Assessing the Youths' Knowledge, Attitude and Practices Towards Mangrove Forest Conservation

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ABSTRACT

Mangrove forests, which operate as carbon sinks, are essential for preserving ecological balance, promoting biodiversity, and slowing down climate change. Mangrove forests are nevertheless threatened by urbanization, climate change, and human exploitation, despite their importance. This study investigates the knowledge, attitude, and practices of youths towards mangrove forest conservation as well as the relationship between the components. A quantitative research method was employed, utilizing a questionnaire distributed to 50 youths aged between 18 to 24 years old. The findings reveal a high level of knowledge and positive attitudes towards mangrove conservation, with youths recognizing the importance of sustainability and actively participating in conservation-related activities. The results also indicated that youths' knowledge and attitude towards the conservation of mangrove forests were strongly positively correlated. The findings also demonstrated a strong positive relationship between the youths' attitudes and practices regarding the conservation efforts of mangrove forests. Thus, this study emphasizes how important it is to incorporate experiential learning through hands-on or practical activities such as mangrove planting activities to cultivate in youth a lifelong commitment to the environment.

Keywords: Mangrove Forest Conservation; Student Youths; Knowledge; Attitude; Practices

INTRODUCTION

Mangrove habitats are among the planet's most productive and physiologically complex ecosystems and offer crucial ecosystem services (Harefa et al., 2023). Mangrove environments are thought to have a multitude of benefits that either directly or indirectly improve human well-being (Awuku-Sowa et al., 2022). Because they make excellent nursery environments, mangroves are essential habitats for fish and prawns (Nagelkerken et al., 2017). Forests are essential to people's ability to make a living (Roy, 2016). Mangrove forests offer a wide variety of products for human use, including fuelwood, charcoal, and lumber (Dahdough-Guebas et al., 2021). Certain mangrove species' fruits and leaves can also be used to make a range of culinary goods, including tea, sweets, and fruit jam. By offering a distinctive habitat and sustaining a variety of species, mangroves also contribute significantly to biodiversity (Carugati et al., 2018). Mangroves are substantial organic carbon (C) sinks, and there is a lot of interest in using them to reduce greenhouse gas emissions (Chatting et al., 2022).

The devastation of mangrove forests persists at an alarming rate, despite the obvious advantages of mangrove ecosystems. Growing climatic and human influences pose a threat to mangroves (Halpern et al., 2019). A variety of stresses, including urbanization, nutrient enrichment, aquaculture growth, and climate change, have caused about one-third of the world's mangrove area to deteriorate over the last fifty years (Barbier, 2017; Elwin et al., 2020). Therefore, the sustainability of mangrove ecosystems and the security of livelihood for those who depend on them are impacted by this damage. The local population's ignorance of the need to protect the mangrove environment is another factor contributing to the decline of mangroves (Badola et al., 2012). Locals' utilization of the mangrove ecosystem's resources is crucial to its sustained use.

The preservation of biodiversity is crucial because it is essential to the growth of a stable and socioeconomic environment. Therefore, maintaining and safeguarding the resources requires having a solid understanding of the mangrove environment. In terms of protecting and conserving nature, this is also in line with the Sustainable Development Goals (SDGs) 14 Life Below Water and 15 Life On Land, which were accepted by United Nations Member States in 2015. Those who are well-informed on the advantages of the mangrove ecosystem will cultivate positive attitudes and abilities about the preservation of its resources. As a result, educating people about the environment should be an ongoing activity at all educational levels and should involve proactive participation in protective measures (Genovese, 2022).

Problem Statement

Concerns are still raised about the mangrove ecosystem's decline. In most of the tropics, mangroves are frequently neglected and destroyed despite their importance (Hamilton & Casey, 2016). Given that mangrove ecosystems are expected to be significantly impacted by climate change, protecting mangroves is one of the most difficult tasks facing the planet today. Anthropogenic hazards such as pollution, overexploitation, and the conversion of mangrove forests to aquaculture are the primary causes of recent loss (Vande Velde et al., 2019).

