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Cyber Security Awareness and Cyber Threat Experience: A Survey-Based Study

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Abstract
In the rapidly evolving digital environment, cyber security awareness plays a crucial role in protecting individuals from online threats. This research study is fully based on primary survey data collected from 116 respondents to analyze their experience with cyber threats and their usage of antivirus or security software. Descriptive statistical analysis and Chi-Square Goodness of Fit tests were applied to evaluate the distribution of responses. The findings indicate that response patterns for both cyber threat experience and antivirus usage are statistically significant and not equally distributed the study highlights the importance of strengthening cyber security awareness and promoting safe digital practices.

Keywords
Cyber Security, Cyber Threats, Antivirus Usage, Digital Awareness, Survey Research, Chi-Square Test, Online Safety

Introduction
With the increasing use of internet services for communication, banking, shopping, and education, individuals are more exposed to cyber risks such as phishing, malware attacks, identity theft, and hacking incidents. Understanding whether users have experienced cyber threats and whether they use antivirus software helps in evaluating digital awareness levels. This study is entirely based on survey data collected from 116 respondents and focuses on analyzing two important cyber security-related questions.

Objectives of the Study
1. To analyze whether respondents have experienced cyber threats.
2. To examine the usage of antivirus or security software among respondents.
3. To statistically test whether response distributions are equally distributed.
4. To interpret the finding using chi-Square statistical analysis.

Research Methodology
Research Type: Descriptive Survey Research
Data Source: Primary data collected through questionnaire
Sample Size: 116 respondents
Statistical Tool Used: Chi-Square Goodness of Fit Test
Significance Level: 0.05
Survey questions were analyzed:

1. Have you ever experienced cyber threat or attack?

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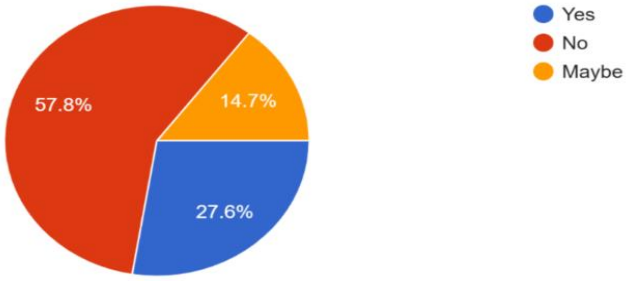
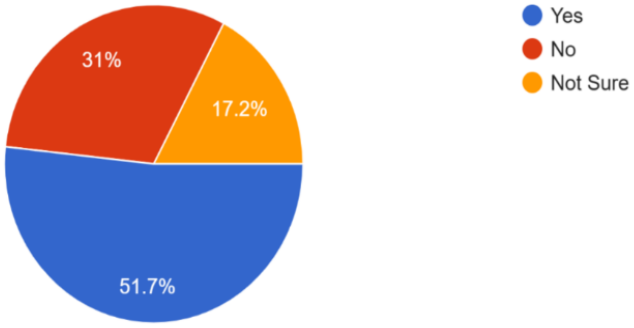
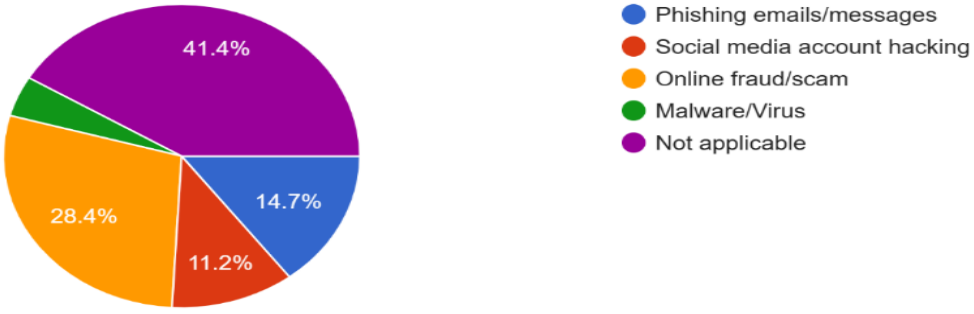


