# Understanding data privacy: How Bangkok workers perceive Thai personal data protection act regulations

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## ABSTRACT

This study examined how demographic factors influence awareness of the Personal Data Protection Act (PDPA) among workers in Bangkok. Data were collected from 389 individuals using a structured questionnaire and analyzed using descriptive statistics (percentage, mean, standard deviation) and inferential statistics (one-way ANOVA and post-hoc analysis with the Least Significant Difference method). The findings show that overall awareness of the PDPA among Bangkok's working population is high. However, demographic factors such as gender, age, education, occupation, and organizational type do not significantly affect awareness. In contrast, work experience has a statistically significant influence on PDPA awareness at the 0.05 level, supporting the study's hypothesis. These results suggest that while traditional demographic factors are not key predictors of PDPA awareness, individuals with greater work experience tend to have a better understanding of the law. This study provides empirical evidence highlighting the limited role of demographic characteristics in shaping PDPA awareness and identifies work experience as a crucial factor. The findings can help organizations design targeted strategies, such as training programs, to improve PDPA awareness and compliance across different experience levels in the workforce.

## 1. Introduction

In Thailand, the Personal Data Protection Act (PDPA) of 2019 represents a landmark legal framework designed to safeguard personal data in an era of rapid digital transformation (Chatsuwan et al., 2023). As Thailand's first comprehensive personal data protection law, the PDPA establishes the legal obligations of businesses and organizations to protect individuals' privacy, ensure transparency in data collection, and obtain explicit consent for data processing activities. Noncompliance with the PDPA can lead to severe penalties, including fines and imprisonment (Chokesuwattanaskul, 2021). Given the rising reliance on data to drive business innovation, the PDPA underscores the importance of balancing technological advancement with ethical responsibility to protect personal data. With full

enforcement slated for June 1, 2025, businesses handling large volumes of customer data must substantially change their data collection, usage, and retention processes to comply with the law.

Personal data include information that can identify an individual, such as name, identification number, address, and biometric data (Payton and Claypoole, 2023). The protection of such data is not only crucial for regulatory compliance but also essential for building trust between businesses and consumers. The introduction of Thailand's PDPA reflects the global shift towards stricter data protection regulations, in line with international standards such as the European Union's General Data Protection Regulation (GDPR), which has set a high benchmark for data privacy laws worldwide (Corning, 2024). Since its enforcement in 2018, the GDPR has compelled countries with business connections to the EU to adopt similar legal frameworks, ensuring that individuals' privacy rights are upheld in an increasingly interconnected world.

Southeast Asia is experiencing rapid digital growth, making protecting personal data a pressing issue. According to Kanungo (2024), mobile wallets are the fastest-growing payment method in Southeast Asia, with projections indicating that 440

million individuals will adopt mobile wallets by 2025. This digital revolution has created an urgent need for common data policies across the ASEAN nations. Ha and Chuah (2023) emphasized the importance of standardized payment platforms and advocated regional cooperation to develop effective data protection policies. The authors also highlighted the need for workforce development and training programs to equip workers with essential digital skills, foster a digital mindset, and enhance cybersecurity capabilities at a regional level. These measures are critical in ensuring that the region's digital infrastructure is resilient and secure, especially considering the increasing risks posed by data breaches and cyberattacks in Southeast Asia (Prawiyogi, 2023).

The regulatory environment in Southeast Asia remains fragmented, with significant gaps in legal frameworks for digital and data protection practices. For example, Indonesia's banking laws are outdated and incompatible with modern digital banking operations, highlighting the need for regulatory updates to support the growth of digital financial services (Yuspin et al., 2023). Similarly, research by Hariansah et al. (2023) showed that several ASEAN countries lack comprehensive personal data protection laws. The study emphasizes the importance of increasing public awareness and fostering collaboration among ASEAN members to develop harmonized legal frameworks that address both local and international digital challenges. Beyond Thailand and Indonesia, other countries in the region also face difficulties in implementing effective data protection measures. In Sri Lanka, for instance, higher education institutions were found to have weak security controls, inadequate policies, and insufficient data protection measures. Researchers stress the need for stronger information security management systems and the promotion of a security-conscious culture to safeguard sensitive data. These examples illustrate the broader regional challenge of aligning legal and organizational practices with the rapidly evolving digital landscape.

