Risky Framing and Gender Effects on Security Decision Choices among a Nigerian Sample

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Abstract: **- Efforts to proffer lasting solutions to security challenges have in most cases not yielded the expected results. Through a 2x2 factorial design, the current study examined risky framing and gender effects on security decision choices among 120 (60 male, 60 female) University of Nigeria, Nsukka students. Their ages ranged from 16-29 years (M = 20.35 years, SD = 2.85 years). Framing was varied into positive and negative framing conditions and measured with the tackling insecurity in Nigeria, while gender was categorized into male and female students. The security strategy decision inventory was used to measure security decision choices. Analysis of variance (ANOVA) result revealed a significant main effect of framing on security decision choices, F (1, 112) = 97.80, p <.001, and an interaction of framing and gender significantly affected security decision choices, F (1,112) = 7.58, p < .01. The implications and limitations of these findings were discussed and suggestions were made for future studies.**

Keywords: **Framing, perceived gender differences, security, decision, Nigerian.**

I. INTRODUCTION

To ensure the security of lives and properties of citizens, governments and organizations adopt both short and long term measures and strategies. Strategies such as poverty alleviation, job creation and illiteracy reduction have been identified as risk factors of insecurity (Olaniyan, 2015). Other measures like equipping the security agencies to curb activities capable of threatening the security of lives and properties has also been adopted in Nigeria. Adetoro (2012) points that weapon scanners and detectors have been procured and used as short term security strategies at airports, seaports, land borders, government and private institutions, offices, banks, hotels, parks and checkpoints by both trained and untrained personnel. This is aimed at controlling the influx and proliferation of illegal firearms into the country. Security decision choices, or the decision to adopt any of these security measures is crucial owing to the scarcity of resources needed to meet human needs (World Health Organization (WHO), 2001). Adebakin, (2012), defined security decision as the choice of using scanners, detectors or devices to search for illegal arms and ammunitions in the hands of unauthorized individuals and persons, by the state/security agencies. It also refers to the different tactics adopted by the state security agencies to maintain adequate peace and secure lives and properties of the citizens. Thus, security decision choice could be defined as choice to use scanners and detectors at borders and checkpoints to checkmate the movement of illegal arms into Nigeria.

When individuals are faced with situations that require them to make decisions, the choices they eventually make are shown to be affected by their situational and psychographic dispositions (Jepma & Lopez-Sola, 2014; Kazumi & Daisuke, 2011), and notable of these factors is the way the information is presented to the decision maker. Information presentation is capable of influencing decision choices (Tversky & Kahneman, 1981; Levin, Schneider & Gaeth, 1998). The phenomenon that people's decisions are biased by the way in which information is presented has been demonstrated in a variety of decision choice researches and is called framing effect (Kahneman & Tversky, 1979; Tversky & Kahnemann, 1982; Kahneman, Slovic & Tversky, 1982; Levin & Chapman, 1990). Framing refers to the way in which a piece of information is presented to a listener by a speaker either in positive or negative terms (Druckman, 2001). It refers to the presentation of a piece of information, that is objectively the same, in different ways or terms that could make people perceive it differently. In framing effect researches (e.g., McClure& Sibley, 2011; McClure, White& Sibley, 2009; Meong, Brent & Lisa, 2010), participants are presented with two options in a forced-choice task. The two options are typically gambles which can be described in terms of proportions and probabilities of gains or losses. Usually, one of these options is a sure thing (in which an intermediate outcome is specified as certain), while the other is a risky gamble(in which extreme good and bad values are both assigned non-zero probabilities).

The best-known framing effect research is the classical "Asian Disease Problem" ((Kahneman and Tversky 1979). In this study, Kahneman and Tversky asked subjects to read the following background blurb: "Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. One possible program to combat the disease has been proposed. Assume that the exact

scientific estimate of the consequences of this program is as follows: Subjects in the positive framing condition are presented with options A and B:

A: If this program is adopted, 200 people will be saved.

B: If this program is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

Subjects in the negative framing condition are presented with options C and D:

C: If this program is adopted, 400 people will die.

D: If this program is adopted, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die" (pp. 271).

The study found that despite all options being logically equivalent with only the degree of risk inherent in the options differing, participants displayed a risk-aversion bias in the positive frame (72% of the subjects chose the certain option over the risky option). However, in the negative frame there was evidence of a risk-seeking bias as 78% of the subjects chose the risky option over the certain option). The finding suggests that subjects tend to prefer the sure thing when given options A and B, but tend to prefer the gamble when given options C and D. Options A and C are equivalent, as are options B and D. Subjects thus appear to be risk-averse for gains and risk-seeking for losses. Kahneman and Tversky (1979) argue thatthe wording of information impacts significantly on people's decisions.