Only by comprehending the attitudes and opinions of the local community can natural resources be conserved effectively. The local community encompasses a wide range of individuals, including children, young teens, and adults. Children and young teens, in contrast to adults, are highly impressionable, open to new ideas, and make ideal conservation education ambassadors. Teaching school children to incorporate conservation into their subconscious is essential if they are to act in ways that lessen the effects of human activity (Salleh et al., 2015). A study conducted by Badola et al. (2012) examined how local populations in the Bhitarkanika conservation area felt about mangrove forests and discovered that most of them were supportive of conservation initiatives. According to the results of a study by Kamaludin et al. (2021), local populations ought to actively and positively contribute to the preservation and protection of mangrove ecosystems. Schools that are close to mangroves should start offering conservation education earlier. Students' behavior is affected by environmental education in several ways, including improving their knowledge of ecosystems and affecting their attitudes, values, and desire to actively participate in environmental protection (Luthans et al., 2016).

Although there are elements of environmental education in the current school system, according to the review of Aminrad et al. (2013), there are still significant gaps in Malaysian public understanding. Malaysian curricula progressively include environmental education however; no particular mangrove conservation-related activities are being carried out. There is no explicit program in schools that addresses the UN Sustainable Development Goals (SDGs), even though several local businesses and higher education institutions are including them in their agendas. Knowledge, attitudes, and perspectives on mangrove protection have been evaluated in studies conducted in Asia and Africa (Afonso et al., 2022). The findings of these researches show that many developing nations still have a low level of awareness regarding the preservation of mangrove forests.

Conservation of this special natural resource can be greatly aided by studying mangrove environments, increasing awareness, and acknowledging the significance of sustainability. Damaged mangrove habitats are being restored through activities including tree planting and community education (Tavita & Amir, 2023). The younger generation, especially college students, can be extremely helpful in strengthening national initiatives and contributing to long-term strategic planning for mangrove conservation and management (Sigit et al., 2020). Therefore, in accordance with environmental education, this paper aims to explore the knowledge, attitude, and practices among student youths regarding the conservation of mangrove forests.

Objectives Of the Study

This study's primary objectives are to ascertain the youths' level of knowledge, attitude, and practices on mangrove forest conservation. The specific objectives of this research are:

1. to determine the knowledge, attitude and practices of the Malaysian youths towards mangrove conservation

2. to determine the influence of Malaysian youths' knowledge on attitude toward mangrove conservation

3. to determine the influence of Malaysian youths' attitude on practices toward mangrove conservation

LITERATURE REVIEW

Knowledge Towards Mangrove Conservation

According to the findings of a study by Genovese (2022), students who participated in the survey demonstrated a very high level of environmental knowledge and a favorable attitude. Despite their fears about climate change, the students' answers did not significantly match their level of familiarity with the dangers associated with natural catastrophes. There was a weak positive link between knowledge and practice and between knowledge and attitude, according to a study by Abdullah et al. (2021). It demonstrated that respondents' attitudes about mangrove awareness are influenced by their level of knowledge. A study by Delector (2023) demonstrated a statistically significant association between knowledge and attitude towards biodiversity protection. The results of the study showed that the majority of students have a high level of knowledge of biodiversity and have a positive attitude toward biodiversity conservation. Students' knowledge and attitudes towards the mangrove ecology are significantly impacted by the mangrove ecotourism program. The mangrove ecotourism program encourages alternative methods for students to learn more about the coastal environment and aids in the construction of their knowledge of the mangrove ecosystem (Dian et al., 2019). According to Sawairnathan and Halimoon (2017), sociodemographic characteristics have an impact on people's perceptions and knowledge about mangrove forests. According to the study, education is the primary determinant of community comprehension and the development of a favorable perception of mangrove forests among nearby populations.