The growing digital economy in Southeast Asia coupled with the increasing threat of data breaches and privacy violations underscores the importance of regional cooperation in data protection. As countries like Thailand move towards the enforcement of comprehensive data protection laws such as the PDPA, there is a parallel need for ASEAN nations to adopt harmonized data privacy standards that can facilitate secure cross-border data flows. Considering the GDPR's global influence, Southeast Asian countries must also consider aligning their regulatory frameworks with international standards to foster trust and ensure that businesses operate seamlessly across borders (Hariansah et al., 2023).

Furthermore, the rise of digital payment platforms, online banking, and e-commerce across Southeast Asia necessitates not only stronger legal frameworks but also the development of cybersecurity capabilities (Kanungo, 2024). With more consumers and businesses relying on digital platforms, the risk of data breaches and cybersecurity threats increases, making it critical for businesses and governments to collaborate to enhance security measures. Tools such as User and Entity Behavior Analytics (UEBA), which are gaining traction as essential components of cybersecurity strategies, play a key role in safeguarding personal data in this dynamic digital landscape (Deepa et al., 2024).

Given the increasing importance of understanding and complying with data protection laws, this research aims to contribute to organizational policy development by ensuring that employees in Thailand are educated on PDPA and its implications. By fostering a culture of data protection and legal compliance, businesses can mitigate risks and ensure that personal data are handled responsibly both within Thailand and in alignment with global standards.

## 2. Literature review

Demographic characteristics refer to the understanding of humans about social, cultural, economic, and other factors. Demographic characteristics included sex, age, status, education (An et al., 2023), religion, race, and occupation.

1. Gender differences result in varying perceptions, with women tending to have a greater need to send and receive information than men do.
2. Age is a crucial factor influencing human perception as it determines or indicates a person's experience, shaping their thoughts, beliefs, and responses to events.
3. Education and knowledge significantly influence a person's reception of information (An et al. 2023). Different levels of education in different eras and systems lead to different ideologies, needs, and perceptions.
4. Occupation: An individual's occupation influences their perception of behavior. For example, farmers may have perception behaviors related to their occupation, whereas company employees' perception behavior may impact their organization's image.
5. Work Experience - Individuals' work experience varies, with those having less experience perceiving it differently from those with more experience. Experience influences perception in any matter, from decision-making to awareness and insight (Hariansah et al., 2023; Klymenko et al., 2022).

Demographic characteristics such as age, gender, education level, occupation, and work experience are essential and measurable factors that provide deeper insights into individuals compared to other variables. Perceptions, on the other hand, involve the process through which individuals select, organize, and interpret external stimuli to form a meaningful understanding of their surroundings (Niosi, 2021). Even when individuals experience the same stimulus

under identical conditions, their responses may differ due to variations in how they select, organize, and interpret information. These differences are shaped by personal needs, values, and expectations, all of which play a critical role in influencing both perception and behavior. Key concepts of perception include several critical processes that shape how individuals interact with and interpret information. Selective exposure involves the conscious or subconscious choice to engage with specific media or information while avoiding others (Gao, 2021) and is often influenced by personal preferences. Selective attention or perception further refines this process, where individuals focus more on stimuli that align with their interests or needs (Richmond et al., 2021) while disregarding irrelevant information.

Defense perception is a mechanism by which people consciously avoid certain stimuli, such as ignoring information or rules that conflict with their values or beliefs. Perceptual blocking occurs when past negative experiences with certain stimuli lead to resistance or distrust, such as skepticism towards misleading advertisements. Finally, perception organization is the process of arranging both subconscious and conscious perceptions of stimuli into a coherent understanding (Niosi, 2021), which is crucial for making sense of the world, facilitating daily decision-making, and protecting oneself from potential risks. Together, these concepts illustrate the complex and dynamic nature of perception, highlighting how individuals filter and organize information based on their personal relevance, past experiences, and cognitive needs.

Thailand's PDPA was published on May 27, 2019 (Sudirman et al., 2023). However, due to unforeseen events such as political turmoil and the global COVID-19 pandemic, its enforcement has thus far been postponed to June 1, 2025. Upon implementation, it is designed to protect the rights of data owners and establish standards for their data's protection (Sudarwanto and Kharisma, 2022).

