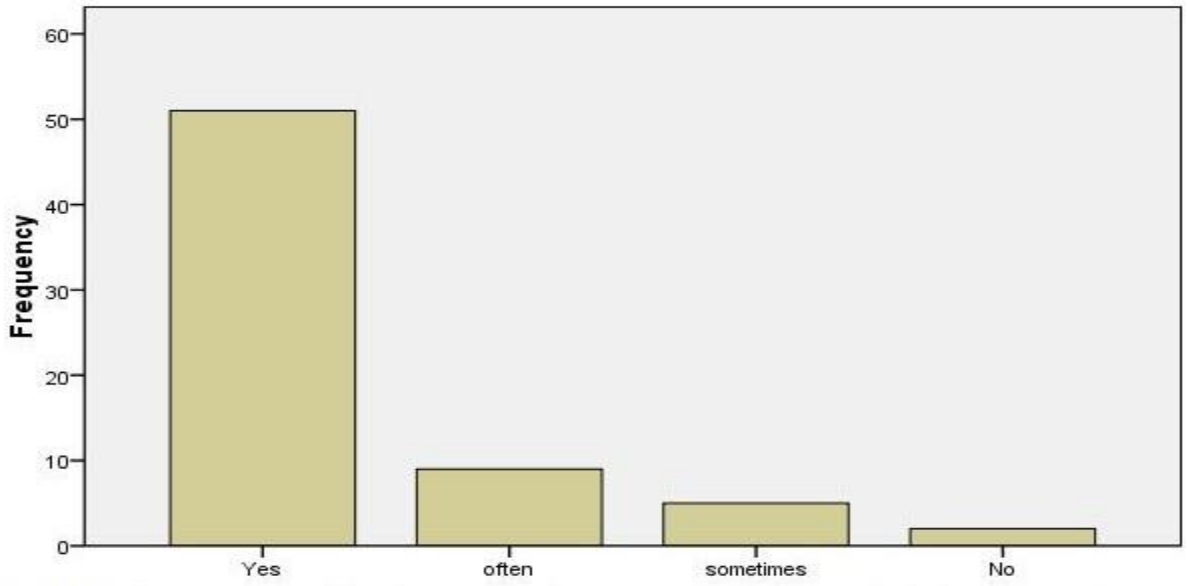

Fig :(4-39). Do you agree that the use of the computer at the analysis increases the proportion of the health of the analysis?

4-2 Results Analysis(Crosstabs) :-

crosstab used to illustrate the comparison between the two questions, or more, were used in this study to compare the two questions of the survey to determine the relationship between them through the answers to the research sample.

Table and Fig :(4-40) . Shows relationship between (Years of Experience) and (During the construction phase Are the risks participating or transmitted to another party) .

find that: Sample individuals who experience less than five years participate less risk, and increasing the proportion of risk participation the more years of experience to the more than ten years.

Table :(4-40):

		During the construction phase Are the risks participating or transmitted to another party?		Total
		Transfer	participation	
Years of Experience	Less than 5 years	5	9	14
	between 5-10	7	14	21
	more than 10	4	17	21
Total		16	40	56

