

Evaluation of the role of insurance policy in workplace safety risks in construction projects in Minna, Niger State, Nigeria

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Abstract:

Workers in the construction industry are regularly liable to health and safety (H&S) risks resulting into accidents on site. One of the ways the risks could be mitigated is through insurance. Despite the availability of laws on H&S incorporating specific provisions and consideration on insurance and risk management; the rate of injuries, fatalities and death from construction related activities remains high. This study evaluated the role of insurance policy in workplace safety risks in construction projects in Minna, Niger State, Nigeria. The study adopted a quantitative research approach with the aid of structured questionnaire. Data were collected from twenty-two (22) purposively selected professionals from public clients, contractors and insurance companies. Data analysis was undertaken with the use of Relative Importance Index (RII). Findings from the study revealed that contractors show more willingness in complying with the undertaking of insurance policy for projects being executed than the clients (construction firms). It was found that the most important types of insurance policy are Worker's Compensation Insurance (RII = 0.96) and All-Risk Policies (RII = 0.95). It was also shown that the most significant role of insurance policy in workplace safety risks is "Guarantees the success of projects" (RII = 0.95). It was concluded that insurance policy plays a significant role in workplace safety risks in construction projects in Minna. Major recommendation from the study was that Government regulating agency in-charge of ensuring compliance with insurance policy should organise orientation programme and regular monitoring of contractors and clients to ensure strict compliance.

Keywords:

Construction, insurance policies, projects, safety, workplace

1 Introduction

It has been established that shelter is a basic need of man in life as well as the need for adequate housing. The need for shelter is responsible for the rate of increase in building construction activities in Nigeria and across the globe. Unfortunately, hazardous activities have been attributed to the construction industry upon which responsibility for shelter provision rests (Samuel, 2014). Therefore, construction workers experience

various forms of uncertainties as work progresses on construction project sites. Furthermore, it has been established that the activities of the construction industry are not always carried out in accordance with specified targets, errors happen, the workforce experience injuries, and valuables are lost; all these can negatively affect or stop the progress of a construction project (Queen & Satheesh, 2018). Most of these hazards can be avoided as well as achieving a reduction in the occurrence of the hazards to the barest minimum through insurance (Odeyinka, 2000). Insurance has been defined as a way of transferring risk by means of contract; a contractual agreement by which the insurer, in return for a predetermined premium, agrees to meet the cost of any loss which the policy holder may incur due to some specified uncertainty events occurring during the period of the insurance (Okolie *et al.*, 2017). The Insurance Companies Act of 1961 of Nigeria classified insurance businesses into various classes for registration and provided forms for record keeping. Some of the ones related to the construction business of any Builder who runs a contracting company and employs more than four (4) persons under the National Insurance Act 2003 are: Builders Liability Insurance; Occupiers Liability Insurance; and Motor Third Party Liability Insurance (Okolie *et al.*, 2017).

In spite of the above, workers in the construction industry are regularly prone to health and safety (H&S) challenges which result into major concerns to their productivity. In line with this, Sunday and Yahaya (2019) stressed that of the total number of accidents recorded on twenty (20) sites in Minna metropolis, 75% resulted into minor injuries while 25% resulted into major injuries; and the number of accidents increases with the number of workforce on sites in Minna. Therefore, despite the availability of laws on H&S incorporating specific provisions and consideration on insurance and risk management; the rate of injuries, fatalities and death from construction related activities remains unreasonably high. This implies that construction firms do not seem to understand the implication of not taking up employees' insurance (Jimoh *et al.*, 2019; van der Molen & Hoving, 2019; Ameh & Farinde, 2020; Okongwu *et al.*, 2021). Hence, the need to evaluate the role of insurance policy in workplace safety risks in construction projects in Minna. In order to achieve this aim, the study examined the relative importance of the types of insurance policy in the safety of construction site activities; and the basic roles of employees' insurance policy in construction projects.

The outcome of this study will be beneficial to contractors, owners of construction businesses and construction firms to be able to reduce the cost of accidents in the event of accidents that are not preventable. The study will also enlighten construction firms on the ways for better protecting site workers from incurring unnecessary burden due to accidents and fatalities. Finally, the outcome of this study will enable the construction industry to make a move towards developing a mechanism that will serve as a uniform basis for easing the adoption and implementation of construction insurance policy to the advantage of employers and employees as well as all stakeholders involved in construction site activities.