Decision choices seem also to be influenced by gender (Mintz, Vedlitz & Redd, 2006). The topic of gender differences in psychology is always surrounded with controversy and many people do not want to be involved because of the risks of being misunderstood and labelled (Baron-Cohen, 2013). Gender differences in decision making may be connected to physiological differences as the right hemispheres responsible for analytical reasoning is more developed in males than females, whereas the left hemisphere concerned with verbal reasoning appears more developed in females (Kalat, 2007; Mefoh and Samuel, 2013). Xu, Broster, Gu, Wu, van Dam, Jiang, Fan and Luo(2013) noted that the unequal development of the right and left hemispheres of the brain in males and females has led to differences in how they interpret and respond to environmental stimuli. Baron-Cohen (2013) found observable sex differences in decisions among infants. According to Baron-Cohen, most females focus their attention on social stimuli like human faces and voices, while males focus more on spatial stimuli like movement of objects in their environment.

Soeck and Baily (2008), and Wing, Benner, Petersen, Newcomb and Scott, (2010) have documented gender differences in decision making in the domain of healthcare, insurance, property investment, shopping and career choices. According to these studies, males are more likely to make thoughtful or calculated decisions while females tend to make decisions based on their emotional state. Mintz et al, (2006) demonstrated that males are more maximizing while females tend to be more satisficing in their decisions. Rieter (2013) observed that context and situational factors such as familiarity and novelty tend to moderate the decision making processes across sexes.

Regrettably, literature, tend to show dearth of studies on framing effect in Nigeria and especially in the area of security decision measures. It could be argued that the structure of the security system in Nigeria seem not to permit academic/empirical researches on key security issues and decisions due to the nature of the sector as it is often not open to non-experts. In most cases, women are hardly appointed into vital security positions in the country. Positions like the Chief of Army Staff, Chief of Naval Staff, Chief of Defense Staff, National Security Adviser, Chief of Air Staff, and the Inspector General of Police have not been held by a female in Nigeria despite the large number of females in these forces, and these points to perceived gender differences on risk perception and security decision making. Based on the identified gap in literature, the present study examines whether perceived gender differences and framing effect would affect how security decision choices are made in Nigeria. In line with Kahneman and Tversky's (1979) prospect theory postulation that people make decisions based on the potential values they stand to gain from such decisions and the information available to the decision maker, the researchers predicted that both information framing and gender will significantly affect security decision choices in Nigeria.

II. METHOD

Participants

Eighty (40 male and 40 female) 200 level students of Department of Psychology, University of Nigeria, Nsukka, took part in the study. They were randomly selected and assigned to the different treatment conditions of the study. Their ages ranged from 16-29 years (M = 2O.34, S.D=2.28). Participation was in fulfilment for a course requirement and were awarded extra credit at the end of the study.

Instruments

The two major instruments used in this study were: tackling insecurity in Nigeria, and the security strategy decision inventory (SSDI), both developed by the researchers.

Tackling insecurity in Nigeria

This stimulus material was used to manipulate framing effects among the respondents. The stimulus explains the planned effort of the Federal Government of Nigeria to curb insecurity in Nigeria through the use of technological devices to checkmate and control the movement of illegal arms. It explains the different treatments to which the groups

were exposed to in order to assess the effects of framing (see procedure section).

Security strategy decision inventory

The security strategy decision inventory (SSDI) was used to measure security decision choice among the **participants**. It has 7-items rated on a 5-point Likert response format, ranging from "Strongly disagree" (scored 1), to "Strongly agree" (scored 5). The inventory assesses the respondents' level of endorsement of the procurement of advanced technologies to tackle insecurity in Nigeria. The instrument is progressively scored (i.e. higher scores imply higher level of agreement that the equipment should be acquired, and vice versa). Items 1, 4, and 5 are directly scored, while items 2, 3, 6, and 7 are reverse scored with "Strongly agree" scored 1 point, whereas, "Strongly disagree" is scored 5 points. Again, content validity of the test from five judges (experts) revealed a rating in the range of65%-90%. This was adjudged as valid measure of security decision choice. Examples of items in the SSDI are; "All the equipment should be procured by the government"; "Border monitors and Environmental detectors are the best for the control of illegal arms and weapons in Nigeria"; "Procuring these equipment is a waste of time and resources".