Fig :(4-40). Bar Chart .NO :1

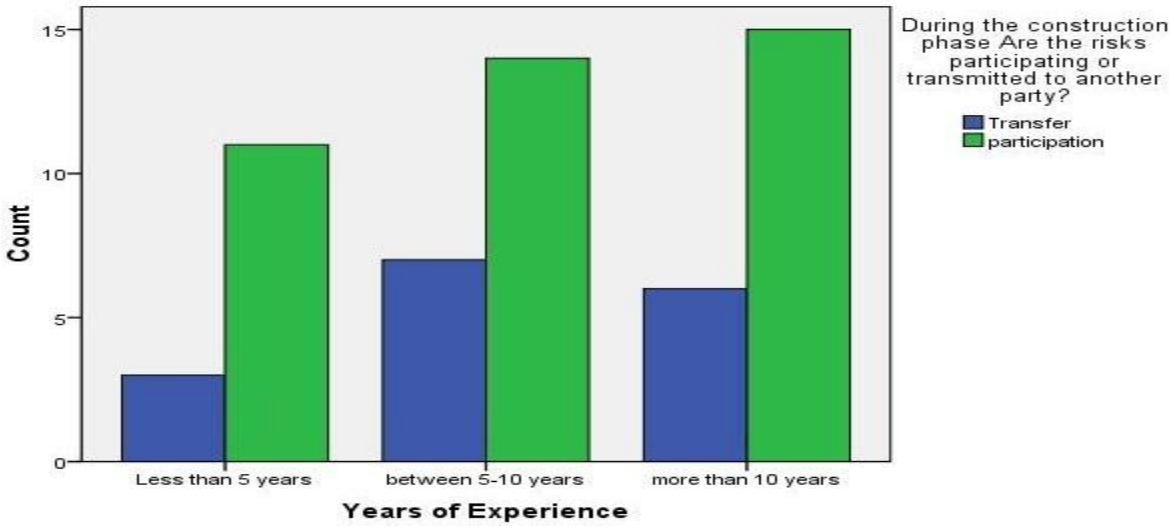

Table and Fig :(4-41) . Shows relationship between two questions in questionnaire They are (Years of Experience) and (Have you ever applied risk management techniques during your business)?

find that: The application of risk management techniques needs to be a lot of experience, according to the results of the sample, which showed that the sample individuals who apply those techniques ranging expertise to more than ten years and gradually reduced to lacking when the sample with experience of at least five years, individuals.

Table (4-41):

		Have you ever applied risk management techniques during your business?		Total
		Yes	No	
Years of Experience	Less than 5	1	18	20
	between 5-10	3	23	26
	more than 10	7	16	23
Total		14	55	69