2 Literature Review

This section discusses issues relating to the general concept of insurance policies with respect to the construction sector. The section also discusses the types of insurance policies and the benefits of insurance policies.

2.1 Types of insurance policy on construction site activities

Construction insurance is an act whereby parties to a construction contract exchange a contingent claim for a fixed payment to protect their interests (Ameh & Farinde, 2020). Therefore, the transfer of risks from the parties involved in a construction project to insurers in order to provide contingent funding in time of difficulty is the primary function of insurance (Ameh & Farinde, 2020). In order for a contractor to make the most important administrative decision, he must purchase the proper insurance. Odeyinka (2000) therefore classified insurance policies employed in managing construction risks as: all-risk policies, road traffic act policies, multi-risk policies and specified peril policies. In line with these, NOUN (2009) identified construction insurance as Engineering Insurance. Based on this, NOUN (2009) reported that the common types of engineering insurance policy include: i) Contractors All Risks; ii) Erection All Risks; iii) Machinery Breakdown; iv) Boiler and Pressure Vessel; v) Electronic Equipment; and vi) Plant All Risks. Based on extant review of literature, the types of insurance policy related to construction site are summarised in Table 1.

Table 1: Types of insurance policy on construction site activities

S/No.	Types of Insurance Policy	Source(s)
1	All-Risk Policies (Contractors All Risks; Erection All Risks; Plant All Risks)	Odeyinka (2000); NOUN (2009); Okongwu <i>et al.</i> (2021)
2	Road Traffic Act Policies (Automobile Insurance/ Motor Third Party Liability Insurance)	NOUN (2009); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
3	Multi-Risk Policies	NOUN (2009); Okolie <i>et al.</i> (2017); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
4	Specified Peril Policies	NOUN (2009); Okolie <i>et al.</i> (2017); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
5	Machinery Breakdown	NOUN (2009); Okolie <i>et al.</i> (2017); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
6	Boiler and Pressure Vessel	NOUN (2009); Okolie <i>et al.</i> (2017); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
7	Equipment Floater Insurance	NOUN (2009); Ameh and Farinde (2020); Okolie <i>et al.</i> (2017); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
8	Builder's Liability Insurance	Okolie <i>et al.</i> (2017); Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
9	Key Man Insurance	Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
10	Worker's Compensation Insurance.	Ameh and Farinde (2020); Okongwu <i>et al.</i> (2021)
11	Occupiers Liability Insurance	Okongwu <i>et al.</i> (2021); Okongwu <i>et al.</i> (2021)

2.2 Roles of employees' insurance policy in construction projects

As already emphasised, insurance method is one of the key ways of managing construction risks in the Nigerian construction industry; that is by transferring some of the risks to insurance companies (Ameh & Farinde, 2020; Odeyinka, 2000; NOUN, 2009; Samuel & Muhammed, 2021). According to Clause 2.1 of Joint Contract Tribunal (JCT) (1980), 'the contractor shall upon and subject to the conditions carry out and complete the Works in compliance with the Contract Documents, using materials and workmanship of the quality and standards therein specified'. Based on the review of

literature undertaken for this study, the following roles of employees' insurance policy in construction projects have been identified as summarised in Table 2.

Table 2: Roles of employees' insurance policy in construction projects

S/No.	Roles of Employees' Insurance Policy	Source(s)
1	Transfers risk-bearing responsibility by the contractor to the insurance company	Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
2	Offers comprehensive and adequate financial protection against loss or damage in respect of the contract work	Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
3	Offers third parties' liabilities for bodily injury or damage to property arising in connection with the execution of the contract	Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
4	Adequate insurance cover will compel the insurance companies to strictly monitor the contractors' operations and enforce compliance	Ameh and Farinde (2020); Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
5	Guarantees the success of projects	Samuel and Muhammed (2021)
6	Ensures financial security	NOUN (2009); Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
7	Serves as an important component in the financial intermediation chain	Ameh and Farinde (2020); Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
8	Offers a ready source of long-term capital for infrastructural projects	Ameh and Farinde (2020); Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
9	Provides contingent funding to the contractor in time of difficulty	Ameh and Farinde (2020); Odeyinka (2000); NOUN (2009); Samuel and Muhammed (2021)
10	Averting hazards to the workers and the projects and liabilities to the insurer	Ameh and Farinde (2020); Odeyinka (2000); NOUN (2009); Ameh and Farinde (2020)

