

AWARENESS, KNOWLEDGE AND ATTITUDE OF AUTISTIC SPECTRUM DISORDER AMONG PEOPLE IN PAHANG

SURIA, H.¹ – MARDHIYAH, R.¹ – HARUN, N. A.¹ – ISMAIL, T. A. T.² – KAMARULBAHRI, T. M. S. T.^{3*}

¹ *Department of Psychiatry and Mental Health, Tengku Ampuan Afzan Hospital, Pahang, Malaysia.*

² *Department of Public Health, Universiti Sains Malaysia, Kelantan, Malaysia.*

³ *Department of Psychiatry, Universiti Sultan Zainal Abidin, Terengganu, Malaysia.*

**Corresponding author
e-mail: drtgsaifuddin[at]gmail.com*

(Received 13th April 2024; revised 11th June 2024; accepted 19th June 2024)

Abstract. The prevalence of autism spectrum disorder (ASD) worldwide has risen steadily. However, many ASD cases remain unrecognized. There is a need for adequate awareness and knowledge among parents and the community for earlier recognition, diagnosis, and intervention. Objective: This study evaluated participants about awareness, knowledge, and attitude toward ASD. Methods: A cross-sectional study was conducted among participants of the Pahang Autism Symposium. All participants, who fulfilled the study criteria were invited into the study. Those who consented were given a validated Malay version questionnaire which consists of 20 items assessing awareness, knowledge, and attitude on ASD. It was a self-administered questionnaire, answered by the respondents, and collected back by the researchers before the beginning of symposium lectures. Descriptive analysis, simple and multiple logistic regression analyses were used in the study, with knowledge and attitude as the dependent variables. Results: A total of 131 participants were involved in the study. Almost all of them (99.2%) had heard about ASD. Overall, 61.1% of them had good knowledge and 78.6% had a good attitude on ASD. Education level was found to be significantly associated with knowledge and attitude. Those with tertiary education were 2.6 times odds to have good knowledge and 2.6 times odds to have a good attitude, as compared to those with lower education. Conclusion: The community already had some awareness about ASD but still insufficient in terms of knowledge and attitudes toward them. Efforts should also be carried out to provide the best healthcare to individuals with ASD.

Keywords: *Autism Spectrum Disorder (ASD), awareness, attitude, knowledge*

Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by deficits in social communication, social interaction, and restricted repetitive patterns of behavior, interests, and activities beginning in childhood (American Psychiatric Association, 2000). The prevalence of ASD worldwide has risen steadily. In 2016, according to the Centers for Disease Control and Prevention (CDC) across all 11 sites, ASD prevalence was 18.5 per 1,000 (one in 54) children aged 8 years, and ASD was 4.3 times as prevalent among boys as among girls (Maenner, 2020). Reasons for the increase in prevalence are much debated and it is more likely to include broadening of diagnostic criteria, the accuracy of case identification, awareness among relevant professionals, as well as the actual increase in incidence. In Malaysia, up till now, there is no official registry or no local epidemiological study for the prevalence of ASD. A study done by the Ministry of Health (MOH) among children age 18 to 36 months using M-CHAT revealed that approximately 1.6 in every 1000 children has ASD (Ministry of

Health Malaysia, 2014). However, medical and education practitioner has been seeing a rising number of children with speech delay and communication difficulties which might require further assessment and it seems that true prevalence rate of ASD in Malaysia probably much higher. However, in Malaysia, many ASD cases remain unrecognized and still not getting proper attention. There are lots of gaps in Malaysian in the understanding of ASD. It is also reported that Malaysians still lack of knowledge and exposure to autism. A lack of knowledge can lead to negative attitudes towards ASD individuals and families.

There is a need for adequate awareness among parents and the community for earlier recognition, diagnosis, and treatment. Earlier recognition and diagnosis will help parents in devising a well-constructed and streamlined treatment plan, helping release stress, as they will be able to discuss and share their burden with the appropriate doctor and research a correct diagnosis. Some research also showed that there is a lack of awareness and insufficient knowledge about autism signs and symptoms among parents also. Other than the signs and symptoms, parents are also unaware of diagnosis and treatment methods. This results in delayed identification and intervention, leading to unsatisfactory outcomes in patients (Anwar et al., 2018). Besides parents, a few studies done among teachers showed that there was also still a lack of awareness among teachers regarding autism and they suggest that schools will implement proper training programs for teachers to train them in recognizing autistic children and then will teach them accordingly (Arif et al., 2013). Based on past research of several different populations, it appears that there is a general lack of knowledge and awareness of ASD. So, it is important that everyone is aware of and has a high level of knowledge of autism. In Malaysia our local study, the findings showed that our community still has poor knowledge of ASD. A study done among the community in Dengkil, Malaysia showed that only 47.4% of the respondents have good knowledge of autism (Nur Adli et al., 2017). Thus, this study was designed to measure the level of knowledge and attitude of ASD among participants attending the Autism Symposium in Kuantan Pahang. Therefore, these findings can then be used to improve the general knowledge and attitudes on ASD in the community and will lead to a better outcome of ASD.