Attitudes Towards Mangrove Conservation

Strong attitudes are more likely to show a consistent relationship between attitude and action, particularly those that are shaped by firsthand experience and intimately associated with particular behaviors (Ajzen, 1991). Long-term management and maintenance of mangroves depend heavily on attitudes and desires for their protection. According to the findings of a study by Ramli et al. (2024), attitudes in the local community had a favorable and significant impact on people's intentions to conserve mangroves. According to a different survey, students have a good attitude towards sustainability-related issues and the planet's future, and they firmly link their environmental behaviors and personal sustainable lifestyles (Genovese, 2022). Positive intentions for conservation will follow from a positive mentality. A person's attitude can influence how they care for mangroves (Abdullah et al., 2021). According to a study by Badola et al. (2012), local inhabitants in the area had favorable opinions towards conservation, and their socioeconomic and demographic circumstances had an impact on these opinions. The local population's perceptions of mangrove forests and their knowledge of mangrove conservation in terms of regeneration, recovery, and recreation are significantly correlated (Manalo, 2023).

Practices Towards Mangrove Conservation

Practice is a dependent variable in which respondents show their attitude and level of knowledge by acting to manage mangroves more effectively. In terms of mangrove conservation activities, Abdullah et al. (2021) found a mild positive link between knowledge and practice and a moderately positive correlation between attitude and practice. According to Hanggara et al. (2021), species diversity was preserved through mangrove conservation. Reversing biodiversity losses through mangrove restoration is a crucial component of the climate mitigation agenda (Nelleman et al., 2009). In Thailand and Indonesia, the implementation of community-based mangrove management has improved both the ecological and economic sustainability of the mangroves and the communities that depend on them (Datta et al., 2012). Conservation of mangroves is a sort of voluntary activity. According to Tomaquin (2023), mangrove conservation is a successful coastal management technique when the local population, particularly fishermen, supports the initiative. According to a study by Genovese (2022), students were very knowledgeable about and took a positive stance on environmental concerns. Some students, however, indicated that they were not particularly interested in volunteering or environmental

activism. This showed that increasing an individual's sustainable behavior requires a more proactive approach.

METHODOLOGY

In this study, the researcher conducted quantitative research in which data were collected through the distribution of the questionnaire. The questionnaire was transformed into a Google form, and the form was distributed via online means. Samples of this study were students from higher educational institutions in the northern part of Malaysia, which falls within the age range of youths in Malaysia (Youth Societies and Youth Development (Amendment) Act 2019 (Act A1602). 50 samples aged between 18 to 24 years old responded to the survey whereby in terms of sampling technique, convenience sampling was used. Convenience sampling is a method of collecting samples by taking samples that are conveniently located around a location or Internet service according to Edgar and Manz (2017).

Section A (Demographic) and Section B (Item Constructs) comprised the two (2) sections of the questionnaire used in this study. The respondents' gender and age were collected for Section A (Demographic).

The questionnaire for Section B (Item Constructs) consisted of three (3) constructs. These constructs were Construct A (Knowledge), Construct B (Attitude), and Construct C (Practices). For this section, the questionnaire was based on the 5-point Likert scale. There are five (5) scales on the 5-point Likert scale: 1 for strongly disagree, 2 for disagree, 3 for being uncertain, 4 for agree, and 5 for strongly agree. The Likert scale method is frequently used to measure attitude levels and sensitivity according to Secor (2010).

Construct A (Knowledge) and Construct B (Attitude) consisted of eight (8) items respectively. There were seven (7) items in Construct C (Practices). The table below summarizes the number of items in these three (3) constructs:

Table 1: Construct and Number of Items

Construct	Number of Items
Construct A (Knowledge)	8
Construct B (Attitude)	8
Construct C (Practices)	7

FINDINGS AND DISCUSSION

Characteristics of Respondents

Table 2: Demographic Characteristics

Demographic Variables	Frequency (n)	Percentage (%)
Gender		
Male	26	52.0%
Female	24	48.0%
Age		
18-24 years old	50	100%

Table 2 summarizes the demographic characteristics of the respondents involved in this study. 26 male youths and 24 female youths participated in the study; the male youth population was 52.0% of the total, while the female youth population was 48.0%.