2. **Do you use antivirus or security software?**



3. **Which type of Cyber threat did you face?**



4. **Do you think cyber-crimes are increasing among students?**

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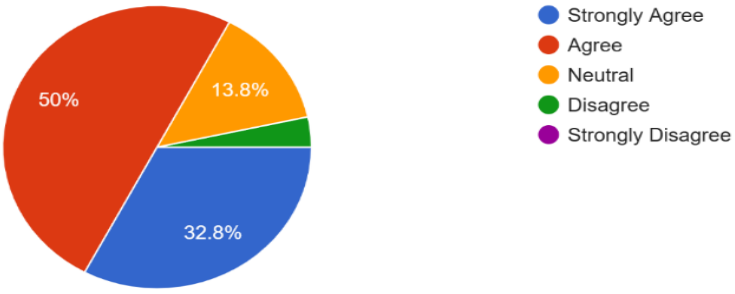
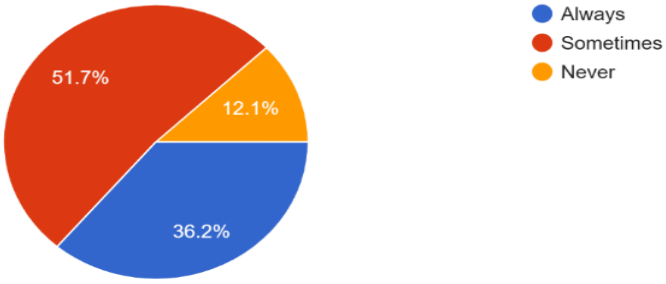


5. **Do you check website security (https/lock icon) before entering sensitive information?**



Hypothesis and Data Analysis

Two survey questions were analyze:

1. Have you ever experienced cyber threat or attack?
2. Do you use antivirus or security software?

H1: Have you ever experienced cyber threat or attack?

Respondents have different experiences regarding cyber threats or attacks, indicating that the responses (Yes, No, Maybe) are not equally distributed.

Thus, applying the formula

$$X^2 = \sum (O_i - E_i)^2 / E_i$$

Where,

Oi = Observed frequency (Responses collected from survey)

Ei = Expected Frequency (Expected responses)

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Sr. No.	Hypothesis	Oi	Ei	Oi-Ei	(Oi-Ei) ^{2}	(Oi-Ei) ^{2}/Ei
1	Yes	32	38.67	-6.67	44.49	1.15
2	No	67	33.67	28.33	802.59	20.76
3	May be	17	33.67	-21.67	469.39	12.15
Total		116				34.06

$\sum$ (Oi-Ei)/Ei = 34.06
Degree of Freedom (D.F.) = 2
Therefore, tabulated value of X^2 at 2 degree of freedom = 5.991
X^2 = 34.06 > 5.991

Interpretation

H1 is accepted as responses are not equally distributed. Indicating that cyber threat experience vary significantly among respondents.

H2: Do you use antivirus or security software?

There is a significant difference in responses regarding the usage of antivirus or security software among respondents (Yes, No, Not Sure)

Thus, applying the formula

$$X^2 = \sum (O_i-E_i)^2/E_i$$

Where,
Oi = Observed frequency (Responses collected from survey)
Ei = Expected Frequency (Expected responses)

Sr. No.	Hypothesis	Oi	Ei	Oi-Ei	(Oi-Ei) ^{2}	(Oi-Ei) ^{2}/Ei
1	Yes	60	38.67	21.33	454.97	11.77
2	No	36	38.67	-2.67	7.13	0.18
3	May be	20	38.67	-18.67	348.57	9.01
Total		116				20.96

$\sum$ (Oi-Ei)/Ei = 20.06
Degree of Freedom (D.F) = 2
Therefore, tabulated value of X^2 at 2 degree of freedom = 5.991
X^2 = 20.96 > 5.991

Interpretation

H2: The distribution of antivirus usage responses is not equal. A majority of respondents reported using antivirus software, which indicates a moderate level of cyber security awareness.

Analysis

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The statistical results from both hypothesis indicate significant differences in response distribution. While most respondents reported not experiencing cyber threats, a considerable portion have faced such incidents. Similarly, more than half of the participants use antivirus software. However, the presence of cyber threat experience despite usage suggests that cyber security requires more than just software protection. User awareness and safe online behaviour are equally important.

Conclusion

This survey-based study analysed cyber security awareness among 116 respondents using Chi-Square statistical testing.

The findings reveal:

Cyber threat experience responses are significantly uneven.
Antivirus usage responses are also significantly uneven.
A notable proportion of individuals have experienced cyber threats.
More than half of the respondents use antivirus software.

The study concludes that while some level of cyber security awareness exits, there is still a need to improve digital safety education and preventive practices.

Limitations

1. The study is limited to 116 respondents.
2. Data is based on self-reported responses.
3. Only two survey questions were statistically analysed.
4. Results may vary with a larger or different population.

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