3 Research Methodology

This study adopted the quantitative research approach due to the fact that this approach has been described as involving data generation in a quantitative form which can be subjected in a formal and rigid fashion to rigorous quantitative analysis. Therefore, the use of structured questionnaire was employed to collect data. The study covered the professionals in the construction firms registered with Niger State Housing Corporation (NSHC) and Niger State Ministry of Works and Infrastructural Development (NSMWID) in Minna, Niger State, as well as professionals working in these public client organisations. Selected insurance companies also formed part of the sampling frame for the study. The sampling frame covered professionals of these two ministries which involve Architects, Builders, Quantity Surveyors and Engineers, as well as the safety officers in the construction firms registered to execute projects for these ministries. The insurance companies were represented by their staff members who are construction professionals. The sample size for the study was made of four (4) professionals each from NSMWID and NSHC, ten (10) safety officers from the active construction sites of the construction firms and a professional each representing four (4) insurance companies. The use of purposive sampling technique was employed to select the

respondents based on years of experience of professionals (i.e., minimum of 10 years' experience) for the government ministries; availability of active construction projects for the safety officers of construction firms; and availability of construction professionals for the insurance companies. Therefore, a total of twenty-two (22) respondents were considered for the study. This implies eight (8) professionals from NSMWID and NSHC; ten (10) safety officers from construction firms; and four (4) professionals from insurance companies. The sample size was small due to the fact that this research is a pilot survey to an on-going study undertaken to gain more insight into the larger study and issues of time constraints. However, the larger study will cover wider audience.

The questionnaire used for data collection was designed on a five-point Likert's Scale format in order to sample opinion of respondents. The questionnaire was made up of four sections. Information with respect to the profile of respondents was addressed in the first section. The second section addressed issues which concern the level of adoption of insurance policy in construction projects. Issues relating to the relative importance of the types of insurance policy was addressed in the third section of the questionnaire. The fourth section of the questionnaire addressed issues relating to the basic roles of insurance policy in construction projects. A reliability test was undertaken to validate the research instrument. It was observed that the Cronbach's Alpha was 0.933 which was very high and above 0.60. This implies that the research data were reliable and hence the research instrument is valid because Nawi *et al.* (2020) suggested that in the pilot study phase the reliability result should be equal to or above 0.60.

The analysis of data was undertaken with the use of percentage and Relative Importance Index (RII). Percentage was employed to analyse the profile of organisations' insurance policy adoption/implementation while RII was employed to rank the perception of the respondents on the types of insurance policies and roles of insurance policies in construction projects in order of importance and significance respectively. The formula for calculating RII for data analysis is expressed in Equations 1 while the decision rule adopted is summarised in Table 3.

$$RII = \frac{\sum W}{A \times N} \dots\dots\dots (1)$$

(Source: Kassem, 2020)

Where: Σ = Summation, W = the weights of every one of the factors given by respondents and it was in the range of (1 - 5), (A=5) the largest value of weight (i.e., Highest factor) and finally N refers to the Total number of respondents.

Table 3: Decision rule for RII analysis

Scale	Cut-Off Points	Interpretation
5	0.81 - 1.00	Extremely Important/Significant
4	0.61 - 0.80	Important/Significant
3	0.41 - 0.60	Fairly Important/Significant
2	0.21 - 0.40	Less Important/Significant
1	0.00 - 0.20	Least Important/Significant

(Source: Adapted and Modified from Shittu *et al.*, 2021)

4 Findings and Discussion

4.1 Profile of organisations' insurance policy adoption/implementation

The information with respect to the organisations' insurance policy adoption/implementation is presented in Table 4.

Table 4 shows that 81.82% of respondents confirms that their organisations undertake insurance policy for the construction projects being executed while 18.18% of respondents confirms that their organisations do not undertake insurance policy for the construction projects being executed. In addition to this, it was revealed in Table 4 that some of the organisations who do not undertake insurance policy do not take up insurance policy because the organisations are Government establishments and are public clients (27.27% of respondents); some other organisations gave the reason of lack of awareness (50% of respondents); and other organisations gave a reason of clients 'unwillingness (22.73%). Results from Table 4 also indicate that even though majority of the respondents confirms that their organisations undertake insurance policy, some others do not undertake insurance policy for the construction projects being executed mainly due to lack of awareness and unwillingness on the part of the clients. It was also revealed in Table 4 that 63.64% undertake insurance for projects with above 5 site workers, while 36.36% of respondents confirm that their organisation undertakes insurance policy for projects with above 10 site workers; this shows that majority of the organisations undertake insurance for projects with above 5 site workers. This is in line with the finding from past studies that the Sections of the National Insurance Act 2003 are relevant to a construction business with more than four (4) workers (Okolie *et al.*, 2017).