A pilot study was conducted to test the internal consistency of the stimulus materials. Sixty (30 male and 30 female) participants were randomly selected from 100 level undergraduates of Psychology, University of Nigeria, Nsukka and assigned to four different treatment conditions of the study. Their ages ranged from 17-26 years and their mean age was 18.63years. Item analysis on the SSDI yielded Cronbach's alpha of .82, while Principal Component Analysis (PCA) of the SSDI showed that the scale measures security strategy decision in two domains (use of scanning devices, and creation of jobs) with a mean construct validity coefficient of .78.

Procedure

Framing was manipulated by varying the information given to the two groups concerning the efficacy and cost-effectiveness of the devices.

The positive framing group received the following information:

At the present time, because of the war on Boko Haram, kidnapping, armed robbery, herdsmen and militant activities in Nigeria, there is approximately 90% chance that the National Assembly (NASS) will approve funds for the procurement of the equipment. NASS has committed verbally and in writing to do all it takes to protect every Nigerian from the activities of these groups, but is however constrained by the dwindling oil prices and weak economy.

Negative framing group was informed as follows:

At the present time, because of the war on Boko Haram, kidnapping, armed robbery, herdsmen and militant activities in Nigeria, there is approximately 10% chance that the National Assembly (NASS) will not approve funds for the procurement of the equipment.NASS has committed verbally and in writing to do all it takes to protect every Nigerian from the activities of these groups, but is however constrained by the dwindling oil prices and weak economy.

The 80 (40 male, 40 female) participants were randomly selected and assigned to the positive framing and negative framing groups as they arrived for the experiment. Each group was made up of 40 participants (20 males and 20 females) and was exposed to the appropriate stimulus material:

After the experiment, the class continued with their class lectures on Inferential Statistics as a distraction for just three minutes to allow the stimulus presentation to slither into the unconscious (Eze & Mefoh, 2015). After the three minutes, both groups were presented with the SSDI to assess their level of approval for the procurement of the security equipment (security decision choice). At the end of the experiment, the participants were fully debriefed on the true purpose of the study.

Design/Statistics

A 2 (positive framing vs negative framing) x2 (male vs female) factorial design was adopted in this study. Analysis of variance (ANOVA) was used to test the study hypotheses.

III. RESULTS

Table 1: Table of mean and standard deviation of security decision choice scores based on framing and gender.

Variable	Level	N	Mean	SD
Framing	Positive framing	40	28.17	4.57
	Negative framing	40	22.25	5.60
Gender	Male	40	25.18	5.66
	Female	40	25.18	6.15

The Table shows that participants in the positive framing group had higher security decision mean score (M = 28.17; SD = 4.57) than those in the negative framing condition (M =22.25; SD = 5.60). Males and females did not differ on security decision mean score (M = 25.18) even though, they differed slightly on their standard deviation score of 5.66 and 6.15 for males and females respectively.

Table 2: ANOVA results for effects of framing and gender differences on security decision choices.

Source of Variance	Type III of sum of squares	df	Mean square	F	Sig	ES
Framing	1032.53	1	1032.53	97.80	.000***	.466
Gender	.000	1	.000	.000	1.000NS	.000
Framing x Gender	80.03	1	80.03	7.58	.007**	.063
Error	1182.40	112	10.56			

Note: *** = P<.001, ** = p <.01; ES = Effect size; NS = Not Significant.

The ANOVA table showed that framing had a significant main effect on security decision choice, F (1, 112) = 97.80, p<.001. The effect size indicated that 47% of the variance in security decision choice was explained by framing. Gender had no significant main effect on security decision choice, p>.05. The interaction of framing and gender differences significantly affected security decision, F (1,112) = 7.58, p<.01. The effect size of framing and gender interaction (.63) shows that 63% of the variance in security decision was jointly explained by framing and gender.

IV. DISCUSSION

This study examined framing effects and gender differences on security decision choices. We found that framing had a significant effect on security decision choice among undergraduates thereby providing support to the hypothesis that framing will significantly affect on security decision choices. This finding lends support to previous findings (Tversky & Kahneman, 1981; Brown, Kapteyn & Mitchell,2011;Shimizu & Udagawa, 2011; Mintz et al, 2006) who observed that framing influences the decision people make on disease prevention, medical examinations, dieting, and terrorism control measures. It is here observed that the decisions to either procure the equipment or not, are taken based on where emphasis is laid by the security adviser to the decision maker. Participants who were informed that the NASS were 90% likely to approve funds for the equipment strongly supported the procurement compared with those who learnt that the NASS were 10% likely not to approve funds for the gadgets despite the fact that both groups knew of the poor state of the economy.