Fig :(4-41). Bar Chart NO :2

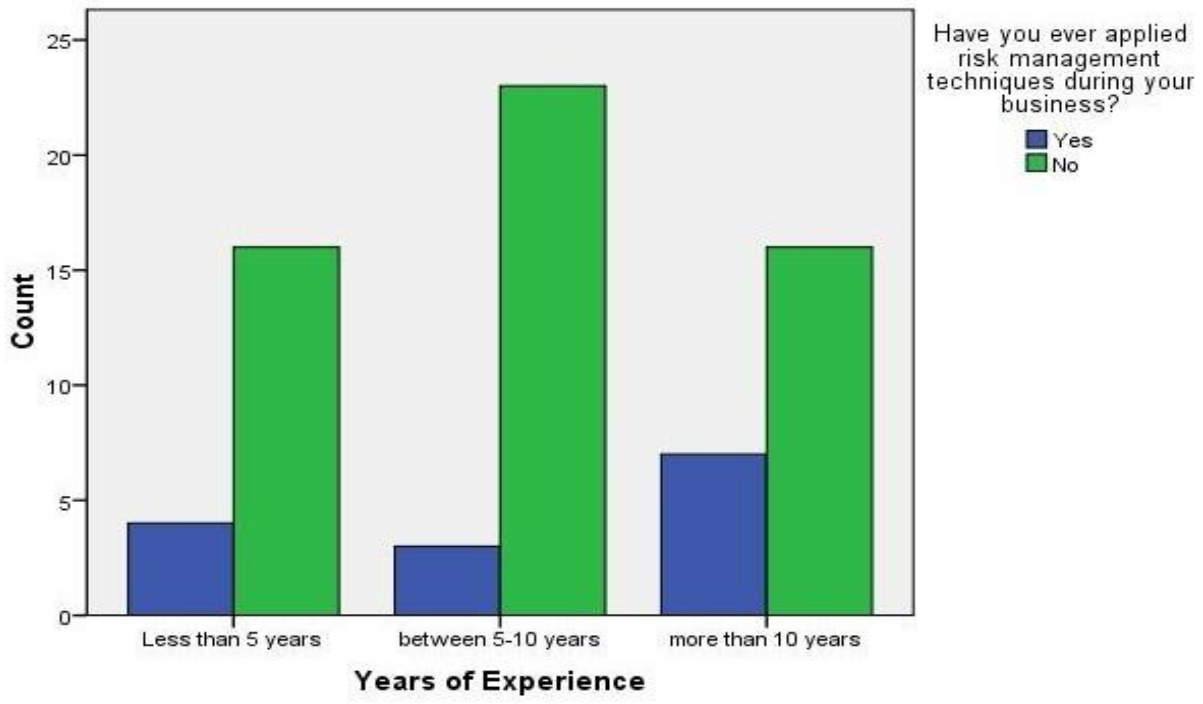

Table and Fig :(4-42) **.** Shows relationship between two questions in questionnaire They are (Is there a structuring that specializes in risk management in your institution)? and

(Sector in which they operate).

find that: Sample results show a lack of availability of management specializing in sectors work sample individuals but there are in the government sector increased by more than the private sector and lacking in the individual business segment.

Table (4-42):

		Sector in which they operate			
		Government sector	private sector	individual work	Total
Is there a structuring that specializes in risk management in your institution?	**Yes**	15	3	0	18
	No	32	14	5	51
Total		47	17	5	69

Fig :(4-42). Bar Chart NO :3

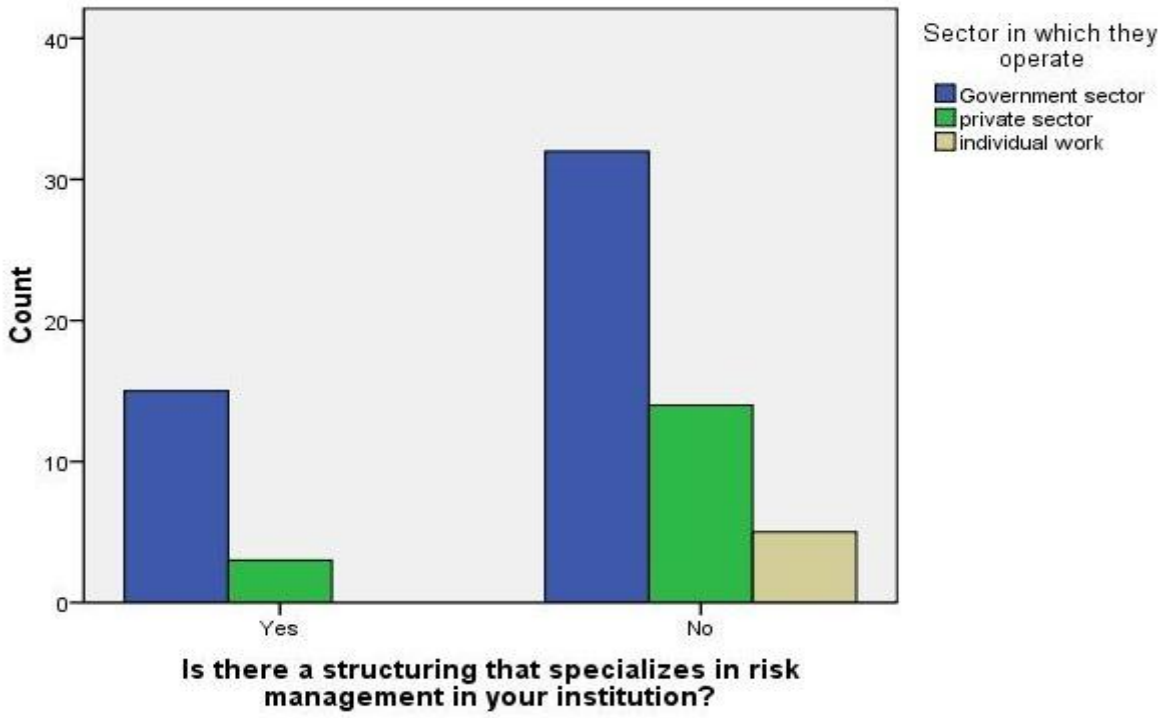

Table and Fig :(4-43) . Shows relationship between two questions in questionnaire (Years of Experience) and (experience in the risk management process)?

find that: Sample individuals experience in the process of risk management is weak or almost non-existent for those with experience of at least five years, and gradually increase with increasing years of experience.