Thailand's PDPA and the European Union's GDPR both aim to safeguard personal data, but they differ in specific provisions and enforcement. Organizations in Thailand that handle the personal data of EU citizens must comply with both regulations to meet legal requirements. Personal data is defined as any information that can directly or indirectly identify an individual, excluding data related to deceased persons. The data subject is the individual to whom this information belongs, while the data controller is the person or organization that determines how the data is collected, used, or shared. In contrast, the data processor handles personal data on behalf of the controller without having decision-making power over it. Non-compliance with the PDPA carries civil, criminal, and administrative penalties. Civil penalties require compensation for actual damages, with potential punitive damages of up to twice the amount. Criminal penalties include up to one year of imprisonment, fines of up to 1 million baht, or both, especially for misuse or unauthorized disclosure of sensitive data. Administrative penalties involve fines ranging from 1 million to 5 million baht for improper use or disclosure of sensitive personal data.

The implementation of the PDPA in Thailand represents a significant shift in how organizations handle personal data (Bumpenboon, 2020). However, there is a gap in understanding how demographic factors influence employees' awareness and compliance with the PDPA. Given the critical role that personal data protection plays in maintaining organizational integrity and legal compliance (Bertolaccini et al., 2023), it is essential to explore the factors that affect employees' understanding of the PDPA. This study seeks to address this gap by investigating how demographic variables affect PDPA awareness among the working population in Bangkok. The findings will provide valuable insights for developing targeted policies and training programs to enhance data protection practices within organizations. The research objectives can be summarized as follows:

1. To examine the demographic factors influencing the awareness of the PDPA among the working population in Bangkok.
2. To assess how different demographic variables—such as gender, age, education level, occupation, and work experience—affect the perception and understanding of the PDPA.
3. To provide insights for organizations to develop effective training programs and policies that enhance employee awareness and compliance with the PDPA.

The research questions can be summarized as follows:

1. What are the key demographic factors that influence the awareness and understanding of the PDPA among the working population in Bangkok?
2. How do age, gender, education, occupation, and work experience impact employees' perception and compliance with the PDPA?
3. What strategies can organizations implement to improve PDPA awareness and ensure compliance among their employees (Baharum et al., 2023)?

Employees with different demographic factors will have different levels of awareness of the PDPA among the working population in Bangkok. This hypothesis posits that variations in demographic factors such as gender, age, education level, occupation, and work experience would lead to differences in how employees perceive and understand the PDPA. The research aimed to test this hypothesis by analyzing whether these factors significantly impact PDPA awareness.

## 3. Methodology

The methodology is logically structured, beginning with a clear definition of the population and sample selection. The data collection process is

outlined step-by-step, ensuring clarity in how the data was gathered and processed. Finally, the statistical methods are clearly described, emphasizing the use of both descriptive and inferential statistics to analyze the data and test the research hypothesis. The population of this study comprised individuals employed in Bangkok, with a focus on understanding their awareness of the PDPA. Due to the unknown total population size, Cochran's formula was applied to determine the appropriate sample size, ensuring a 95% confidence level and a 5% margin of error (Nanjundeswaraswamy and Divakar, 2021). The final sample included 389 working individuals from Bangkok.

The sample was selected using convenience sampling, a non-probability sampling technique where participants are selected based on their availability and willingness to participate (Penn et al., 2023). It is also widely used in exploration research due to its ease and cost-effectiveness. However, it introduces limitations that must be acknowledged, with one being the potential for sampling bias, as the sample may not fully represent the larger population of Bangkok's working individuals. This limits the generalizability of the findings, meaning the results cannot confidently be extended to the broader population.

The limitations of convenience sampling are as follows:

- Lack of representativeness: Since participants were chosen based on convenience, certain groups within the population might be overrepresented or underrepresented. For example, individuals working in specific sectors (e.g., office workers) may have been more likely to participate, while those in other sectors (e.g., laborers or freelancers) might be underrepresented.
- Potential for bias: The ease of accessing participants who are readily available could skew the results, as their responses may not reflect the diversity of perspectives present in the entire population.
- Non-random selection: The non-random nature of the sampling method may lead to homogeneity in certain variables, such as education level or occupation, which could impact the findings related to PDPA awareness across different demographics.