Materials and Methods

It is a cross-sectional study conducted among participants of the Pahang Autism Symposium. Its main objective was to investigate the levels of knowledge and attitude among Pahang Autism symposium participants in Pahang and to determine the associated factors including socio-demographic with knowledge and attitude level. Hundred thirty-one participants who consist of parents, healthcare providers, and schoolteachers that fulfilled the study criteria were invited into the study. Those who consented were given a socio-demographic form, validated Malay version questionnaire which consists of items (10 items, $\alpha=0,926$) assessing knowledge and items (5 items, $\alpha=0.904$) assessing attitudes of ASD. The questionnaire was adapted from a previous study conducted among the community in Malaysia (Nur Adli et al., 2017). It was a self-administered questionnaire, answered by the participants, and collected back by the researchers before the beginning of the symposium. The data analyzed for the components of knowledge and attitude, which were scored as 1 mark for a correct or positive answer and 0 marks for wrong or negative answer, respectively. Based on the median, a score of more than 7 is categorized as good knowledge, whereas 7 marks and

less means poor knowledge. Similarly, a score of 5 and more is considered as a positive attitude and less than 5 means a negative attitude toward ASD. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20. Descriptive analysis, simple and multiple logistic regression analyses were used in the study, with knowledge and attitude as the dependent variables.

Results and Discussion

A total of 131 participants were involved in the study. *Table 1* shows the socio-demographic characteristics of the participants. Their mean age was 36.7 (SD 0.87) years. A majority (91.6%) was female, and of Malay ethnicity (97.7%). Only two participants (1.5%) were Indian, and one was Chinese (0.8%). About three-quarters of them were married (71.8%) and attained tertiary education (78.6%). A majority of them were employed (84.7%). Almost all of the participants (99.2%) had heard about ASD. *Table 2* shows the percentages of the correct and wrong answers for the knowledge items on ASD. From the 10 items on knowledge, the percentage for the correct answer was low in items related to characteristics of ASD (K1, K2, K8, and K9). Overall, 61.1% of them had good knowledge and 78.6% had a positive attitude toward ASD (*Table 3*). For each item on attitude, *Table 4* shows that majority of the participants had positive attitudes.

Table 1. Socio-demographic characteristics of participants (n=131).

Variable	Frequency [N] (Percentage, %)	Mean (S.D.)
Age (year)		36.7 (0.87)
Gender (Sex)		
Female	120 (91.6)	
Male	11 (8.4)	
Race		
Malay	128 (97.7)	
Others	3 (2.3)	
Marital status		
Single/divorced	37 (28.2)	
Married	94 (71.8)	
Level of education		
Secondary and below	28 (21.4)	
Tertiary	103 (78.6)	
Employment status		
Unemployed/student	20 (15.3)	
Employed	111 (84.7)	
Monthly income (RM)		
<1000	16 (12.2)	
1000-4999	65 (49.6)	
>5000	50 (38.2)	

Table 2. Knowledge items on ASD (n=131).

Items	CA	WA
	N(%)	N(%)
K1: Autism is a neurological disorder that affect the functioning of the limbs	60 (45.8)	71 (54.2)
K2: Most children with Autism have an intellectual disability	65 (49.6)	66 (50.4)
K3: Children must exhibit impaired interaction and language communication to be diagnosed with Autism	99	32

K4: Autism is a development disorder	(75.6)	(24.4)
	89	42
K5: With proper intervention, most children with Autism disorder will eventually “outgrow” the disorder	(67.9)	(32.1)
	93	38
K6: Most autistic children talk a lot	(71.0)	(29.0)
	102	29
K7: The majority of children with Autism are female	(77.9)	(22.1)
	99	32
K8: Children with autism do not make any visual communication during conversation with others	(75.6)	(24.4)
	71	60
K9: Most children with Autism have a problem with imaginary playing	(54.2)	(45.8)
	77	54
K10: We can diagnose Autism disorder depending on physical features	(58.8)	(41.2)
	99	32
	(75.6)	(24.4)

Notes: CA=Correct Answer; WA=Wrong Answer; N=Frequency; %=Percentage.