The study result however, revealed that gender differences had no significant effect on security decision. This implies that males and females do not differ on how they make security decision. This finding is in contrast with earlier studies (Byrne & Worthy, 2015; Reiter, 2013; Lizarraga, Baguedona,& Cardelle-Elawar, 2007) who observed gender differences in decision making in the domains of food choice, shopping, and career choice. Based on this finding the prediction that people will differ on security decision choice based on their gender was not accepted. This finding means that males and females (especially undergraduates) make the same security decision probably because, security threats affects every person equally irrespective of their gender. This may be partly because, as Fredrickson (2003) pointed, like in most other emotional reactions, males and females interpret security threats the same way and by the same brain area (the amygdalae). Thus, male and female undergraduates approved the procurement of weapon detectors irrespective of the information available to them concerning the reaction of the National Assembly to such proposal.

Furthermore, the result showed a significant interaction effect between framing and gender differences on security decision choice. The interaction showed significant differences on the effect of positive framing and male, and positive framing and female on security decision choice, but no significant difference on the effect of negative framing and male, and negative framing and female on security decision choice. Thus, the effect of framing varies significantly across the levels of gender. Thus, the highest approval of the security gadgets was observed in the positive framing and female condition. This shows that for a security decision maker to approve of the adoption of any security option, the information on the possible options should be presented positively with emphasis on its benefits. Also, gender of the decision maker should as well be considered.

The findings of this research have some practical implications in security decision making. Thus, before security decision are made, the security chiefs (Army, Navy, Air force, Police, National Security Adviser, and the National Security Council) should consider the military, political and economic implications of whatever choice they adopt. This findinghas demonstrated that security experts play vital roles in the war against insurgency and other criminal activities in the society, and as such, the success or failure of Nigeria in this fight is tied to the efficacy of their preferred tactics and option. This is observed in the reaction of undergraduates to the decision options: though the decisions are the same but they differed in wording. Thus, information presented on different security strategies has huge impact on the reactions and decisions of the analysts and decision takers. The seemingly difficulty in defeating all sources of insecurity in Nigeria (Boko Haram, kidnappers, militant groups, armed robbery gangs etc)for nearly a decade, suggests that such factors as causes (remote and immediate), available resources to execute the war, the strength of theperpetrators (e.g. Boko Haram, kidnappers, militant groups, armed robbery gangs etc) were either not well examined or understood before adopting the strategy to engage them in a guerilla war, and this is as a result of how these information were presented (framing).

Another implication of the study is that males and females do not differ on decision to ensure adequate security by controlling the activities of Boko Haram, herdsmen, militants, armed robbers and kidnappers in Nigeria. As noted by Amnesty International (2014), women and children are the most affected by terrorist activities in the North east. The implication therefore, is that the present organization of the security system should be reviewed and women be appointed into sensitive security positions like chief of Army staff, chief of Air staff and/or Inspector General of Police, or they should be considered when any security decision is reached since there is no observed differences on how males and females make security decisions

Again, the findings of this study imply that how an information is presented (framing) and the gender of the decision maker jointly determine what security strategy

decision is adopted. This means that the choice of words to be used in discussing security matters when males are addressed should be reviewed when females are the audience. Women should be addressed and told the benefits of adopting a given tactics/strategy in order to secure their approval while the men should be told all the disadvantages and benefits that are inherent in the strategy/tactics. This will help present a comprehensive and objective view on the chosen strategy. This will also help in adopting the best strategy from the available options.

The limitation of this study is the choice of undergraduates as the study respondents even when it is known that they may not be experienced in security issues. This may tend to limit the generalization of the this finding to the student population as they present a peculiar characteristic that may not obtain in the general population of Nigerians especially the security agents such as Army, police, Navy, Air force, and the National Security and Civil Defense Corps.

Further studies should involve actual security operatives such as the army, police or naval personnel as participants. This will in effect show empirical evidence of framing, certainty and gender on security decision making since the decision makers were actually the direct respondents.

V. CONCLUSION

This study examined the effect of framing and gender differences on security decision choice among Nigerian undergraduate students. A sample of 80 male and female undergraduates who were randomly selected and assigned to different levels of framing treatments and gender were involved in the study. It was observed that framing significantly affected security decision, no significant gender differences effect on security decision was found. More importantly, framing and gender differences jointly affected security decision. These findings were interpreted based on the theoretical and empirical literature. The implications of the study were discussed, the study shortcomings were stated, and suggestions were made for further studies.

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