To address the limitations of convenience sampling, future research should use probability-based sampling methods, such as stratified random sampling or systematic sampling, to achieve a more representative sample. For example, stratified random sampling allows researchers to divide the population into smaller groups based on specific characteristics (e.g., industry or education level) and randomly select participants from each group (Khan et al., 2023). This approach would improve the sample's representativeness and lead to more reliable, generalizable findings. In addition, quota sampling could be used to ensure that key demographic factors, such as gender, age, and occupation, are proportionally included in the sample. This would provide a more accurate reflection of the working population in Bangkok and reduce the biases often seen in convenience sampling. Lastly, future research should consider increasing the sample size and adopting a longitudinal approach to monitor changes in PDPA awareness over time. This would give a deeper understanding of the factors that influence data protection practices in Thailand.

Cochran's formula is a widely used statistical method to determine an appropriate sample size when the population size is unknown or infinite. It is particularly useful in survey research, where researchers need to ensure that the sample size is large enough to accurately represent the population, with a specified confidence level and margin of error (Schillaci and Schillaci, 2022). The formula is as follows:

$$n_0 = \frac{Z^2.p.(1-p)}{e^2} \tag{1}$$

where, $n_0$ is sample size. $Z^2$ is the area under the acceptance region in a normal distribution $(1-p)$. $e$ is the preferred level of precision or margin of error. $p$ is the estimated proportion of an attribute that is present in the population, with 0.5 commonly used as it provides the maximum sample size.

A questionnaire was developed as the primary data collection tool. The questionnaire was constructed based on a thorough literature review, ensuring that the questions aligned with the research objectives. The questionnaire was divided into three sections:

- Demographic Information: Questions related to the respondents' demographic characteristics, such as gender, age, education, occupation, and work experience.
- PDPA Awareness: Questions assessing the respondents' awareness and understanding of the PDPA.
- Additional Feedback: Space for respondents to provide comments and suggestions.

The questionnaire underwent rigorous testing to ensure its validity and reliability. The validity of the questionnaire was evaluated by subject matter experts who reviewed the content, and the appropriateness of the language used. Based on their feedback, necessary revisions were made. The reliability of the questionnaire was assessed using Cronbach's alpha, yielding a coefficient of 0.89, indicating high internal consistency (Preeputtarat et al., 2024). Data collection procedure can be summarized as follows:

- Primary data: The primary data sources included documents, textbooks, printed media, internet sources, articles, and reports related to the research topic.

- Secondary data: The researcher prepared and validated the questionnaire, ensuring its accuracy and reliability before collecting the data. The data collection process included the following steps:

1. The researcher explained the research objectives to the respondents and distributed the questionnaire via Google Forms and QR codes.
2. A total of 389 complete questionnaires were received. The researcher then reviewed each questionnaire for completeness and accuracy. The responses were coded and entered into a statistical software program for further analysis.

The data analysis involved both descriptive and inferential statistics. Descriptive statistics analysis involved using the frequency and percentage to describe the demographic characteristics of the sample (gender, age, education level, occupation, and work experience). Mean and standard deviation (S.D.) were used to describe the levels of awareness across five dimensions. This included knowledge and understanding, behavioral awareness, attitudinal awareness, risk awareness, and PDPA utilization.

Inferential Statistics testing included the use of a t-test which was applied to compare the means of two independent groups within the sample, assessing the impact of demographic factors on PDPA awareness. Additionally, an F-test (One-Way ANOVA) was used to analyze variance among more than two groups to test for significant differences in PDPA awareness across different demographic categories. When significant differences were found, the Least Significant Difference method was employed for post-hoc pairwise comparisons.

## 4. Results

The analysis of the demographic factors affecting the awareness of the PDPA regulations among the working population in Bangkok revealed the following findings.