Table 4: Profile of organisations' insurance policy adoption/implementation

Profile	Frequency	Percentage (%)
<i>Proportion of Organisations that Undertake Insurance Policies</i>		
Yes	18	81.82
No	4	18.18
<i>Reasons for not Undertaking Insurance Policies for Construction Projects</i>		
Organisation is State Government-owned	6	27.27
Lack of Awareness	11	50.00
Client's Unwillingness	5	22.73
<i>Means for Undertaking Insurance Policies for Construction Projects Executed</i>		
We undertake insurance for projects with > 5 site workers only	14	63.64
We undertake insurance for projects with > 10 site workers only	8	36.36
<i>Party who Bears the Cost of Insurance for Construction Projects Executed</i>		
The Client	0	0.00
The Contractor	18	81.82
Both Client and Contractor	4	18.18

Results in Table 4 also showed that 81.82% of respondent confirms that the cost of undertaking insurance policy is born by the contractor only, while 18.18% of respondents confirms that both the client and contractor bear the cost of undertaking

insurance policy through a contract agreement. This implies that the contractor shows more willingness with the compliance to undertaking insurance policy for projects being executed than the client. This unwillingness attitude of clients can undermine the efforts of contractors to cover site activities and workers in construction projects in Minna.

The findings of this study as shown in Table 4 are in line with findings from previous studies. These previous studies revealed that construction firms do not seem to understand the implication of not taking up employees' insurance. The previous studies also revealed that in spite of the availability of H&S laws with specific provisions for insurance and risk management; the toll of injuries, fatalities and death from construction related activities is still on the higher side, implying possible non-compliance of contractors and clients to established insurance policies (Jimoh *et al.*, 2019; van der Molen & Hoving, 2019; Ameh & Farinde, 2020; Okongwu *et al.*, 2021).

4.2 Relative importance of types of insurance policy on construction site activities

In view of the findings of the study on the profile of organisations on the adoption/implementation of insurance policy, the relative importance of eleven (11) identified types of insurance policy was examined with the use of Relative Importance Index (RII). The summary of the RII result is presented in Table 5.

Table 5 revealed that the most important types of insurance policy on construction site activities are Worker's Compensation Insurance (RII = 0.96) and All-Risk Policies (Contractors All Risks; Erection All Risks; Plant All Risks) (RII = 0.95). The least important types of insurance policy on construction site activities are Machinery Breakdown Policy (RII = 0.65) and Specified Peril Policies (RII = 0.62). On the average, all the identified types of insurance policy on construction site activities are important (average RII = 0.80).

Table 5: Results of relative importance of types of insurance policy on construction site activities

Code No.	Types of Insurance	RII	Rank	Decision
C10	Worker's Compensation Insurance.	0.96	1st	Extremely Important
C1	All-Risk Policies (Contractors All Risks; Erection All Risks; Plant All Risks)	0.95	2nd	Extremely Important
C8	Builder's Liability Insurance	0.89	3rd	Extremely Important
C7	Equipment Floater Insurance	0.86	4th	Extremely Important
C3	Multi-Risk Policies	0.78	5th	Important
C11	Occupiers Liability Insurance	0.78	5th	Important
C6	Boiler and Pressure Vessel	0.77	7th	Important
C9	Key Man Insurance	0.77	7th	Important
C2	Road Traffic Act Policies (Automobile Insurance/ Motor Third Party Liability Insurance)	0.76	9th	Important
C5	Machinery Breakdown	0.65	10th	Important
C4	Specified Peril Policies	0.62	11th	Important
	Average RII	0.80		Important

The study of Odeyinka (2000), where it was reported that one of the ways in which accidents and its associated injuries could be reduced is through insurance, agrees with the finding of this study. The finding of this study also corroborates with the finding of Ameh and Farinde (2020) where it was established that transferring of risks from the parties to a construction project to insurers in order to provide contingent funding in time of difficulty is the primary function of insurance.

4.3 Level of significance of the roles of employees' insurance policy in construction projects

Having known the relative importance of the types of insurance policy, this study further examined the basic roles of employees' insurance policy in construction projects with the use of RII. The summary of the result is presented in Table 6.