Descriptive Analysis for Knowledge, Attitude, and Practices Towards Mangrove Forest Conservation

Table 3: Descriptive Statistics for the Items of Knowledge

Num.	Item(s)	Mean	SD
1.	I know about the mangrove forest environment.	4.46	.676
2.	I can relate daily life to mangrove preservation.	4.42	.702
3.	I can design and build (individual or group) learning activities that can benefit others regarding the preservation of mangrove forests.	4.28	.784
4.	I know how to provide education about mangroves to the community.	4.44	.577
5.	I know when to apply knowledge to mangrove conservation.	4.46	.579
6.	I know how to apply knowledge to mangrove conservation.	4.46	.579
7.	I know that mangrove preservation requires a lot of time and cooperation.	**4.54***	.613
8.	I have basic knowledge about plants, especially mangrove trees, and the environment.	4.40	.756

*. The highest mean for the item in this construct (Construct A: Knowledge)

The descriptive data for the Knowledge construct items used in this study are compiled in Table 3. The Statistical Package for Social Science (SPSS) version 29.0 was used to determine the mean and standard deviation for every item in this construct. Construct A (Knowledge) contains eight (8) items in total. Item 7 in this construct, 'I know that mangrove preservation requires a lot of time', had the highest mean of 4.54 and standard deviation of .613. Item number 3 in this construct, 'I can design and build (individual or group) learning activities that can benefit others regarding the preservation of mangrove forests' had the lowest mean, 4.28, and standard deviation of .784.

Table 4: Descriptive Statistics for the Items of Attitude

Num.	Item(s)	Mean	SD
1.	The mangrove environment taught me to be more disciplined in keeping clean.	4.68	.513
2.	I like to do activities that involve the preservation of mangrove forests.	4.64	.525
3.	I will be bold enough to rebuke individuals who do not take care of mangrove areas.	4.54	.579
4.	I was very happy to see a clean and well-preserved mangrove area.	4.70	.505
5.	I will tell my friends and closest people about mangrove preservation.	4.62	.530
6.	I feel very excited to participate in more activities that provide knowledge about the mangrove forest.	**4.72***	.497
7.	I wish to participate in the preservation and conservation programs that will be organized by the organizers in the future.	**4.72***	.497
8.	I believe that the community around the mangrove area can be guided towards a better attitude towards cleanliness.	4.68	.551

*. The highest mean for items in this construct (Construct B: Attitude)

The descriptive statistics for the Attitude construct's items are shown in Table 4. This construct consists of eight (8) items in total. For every item in this construct, the mean and standard deviation were determined. The construct's highest mean and standard deviation are found in two (2) items. Item 6 'I feel very excited to participate in more activities that provide knowledge about the mangrove forest' and item 7 'I wish to participate in the preservation and conservation programs that will be organized by the organizers in the future' have the highest mean. The mean of 4.72 and the standard deviation of .497 were the same for all two of these items. In contrast, item 3 "I will be bold enough to rebuke individuals who do not take care of mangrove areas," had the lowest mean. The mean value of this item is 4.54, and its standard deviation is .579.

Table 5: Descriptive Statistics for the Items of Practices

Num.	Item(s)	Mean	SD
1.	I used the Internet to make references about mangrove conservation.	4.22	.737
2.	I have enough skills in applying skills related to the mangrove ecosystem in daily life.	4.20	.756
3.	I have the skills to create work related to the mangrove forest.	4.22	.815
4.	I often communicate with friends through social media regarding environmental sustainability.	4.08	1.085
5.	I can find the latest information related to mangrove preservation through the Internet.	**4.50***	.678
6.	I can help influence the interest of other friends to get involved in mangrove forest preservation activities.	4.36	.722
7.	Mangrove preservation activities are important in my life.	4.38	.805

*. The highest mean for the item in this construct (Construct C: Practices)

Table 5 shows the descriptive statistics for the item in Construct C (Practices). There are seven (7) items in this construct. The mean and standard deviation of each item in this construct were calculated. Item 5, 'I can find the latest information related to mangrove preservation through the Internet' has the highest mean value (4.50) and standard deviation (.678). Meanwhile, item 4, 'I often communicate with friends through social media regarding environmental sustainability', has the lowest mean value (4.08) and standard deviation (1.085).