Most respondents were female (221 out of 389 respondents, or 56.81%) (Table 1). Most respondents were aged between 31-40 years (100
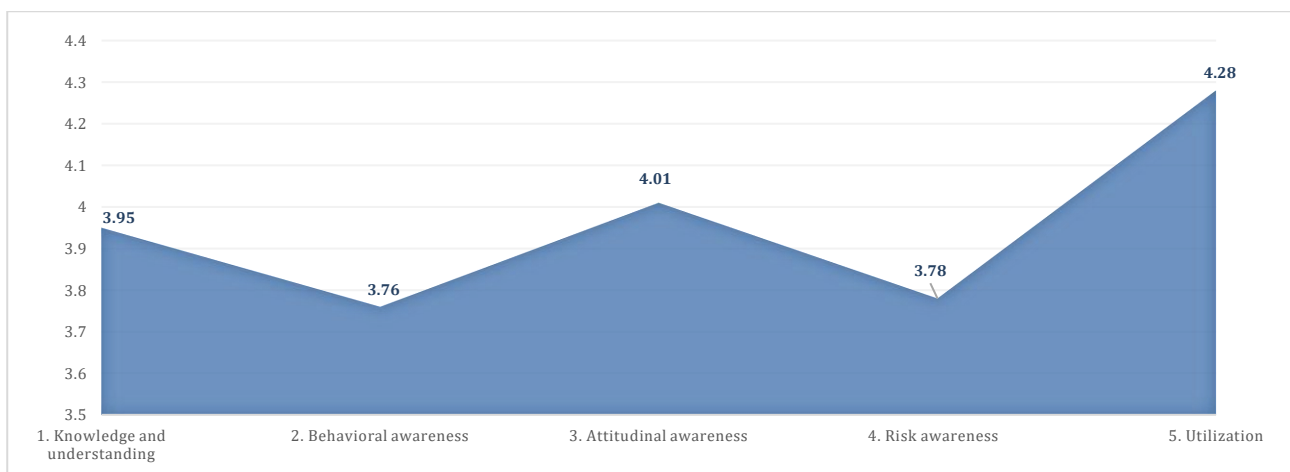
respondents, or 25.71%), had a bachelor's degree (204 respondents, or 52.44%), worked in private companies (254 respondents, or 65.30%), and had 6-10 years of work experience (109 respondents, or 28.02%). The detailed demographic distribution is shown in Table 1.

**Table 1:** Respondents' demographics (n=389)

| Demographic characteristics | Workers | |
|---|---|---|
| | Total | % |
| **Gender** | | |
| Male | 168 | 43.19 |
| Female | 221 | 56.81 |
| **Age** | | |
| 18-22 | 69 | 17.74 |
| 23-30 | 84 | 21.59 |
| 31-40 | 100 | 25.71 |
| 41-50 | 82 | 21.08 |
| 51-60+ | 54 | 13.88 |
| **Education level** | | |
| High school or less | 73 | 18.77 |
| BA/BS degree | 204 | 52.44 |
| Master's degree | 102 | 26.22 |
| PhD degree | 10 | 2.57 |
| **Profession/occupation** | | |
| Government employee | 53 | 13.62 |
| State enterprise employee | 82 | 21.08 |
| Private company employee | 254 | 65.30 |
| **Work experience** | | |
| Less than 1 year | 35 | 9.00 |
| 2-5 years | 73 | 18.77 |
| 6-10 years | 109 | 28.02 |
| 11-15 years | 102 | 26.22 |
| Over 16 years | 70 | 17.99 |

The study analyzed the level of awareness regarding the PDPA among the working population in Bangkok across five dimensions: knowledge and understanding, behavioral awareness, attitudinal awareness, risk awareness, and utilization.

The overall awareness of the PDPA among the working population in Bangkok is at a high level (mean = 3.93, S.D. = 0.71). When examining the dimensions individually, the highest awareness was found in the dimension of utilization (mean = 4.28, S.D. = 0.69). This was followed by attitudinal awareness (mean = 4.01, S.D. = 0.74), knowledge and understanding (mean = 3.95, S.D. = 0.67), and risk awareness (mean = 3.78, S.D. = 0.61). The lowest, though still high, was behavioral awareness (mean = 3.76, S.D. = 0.71) (Fig. 1).



**Fig. 1:** Worker awareness dimensions' mean scores

Given the significant impact of work experience on PDPA awareness (Hariansah et al., 2023; Klymenko et al., 2022), a post-hoc analysis using the LSD method was conducted to compare the means between different work experience groups. The post-hoc analysis identified significant differences in PDPA awareness between employees with 6-10 years of experience and those with 11-15 years and over 16 years of experience (Table 2). These results highlight that employees with mid-level work experience (6-10 years) have a higher awareness of the PDPA compared to those with either slightly more (11-15 years) or significantly more (over 16 years) work experience.

