

A Descriptive Study to Assess the Knowledge and Perception Regarding Cyber Security among Nursing Students

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Abstract - Introduction: Cyber security is the protection of systems in the organizations, their data and network in the cyberspace. A successful cyber security approach has multiple layers of protection spread across the computers, networks, programs, or data that one intends to keep safe; it has to be followed by organization, business or individual. In an organization, the people, processes, and technology must complement one another to create an effective defense from cyber-attacks. **Objectives:** To assess the knowledge and perception regarding cyber security among nursing students. **Methodology:** Quantitative approach with non-experimental descriptive design was chosen. A total of 90 nursing students were selected through non probability convenient sampling technique. Structured questionnaire and Likert scale were the data collection tools. **Result:** The study findings revealed that most of the nursing students (52.87%) had inadequate knowledge and only 4.60 % had adequate level of knowledge on cyber security, it was also revealed there is a significant, positive moderate correlation between knowledge and perception score indicating that as knowledge increases their perception also increases moderately and there was a significant statistical association between the level of knowledge and age in years, type of family and awareness about cybercrime at $p=0.05$. The other demographic variables such as gender, religion, year of study, total number of family members including self, family monthly income, their hobbies, parent's educational qualification and parent's occupational status did not reveal any significant association with the level of knowledge perception regarding cyber security. **Conclusion:** The study concluded that there is no significant association between the mean levels of knowledge and perception of cyber security with the selected demographic variables.

Key words – cyber security, nursing students, knowledge

I. INTRODUCTION

The revolution in Information Technology has transformed the way people interact, leading to a significant increase in internet connectivity and usage. The digital age has encompassed the entire world, influencing the social, political, and economic dimensions of human life.

New India' is more digital, ambitious, connected, and self-sufficient. Its internet subscriber base has reached 795 million (December 31, 2020). The usage of smart devices in various domains and public sectors such as transport, health care and smart grids have surpassed 4.2 billion by 2020. However, several security threats are associated with it and valuable information such as passwords, financial accounts, and other confidential data are considered attractive targets for attackers. They exploit these devices to access personal and confidential information or leverage them to deploy more severe attacks; examples include malware, a malicious type of software written with the intent of damaging devices and data theft.

Globally, more than 200,000 malware incidents occur daily, including ransom ware, phishing attacks, and malicious scams. In the first quarter of 2019, ransom ware increased by 118%, leading to severe data loss and financial consequences. A comparison of the first-quarter results from 2019 to 2020 reveals a 71% rise in mobile malware and a staggering 689% increase in PowerShell malware.

Cyber security is the protection of systems in the organizations, their data, and network in the cyber space. A successful cyber security approach has multiple layers of protection spread across the computers, networks, programs or data that one intends to keep safe.

II. BACKGROUND OF THE STUDY

Cybercrimes have fallen by 40% in the first half of 2021 as compared to the same period in 2020. In 2020, the total number of cybercrimes stood at 53%. Of these, the cases reported between January and June 2020 stood at 60%. From January 1 to June end in 2021, the number of cyber-crime cases stood at 63% globally.

In 2022, India was ranked 7th in the list of most breached countries, with 12.3 million accounts breached. Surfshark's analysis revealed that in the past 18 years, 14.9 billion accounts were leaked globally and a "striking 254.9 million of them belong to users from India". The study also revealed that a striking 962.7 million Indian data points have been leaked so far, most of them passwords, names and telephone numbers. Statistically, per every 10 leaked accounts in India, half are stolen together with a password," a statement released by the company noted.

All these factors make cybersecurity awareness a crucial component of digital literacy mandates, school curricula, and educational programs. From a national security perspective, the widespread digital connectivity has blurred sovereign borders, increasing exposure to cyber threats, including those from nation-state actors. Failure to do so could have far-reaching consequences, extending beyond enterprises and impacting society as a whole.

Riza Azmi, (2016) conducted a systemic review on the motives behind Cyber Security Strategy Development to define the factors that give rise to National Cyber Security Strategy (NCSS) has the potential to better understand information security in a global context. In order to achieve this, the paper employed qualitative coding to review the NCSS of 54 countries. The finding was cyber security motives were the priority for 27 nations as they considered them as factors that lead to the creation of a nation's defense security.

Cybersecurity helps prevent breaches and attacks, fosters a strong security culture, and enhances confidentiality and overall well-being. The global rise in cybercrimes, coupled with limited awareness of cybersecurity, motivated us to assess our students' knowledge and perceptions on the subject. Enhancing awareness requires regular training at all levels and the implementation of a robust data recovery strategy.

III. STATEMENT OF THE PROBLEM

A descriptive study to assess the knowledge and perception regarding cyber security among nursing students in selected setting, Chennai.

IV. OBJECTIVES

- To assess the level of knowledge regarding cyber security among students in a selected setting
- To assess the level of perception regarding cyber security among students in a selected setting
- To correlate the mean level of knowledge and perception regarding cyber security among students in a selected setting

V. RESEARCH HYPOTHESIS

NH₁: There is no significant association between the mean levels of knowledge and perception of cyber security with the selected demographic variables.

NH₂: There is no significant correlation between the mean levels of knowledge and perception of cyber security with the selected demographic variables.

VI. MATERIALS AND METHODS

A non-experimental descriptive design was adopted to assess the knowledge and perception regarding cyber security among nursing students using structured tools. Non probability convenient sampling technique was used to select the samples. The tool constructed in this study was divided into three parts namely, demographic variables, structured questionnaire to assess the knowledge regarding cyber security and Likert scale to assess the perception regarding cyber security. After collecting the data from the study samples the investigators educated the group regarding cyber

security and cybercrime using power point presentation.