Table (4-43):

		Experience in the risk management process?			
		Low	Moderate	High	Total
Years of Experience	Less than 5 years	5	15	0	20
	between 5-10 years	5	20	1	26
	more than 10 years	2	16	5	23
Total		13	50	6	69

Fig :(4-43). Bar Chart NO : 4

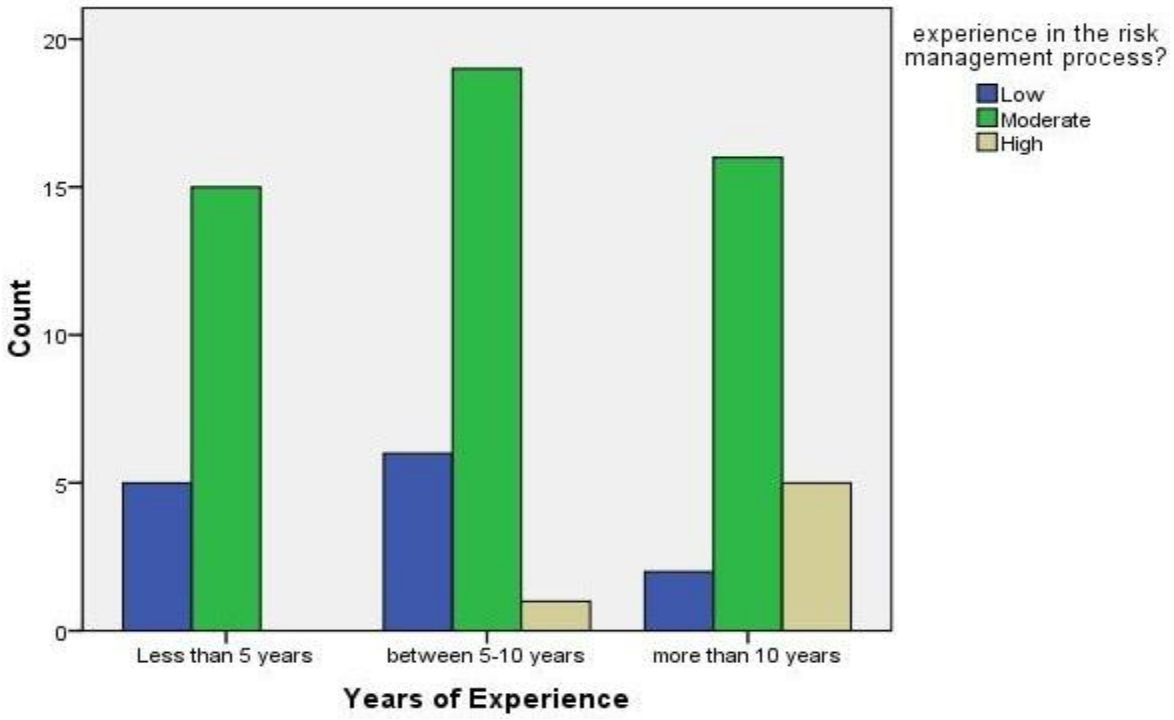

Table and Fig :(4-44) . Shows relationship between two questions in questionnaire (Years of Experience) and (Based on opinion: from the Contact Person for the management of risks in construction projects)?

find that: Sample individuals who range from their experiences for more than ten years and large agreed on by everyone(contractor , engineers, owner) responsible for risk in projects, while this percentage less than the lower experience of years for individuals sample.

Table (4-44):

		Based on opinion: from the Contact Person for the management of risks in construction projects?			
		Contractor	**Engineering**	**of all male**	**Total**
Years of Experience	Less than 5 years	**4**	**4**	**10**	**18**
	between 5-10 years	**5**	**5**	**16**	**26**
	more than 10 years	**3**	**2**	**18**	**23**
Total		**13**	**11**	**43**	**67**

Fig :(4-44). Bar Chart NO : 5