**Table 2:** LSD of post-hoc test for work experience

| Experience | Mean | < 1 year | 2-5 years | 6-10 years | 11-15 years | 16 years + |
|---|---|---|---|---|---|---|
| < 1 year | 3.97 | - | 0.223 | 0.245 | 0.261 | 0.259 |
| 2-5 years | 3.83 | - | - | 0.278 | 0.294 | 0.217 |
| 6-10 years | 4.20 | - | - | - | 0.211* | 0.213* |
| 11-15 years | 4.05 | - | - | - | - | 0.224* |
| 16 years + | 3.92 | - | - | - | - | - |

*: Significant at the 0.05 level

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The LSD test is a straightforward approach to comparing group means when an ANOVA reveals significant differences. Unlike more conservative methods such as Tukey's HSD, the LSD test does not adjust for multiple comparisons unless the overall ANOVA is significant, making it more sensitive to detecting true differences between group means. In our study, where understanding the specific differences between demographic categories (e.g., education levels or work experience) is critical, the sensitivity of the LSD test allows us to detect these differences more easily.

Given that our research was exploratory in nature, and aimed at identifying which demographic factors influence PDPA awareness, the LSD method was well-suited for our objectives. Since the study aimed to reveal potential differences in awareness across demographic groups, the LSD test provided a more detailed understanding by allowing us to conduct pairwise comparisons and explore these relationships more thoroughly.

Although the LSD test is often criticized for not controlling for Type I errors (false positives) in the same way more conservative methods do, it is still considered appropriate when used after a significant ANOVA result. Since we only performed the LSD test after the ANOVA confirmed the existence of significant differences across groups, the risk of inflated Type I errors was mitigated. This is because the initial ANOVA acts as a filter, ensuring that the overall test is significant before conducting pairwise comparisons.

We acknowledge that the LSD test is less conservative compared to other post hoc methods such as Tukey's HSD or Bonferroni correction, which adjust for multiple comparisons. However, in this specific context, where the aim was to explore differences between multiple demographic groups, the LSD test provided the necessary balance between sensitivity and interpretability. Additionally, by conducting the LSD test only after confirming a significant ANOVA result, we ensured that the risk of Type I error remained within acceptable limits.

For future studies, especially those involving larger and more complex datasets, we recognize the importance of considering more robust post-hoc tests that control multiple comparisons. These could include Tukey's HSD or the Bonferroni correction, which might be more appropriate in studies where the focus is on minimizing Type I errors in exploratory settings with a larger number of groups.

The hypothesis testing was conducted to explore whether demographic factors influence the awareness of the PDPA among the working population in Bangkok (Table 3). The results indicate that most demographic factors, such as age, gender, education level, occupation, and type of organization, do not significantly affect PDPA awareness. However, work experience emerged as a significant factor, influencing PDPA awareness at the 0.05 significance level. This result suggests that individuals with more extensive work experience may have greater exposure to and an understanding of data protection regulations.

These findings also align with other studies that observed that work experience, along with age and education levels (social and academic), significantly impact an individual's awareness of information security policies (An et al., 2023). The consistency between these studies highlights the critical role of professional experience in fostering a deeper understanding of data protection and compliance-related issues.

This pattern underscores the importance of targeted educational initiatives that leverage work experience to enhance PDPA awareness, particularly for less experienced employees. Research from Hariansah et al., (2023) has suggested that these initiatives should be focused on developing worker Internet skills, which then ensures a greater degree

of uniformity and understanding in compliance. These findings are like Pimdee and Leekitchwatana (2022) whose investigation into Thai pre-service teacher appropriate Internet use behavior (AIUB) reported that their characteristics, abilities, home situation, and their classmates or friends were all

positive factors in AIUB. Finally, digital literacy education has been stated to contain four core topics, these are 'the rules of the road' of appropriate conduct about copyright, plagiarism, research, and privacy.