Table 6: Respondent's Knowledge Towards Mangrove Conservation (N=50)

Num.	Items	Strongly Disagree n (%)	Disagree n (%)	Uncertain n (%)	Agree n (%)	Strongly Agree n (%)
1.	I know about the mangrove forest environment.	-	-	5 (10.0%)	17 (34.0%)	**28 (56.0%)***
2.	I can relate daily life to mangrove preservation.	-	-	6 (12.0%)	17 (34.0%)	**27 (54.0%)***
3.	I can design and build (individual or group) learning activities that can benefit others regarding the preservation of mangrove forests.	-	-	10 (20.0%)	16 (32.0%)	**24 (48.0%)***
4.	I know how to provide education about mangroves to the	-	-	2 (4.0%)	**24 (48.0%)***	**24 (48.0%)***

	community.					
5.	I know when to apply knowledge to mangrove conservation.	-	-	2 (4.0%)	23 (46.0%)	**25 (50.0%) ***
6.	I know how to apply knowledge to mangrove conservation.	-	-	2 (4.0%)	23 (46.0%)	**25 (50.0%) ***
7.	I know that mangrove preservation requires a lot of time and cooperation.	-	-	3 (6.0%)	17 (34.0%)	**30 (60.0%) ***
8.	I have basic knowledge about plants, especially mangrove trees, and the environment.	-	1 (2.0%)	5 (10.0%)	17 (34.0%)	**27 (54.0%) ***

*. The highest percentage for the responses in this construct (Construct A: Knowledge)

We might infer from Table 6 that a significant percentage of the respondents are knowledgeable of mangrove conservation. The majority of responders (60.0%) agreed that maintaining mangroves takes a lot of effort and collaboration. Goh (2016) suggested a more thorough planning strategy that prioritizes increased local public participation, significant regional planning and development authority involvement, broader preservation of current mangrove forest reserves, and more stringent enforcement of environmental impact assessment regulations for mangrove conservation. Additionally, 56.0% of the respondents overwhelmingly believed that they were knowledgeable about the ecosystem of mangrove forests. The respondents also strongly agreed that they can relate their daily lives to mangrove preservation. They have basic knowledge about plants, especially mangrove trees, and the environment. The percentage of each of these items is 54.0%.

About 50.0% of the respondents strongly agreed that they know when and how to apply knowledge to mangrove conservation. According to Lamanauskas and Malinauskienė (2024), the use of ESD is regarded as a typical educational procedure that makes use of established strategies and tactics. For the younger generation to comprehend the harmony of the surrounding world and their actions, they must be characterized by responsibility, a feeling of community, conservation, and citizenship.

Table 7: Respondent's Attitude Towards Mangrove Conservation (N=50)

Num.	**Items**	**Strongly Disagree n (%)**	**Disagree n (%)**	**Uncertain n (%)**	**Agree n (%)**	**Strongly Agree n (%)**
1.	The mangrove environment taught me to be more disciplined in keeping clean.	-	-	1 (2.0%)	14 (28.0%)	**35 (70.0%) ***
2.	I like to do activities that involve the preservation of mangrove forests.	-	-	1 (2.0%)	16 (32.0%)	**33 (66.0%) ***
3.	I will be bold enough to rebuke individuals who do not take care of mangrove areas.	-	-	2 (4.0%)	19 (38.0%)	**29 (58.0%) ***
4.	I was very happy to see a clean and well-preserved mangrove area.	-	-	1 (2.0%)	13 (26.0%)	**36 (72.0%) ***
5.	I will tell my friends and closest people about mangrove preservation.	-	-	1 (2.0%)	17 (34.0%)	**32 (64.0%)***