VII. RESULT AND DISCUSSION

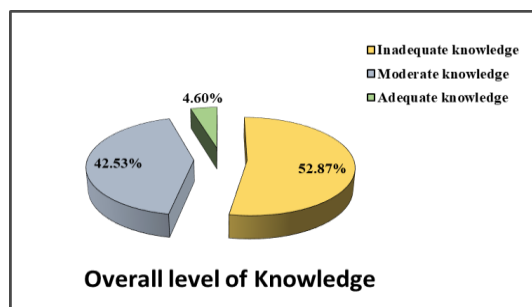


Figure 7.1: Frequency and percentage distribution of overall level of knowledge regarding cyber security among nursing students

The figure above depicts that most of the nursing students (52.87%) have inadequate knowledge of cybersecurity, while only 4.60% (4 students) possess an adequate level of understanding.

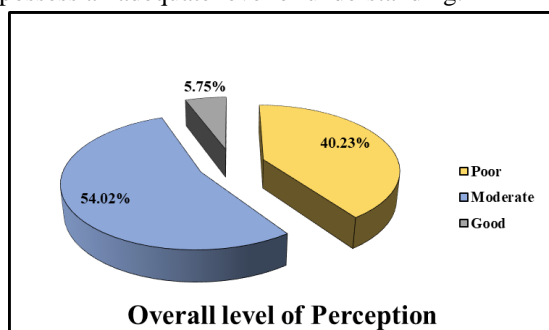


Figure 7.2: Frequency and percentage distribution of overall level of perception regarding cyber security among nursing students

The above figure 4.2.2 reveals that 54.02% and 40.23% had moderate and poor perception regarding cyber security and only 5.75% had a good perception regarding cyber security.

Table 7.1: Correlation between the mean level of knowledge and level of perception regarding cyber security among nursing students

Variables	Mean gain score± SD	Karlpearson correlation coefficient	Interpretation
Knowledge	10.10 ± 2.80	r=0.44 p=0.001***	Significant positive moderate correlation.
Perception	28.10 ± 3.68	significant	

The above table 7.1 signifies that there is a significant, positive moderate correlation between

knowledge and perception score indicating that as knowledge increases their perception also increases moderately.

The first objective was to assess the level of knowledge regarding cyber security among nursing students. Most of the nursing students (52.87%) had inadequate knowledge and only 4.60 % (4) had adequate level of knowledge on cybersecurity. The present study result was consistent with the research study conducted by Motizwilling, et al., (2020).

The second objective was to correlate the mean level of knowledge score with perception regarding cyber security among nursing students. There was a significant, positive moderate correlation between knowledge and perception score indicating that as knowledge increases their perception also increases moderately. This study is consistent with the findings by Janet. J. Prichard who examined the perceptions, knowledge, and experience of security practices of users.

VIII. IMPLICATIONS

- The nurses are an integral part of the society and improving awareness includes training at all levels at regular intervals and enabling a data recovery strategy.
- The nurse assuming the role of nurse educator can incorporate the major study findings in nursing curriculum to create awareness in the society.

IX. RECOMMENDATIONS

- A similar study can be conducted in a larger population at various settings.
- An experimental study can be conducted to identify the knowledge regarding cybercrime with an educational package.

X. LIMITATION

- The investigator had difficulty in gathering accurate information regarding cyber security and cybercrime.

XI. CONCLUSION

The present study identified the level of knowledge and perception regarding the cyber security among

students in a selected setting and was found that most of the nursing students (52.87%) had inadequate knowledge and only 4.60 % (4) had adequate level of knowledge on cyber security. 54.02% and 40.23% had moderate and poor perception regarding cyber security and only 5.75% had a good perception regarding cyber security. It was also noted that there was a significant, positive moderate correlation between knowledge and perception score indicating that as knowledge increases their perception also increases moderately.

REFERENCES

- [1] Shinde, Anand. (2021). Introduction to Cyber Security: Guide to the World of Cyber Security. Notion Press; 1 st ed.
- [2] Paranjape, Vishwanath. (2019). Cyber Crimes and Law. Central Law Agency
- [3] Ackerman, Pascal. (2020). Modern Cyber Security Practices. BPB Publications.
- [4] Khan, Aamer. (2022). Mastering Cyber Security. Hack Book Works Publications.
- [5] Mishra, Akash Kamal. (2020). An Overview of Cyber Crime and Security. Notion press Publications.
- [6] Chatterjee, Debtoru. (2022). Cyber Crime and Its Prevention in Easy Steps. Khanna Publishing.
- [7] Alfawareh, H. M., & Jusoh, S. (2017). The Use and Effects of Smartphones in Higher Education. International Journal of Interactive Mobile Technologies (IJIM), 11(6), pp. 103–111.
- [8] Sodhani, Shreya et al., (2020). A study to evaluate mobile phone dependence among students of a medical teaching institute in Mumbai. International Journal of Community Medicine and Public Health. Volume 8.
- [9] Cabaj K., Kotulski., et al., (2018). Cybersecurity: trends, issues, and challenges. EURASIP Journal
- [10] Gulhane, Pratik Narendra., Manwar, Yash Vishwas. (2021) International Journal of Scientific Research in Science and Technology. Introduction to Cyber Security – A Review. Retrieved from:
- [11] https://www.researchgate.net/publication/357592081_Introduction_to_Cyber_Security_A_Review