**Table 3:** Hypothesis testing results

| Variable | Statistic | P-value | Test results |
|---|---|---|---|
| Gender | t-test | 0.110* | Rejected |
| Age | F-test | 0.112* | Rejected |
| Education level | F-test | 0.094* | Rejected |
| Occupation | F-test | 0.086* | Rejected |
| Work experience | F-test | 0.000* | Accepted |
| Type of organization | F-test | 0.101* | Rejected |

*: Significant at the 0.05 level

## 5. Discussion

The findings of this study offer significant implications for the practical application of data protection principles in organizational settings, particularly in the context of rapidly advancing technological environments. By understanding the determinants of PDPA awareness (Dowpiset and Nuangjamnong, 2021; Hamidon et al., 2022), organizations can better design and implement data protection strategies that are both legally compliant and technologically secure.

The study's results highlight the potential for integrating PDPA awareness initiatives with existing information systems and cybersecurity protocols. There is significant evidence that individuals are concerned about their data practices (Kennedy et al., 2021), so organizations need to leverage employee work experience to enhance the effectiveness of data protection measures, ensuring that these measures are not only understood but also effectively implemented within technological infrastructures (Klymenko et al., 2022; Hariansah et al., 2023).

The emphasis on work experience as a key factor in PDPA awareness suggests that targeted training programs (Ha and Chuah, 2023; Wong, 2021), particularly those that use technological tools and simulations, can significantly enhance employee understanding of data protection requirements. This aligns with the journal's applied sciences focus, as it underscores the importance of developing practical, technology-driven solutions to ensure compliance with data protection laws.

The insights gained from this study can guide organizations in the deployment of data protection technologies. By focusing on the experiential knowledge of employees, organizations can tailor the implementation of these technologies to better suit the needs of their workforce, ensuring that both technical and non-technical staff are equipped to handle the complexities of PDPA compliance.

Future research could explore the development of technological tools that assess and enhance PDPA awareness in real-time, providing organizations with actionable insights into their compliance status. Additionally, exploring the intersection of data protection laws and technological advancements, such as AI-driven data security systems (Rangaraju,

2023; Rehan, 2024), could offer valuable contributions to the field of applied sciences.

## 6. Conclusion

In conclusion, this study provides valuable insights into the awareness of the PDPA among the working population in Bangkok. The findings underscore the importance of work experience as a significant factor influencing PDPA awareness, while demographic characteristics such as gender, age, education, occupation, and organizational type do not exhibit a substantial impact. These results suggest that organizations aiming to improve PDPA awareness should prioritize the development of training programs that cater to employees with varying levels of work experience. By focusing on experiential learning and leveraging the expertise of more experienced workers, organizations can foster a more comprehensive understanding of data protection principles across all levels of their workforce. The study also highlights the need for continued research into other potential factors that may influence PDPA awareness, as well as the effectiveness of different training approaches in enhancing compliance with data protection regulations.

### 6.1. Recommendations

For Future Researchers: Investigate other potential factors, such as cultural or psychological influences, that may affect PDPA awareness beyond demographic and experiential factors. Conduct longitudinal studies to assess changes in PDPA awareness over time, especially in response to new regulations or changes in organizational practices. Explore the effectiveness of various training methodologies in enhancing PDPA awareness and compliance, particularly in diverse organizational settings.

For Practitioners: Develop targeted training programs that focus on increasing PDPA awareness, with particular emphasis on employees with varying levels of work experience. Leverage the expertise of more experienced employees by involving them in the design and delivery of training initiatives, ensuring that these programs address the specific

needs of less experienced workers. Regularly update and evaluate training materials to ensure they reflect the latest developments in data protection regulations and best practices.

## 6.2. Limitations

The study was based on a convenience sample of 389 individuals from Bangkok, which may not fully represent the entire working population in Thailand. The results may not be generalized to other regions or industries with different demographic compositions. The reliance on self-reported data for PDPA awareness may introduce response bias, as participants may overestimate their understanding of the law. Future studies could benefit from using objective measures of awareness. The study primarily focused on demographic and experiential factors, potentially overlooking other relevant influences, such as organizational culture or individual attitudes toward data protection. The cross-sectional nature of the study limits the ability to infer causality. Longitudinal studies could provide deeper insights into how PDPA awareness evolves.

## Funding

## Compliance with ethical standards

## Ethical considerations

Participants provided informed consent, and their data were handled with confidentiality. The study adhered to ethical principles for research involving human subjects.

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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