6.	I feel very excited to participate in more activities that provide knowledge about the mangrove forest.	-	-	1 (2.0%)	12 (24.0%)	**37 (74.0%)***
7.	I wish to participate in the preservation and conservation programs that will be organized by the organizers in the future.	-	-	1 (2.0%)	12 (24.0%)	**37 (74.0%)***
8.	I believe that the community around the mangrove area can be guided towards a better attitude towards cleanliness.	-	-	2 (4.0%)	12 (24.0%)	**36 (72.0%)***

*. The highest percentage for the responses in this construct (Construct B: Attitude)

Table 7 indicates that the respondents' attitudes towards mangrove conservation are excellent. Regarding the conservation of mangroves, the majority of respondents strongly agreed with each attitude item mentioned in the construct. At 74.0%, the highest percentages are found for items 6 and 7: 'I feel very excited to participate in more activities that provide knowledge about the mangrove forest' and 'I wish to participate in the preservation and conservation programs that will be organized by the organizers in the future'. Item 4 'I was very happy to see a clean and well-preserved mangrove area' and item 8 'I believe that the community around the mangrove area can be guided towards a better attitude towards cleanliness' possess the second-highest percentage of the construct items, at 72.0%. The mangrove environment helped them to be more disciplined in maintaining cleanliness, according to almost 70.0% of those who strongly agreed. The fact that they learned something new during the program makes them quite delighted as well.

Based on these results, we may conclude that the students understood the value of conservation and preservation efforts for mangroves. As a result, they are excited to participate in future mangrove conservation initiatives. According to Carrasquilla-Henao et al. (2019), the likelihood of restoration and conservation initiatives succeeding can be raised by integrating scientific and local ecological knowledge in their planning and execution. For management and conservation, local ecological knowledge (LEK) can be a valuable source of information.

Table 8: Respondent's Practices Towards Mangrove Conservation (N=50)

Num.	**Items**	**Strongly Disagree n(%)**	**Disagree n(%)**	**Uncertain n(%)**	**Agree n(%)**	**Strongly Agree n(%)**
1.	I used the Internet to make references about mangrove conservation.	-	-	9 (18.0%)	**21 (42.0%)***	20 (40.0%)
2.	I have enough skills in applying skills related to the mangrove ecosystem in daily life.	-	-	10 (20.0%)	**20 (40.0%)***	**20 (40.0%)***
3.	I have the skills to create work related to the mangrove forest.	-	-	12 (24.0%)	15 (30.0%)	**23 (46.0%)***
4.	I often communicate with friends through social media regarding environmental sustainability.	3 (6.0%)	-	9 (18.0%)	16 (32.0%)	**22 (44.0%)***

5.	I can find the latest information related to mangrove preservation through the Internet.	-	-	5 (10.0%)	15 (30.0%)	**30 (60.0%)***
6.	I can help influence the interest of other friends to get involved in mangrove forest preservation activities.	-	1 (2.0%)	4 (8.0%)	21 (42.0%)	**24 (48.0%)***
7.	Mangrove preservation activities are important in my life.	-	2 (4.0%)	4 (8.0%)	17 (34.0%)	**27 (54.0%)***

*. The highest percentage for the responses in this construct (Construct C: Practices)

Table 8 demonstrates the responders' effective mangrove conservation practices. Every practice aimed at conserving mangroves was firmly supported by the majority of respondents. With a percentage of 60.0%, the respondents firmly agreed that they can find the latest information related to mangrove preservation through the Internet. 21 respondents (42.0%) agreed that they used the Internet to make references about mangrove conservation. According to Suminar (2019), students must use technology because it is impossible to separate it from learning materials.

Item 7, 'Mangrove preservation activities are important in my life', had the second-highest percentage of items in this construct (54.0%). Students require a model that can improve their understanding and mindset regarding the preservation of mangroves and coral reefs, according to Sigit et al. (2020). In Jakarta, Indonesia, one program that could improve students' environmental protection knowledge and attitude is the Environmental Education Community Network (EECN).