Table 6 revealed ten (10) basic roles of employees' insurance policy in construction projects. It was revealed that the most significant roles are Guarantees the success of projects (RII = 0.95); Averting hazards to the workers and the projects and liabilities to the insurer (RII = 0.94); and Transfers risk-bearing responsibility by the contractor to the insurance company (RII = 0.93). The least significant role is Offers third parties' liabilities for bodily injury or damage to property arising in connection with the execution of the contract (RII = 0.51). On the average, all the basic roles of employees' insurance policy in construction projects are significant (average RII = 0.84).

Table 6: Results of the basic roles of employees' insurance policy in construction projects

Code No.	Roles of Insurance	RII	Rank	Decision
D5	Guarantees the success of projects	0.95	1st	Extremely Significant
D10	Averting hazards to the workers and the projects and liabilities to the insurer	0.94	2nd	Extremely Significant
D1	Transfers risk-bearing responsibility by the contractor to the insurance company	0.93	3rd	Extremely Significant
D7	Serves as an important component in the financial intermediation chain	0.92	4th	Extremely Significant
D4	Adequate insurance cover will compel the insurance companies to strictly monitor the contractors' operations and enforce compliance	0.90	5th	Extremely Significant
D6	Ensures financial security	0.84	6th	Extremely Significant
D2	Offers comprehensive and adequate financial protection against loss or damage in respect of the contract work	0.82	7th	Extremely Significant
D9	Provides contingent funding to the contractor in time of difficulty	0.82	7th	Extremely Significant
D8	Offers a ready source of long-term capital for infrastructural projects	0.79	9th	Significant
D3	Offers third parties' liabilities for bodily injury or damage to property arising in connection with the execution of the contract	0.51	10th	Fairly Significant
	Average RII	0.84		Extremely Significant

The finding of this study agrees with the finding from past research works which revealed that a major method of managing construction risks in the Nigerian construction industry is through transfer to insurance companies (Odeyinka, 2000; NOUN, 2009; Samuel & Muhammed, 2021). It is therefore profitable and more safety conscious to take up employees' insurance in a construction project.

5 Conclusion and Further Research

Findings from the analyses undertaken for this study revealed that the contractor shows more willingness with the compliance to undertaking insurance policy for projects being executed than the client. This unwillingness attitude of clients can undermine the efforts of contractors to cover site activities and workers in construction projects in Minna. The most important types of insurance policy on construction site activities are Worker's Compensation Insurance and All-Risk Policies (Contractors All Risks; Erection All Risks; Plant All Risks). On the average, all the identified types of insurance policy on construction site activities are important. The most significant roles of employees' insurance policy in construction projects are Guarantees the success of projects; Averting hazards to the workers and the projects and liabilities to the insurer; and Transfers risk-bearing responsibility by the contractor to the insurance company. On the average, all the roles of employees' insurance policy in construction projects are significant. It can therefore be concluded that the role of insurance policy in workplace safety risks in construction projects in Minna, Niger State is significant. Therefore, effective implementation of insurance policy in construction projects is capable of mitigating the effect of risks and accidents on the contractor, client, workers and all stakeholders.

In the light of the findings and conclusion of this study, vital recommendations have been made. In order to improve the level of awareness, willingness and compliance with the implementation of insurance policies in the safety of workers in construction projects, all stakeholders should be giving regular orientation by the Government regulating agency in-charge. This can be followed up by compelling the insurance companies to strictly monitor the contractors' operations and enforce compliance. The Government agency in-charge of ensuring compliance to insurance policies in construction projects should also undertake regular monitoring and inspection of the contractors and clients to ensure how well both parties are in compliance. Finally, a mechanism for rewarding parties that comply as well as sanctioning parties that default on the implementation of insurance policies in construction projects should be set up and implemented by the Government.

The implication of this study is that it will serve as a guide to all the major parties to a construction contract on the need to implement insurance policies in order to mitigate the risk of accidents in construction projects on the part of the parties. The study will also enable the Government to wake up to its responsibilities as it has been found that it is the public clients that seem not to be willing to take part in the implementation of insurance policies in construction projects in Minna, Niger State. However, further studies can be carried out to assess the effect of employees' insurance on the safety performance of workers on construction sites in Minna using a larger sample size. This is because of the limitation of this study which only sampled the opinions of

stakeholders due to the fact that the study is a pilot survey to an on-going research work and faced with issues of time constraints.

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