Table 8 further shows that 48% of the respondents strongly agreed that they can help influence the interest of other friends to get involved in mangrove forest preservation activities. However, one (1) respondent did not agree that he or she could encourage friends to participate in mangrove forest conservation efforts. Social influence has a favourable impact on sustainability consciousness and green buying intentions, according to research by Islam et al. (2024). Furthermore, the study highlights the significance of intrinsic incentives in promoting environmentally conscious behavior by identifying sustainability consciousness as a crucial mediator in this relationship. Additionally, three (3) respondents (6.0%) strongly disagreed that they often communicate with friends through social media regarding environmental sustainability. Therefore, it is necessary to take a more thorough approach to improving students' basic understanding of mangrove conservation.

Influence of Knowledge on Attitude Towards Mangrove Forest Conservation

Table 9: Pearson Correlations Between Knowledge and Attitude

Knowledge	Pearson Correlation	1	.665*
	Sig. (2-tailed)		<.001
	N	50	50
Attitude	Pearson Correlation	.665*	1
	Sig. (2-tailed)	<.001	
	N	50	50

**. Correlation is significant at the 0.01 level (2-taile

*. Pearson correlation coefficient value (r)

Pearson correlation analysis was conducted to examine the relationship between knowledge and attitude towards

mangrove forest conservation. As shown in Table 9, there is a statistically positive strong significant correlation (r=0.665, p=<.001), indicating that higher knowledge is closely associated with a more positive attitude towards mangrove forest conservation. The findings also indicated that Malaysian youths' increased levels of knowledge about mangrove forest conservation are probably contributing to their more positive attitudes towards it.

Influence of Attitude on Practices Towards Mangrove Forest Conservation

Table 10: Pearson Correlations Between Attitude and Practices

Attitude	Pearson Correlation	1	.578*
	Sig. (2-tailed)		<.001
	N	50	50
Practices	Pearson Correlation	.578*	1
	Sig. (2-tailed)	<.001	
	N	50	50

**. Correlation is significant at the 0.01 level (2-tailed)

*. Pearson correlation coefficient value (r)

Pearson correlation analysis was conducted to examine the relationship between attitudes and practices towards mangrove forest conservation. As shown in Table 10, there is a statistically positive strong significant correlation (r=0.578, p=<.001), indicating that a more positive attitude is closely associated with best practices towards mangrove forest conservation. Cohen et al. (2013) stated that a weak correlation is in the range of (r=0.10-0.29), a moderate correlation is at (r=0.30-0.49) and a strong correlation is at (r=0.50-1.00). The findings also demonstrated that young Malaysians' best practices for resource conservation are influenced by their good attitudes regarding the preservation of mangrove forests.

Significant positive correlations were found between public knowledge and attitude, as well as between public attitude and practice, regarding the conservation of mangrove forests in a study by Rozainah and Halim (2024). According to Ramli et al. (2024), attitudes play a significant role in determining intentions about the conservation of mangrove forests. The knowledge, attitude, and practices (KAP) components were found to be strongly and statistically significantly correlated in a study by Rathnayake (2024). This further demonstrates the significance of long-term human-ecological relationships in mangrove forest conservation. These findings also suggest that knowledge, attitude, and practices could work as stimulants to improve the conservation of mangrove forests among Malaysian youths.

CONCLUSION

In order to promote successful mangrove conservation initiatives among youths, this study emphasizes the significance of knowledge, attitude, and practices. The findings show that youths show a great understanding of and favourable attitude as well as practices towards mangrove forest conservation. The findings also showed a high positive correlation between youths' attitudes and practices towards the conservation of mangrove forests, as well as between their knowledge and attitudes. Youths' capacity to support mangrove conservation initiatives can be greatly enhanced by organized educational programs, community engagement, and the use of digital resources, according to the findings. This study highlights how crucial it is to integrate experiential learning through practical activities, such as planting mangroves, to foster in young people a lifetime commitment to the environment. Legislators and educators may raise a generation of ecologically conscious individuals by introducing these components into informal education.

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