Table 3. Level of knowledge and attitude on ASD (n=131).

Variable	Frequency [N] (Percentage, %)
Knowledge	
Good	80 (61.1)
Poor	51 (38.9)
Attitude	
Positive	103 (78.6)
Negative	28 (21.4)

Table 4. Attitude items on ASD (n=131).

Items	Positive	Negative
	N(%)	N(%)
A1: Care to know about autism	129 (98.5)	2 (1.5)
A2: Think that people with autism are dangerous	117 (89.3)	14 (10.7)
A3: Feel sympathy towards people with autism	124 (94.7)	7 (5.3)
A4: Open to the thought of getting to know someone with autism	127 (96.9)	4 (3.1)
A5: Willing to work with someone with autism	118 (90.1)	13 (9.9)

Notes: N=Frequency; %=Percentage.

Simple and multiple logistic regression analysis were conducted to determine factors associated with good knowledge and a positive attitude toward ASD (Table 5). Education level was found to be significantly associated with knowledge and attitude. Those with tertiary education were 2.6 times odds to have good knowledge and 2.6 times odds to have a positive attitude, as compared to those with lower education; Adjusted OR 2.59, 95% CI 1.11, 6.08 for knowledge, and Adjusted OR 2.62, 95% CI 1.04, 6.62). The awareness and knowledge might be influenced mainly by sources of information such as health professionals, personal experiences, social media, or literatures. According to our findings, almost all of our participants (99.2 %) were aware and had heard about ASD, and this finding almost similar to the study done in France which were 100 % of respondents recognizing the term autism and in Northern Ireland Life and Times, 82% of their respondents stated that they were aware of autism spectrum disorder or Asperger’s Syndrome (Dillenburger et al., 2013). However, if compared with our local study which was almost similar population, their result showed less awareness about ASD (78.6%). It may be due to our participant that attended symposium made up of parents, educational and healthcare providers who have been accustomed to ASD and it cannot be generalized to the general population of Pahang. Findings on knowledge level from studies done in France and China showed only 33.1% and 57.8% of the respondents have good knowledge of ASD, respectively if

compare to our study which was better (61.1 %). Positive attitudes toward ASD in this study seem to be similar to those reported in previous studies. In our study, we found associations between knowledge and participant’s education level where people with tertiary education have good knowledge and positive attitude compare to those with lower education. Knowledge of ASD was also associated with a higher education level (Liu et al., 2016).

Table 5. Simple and multiple logistic regression analysis for factors associated with good knowledge on ASD (n=131).

Variable	GK	PK	Crude OR (95% CI)	Adjusted OR (95%CI)	Wald state (df)	p-value
	N(%)	N(%)				
Age (year)	36.5 (9.66) ^a	36.9 (10.55) ^a	0.99 (0.96, 1.03)		0.08 (1)	0.777
Gender (Sex)						
Female	75 (93.8)	45 (88.2)	1			
Male	5 (6.2)	6 (11.8)	0.50 (0.14, 1.73)		1.19 (1)	0.274
Race						
Others	1 (1.3)	2 (3.9)	1			
Malay	79 (98.7)	49 (96.1)	3.22 (0.29, 36.51)		0.89 (1)	0.344
Marital status						
Single/divorced	24 (30.0)	13 (25.5)	1			
Married	56 (70.0)	38 (74.5)	0.79 (0.36, 1.76)		0.31 (1)	0.576
Level of education						
Secondary and below	12 (15.0)	16 (31.4)	1	1		
Tertiary	68 (85.0)	35 (68.6)	2.59 (1.11, 6.08)	2.59 (1.11, 6.08)	4.79 (1)	0.029
Employment status						
Unemployed/student	15 (18.8)	5 (9.8)	1			
Employed	65 (81.2)	46 (90.2)	0.47 (0.16, 1.39)		1.87 (1)	0.172

Notes: GK=Good Knowledge; PK=Poor Knowledge; N=Frequency; %=Percentage

Research findings unequivocally indicate that enhancing awareness and knowledge surrounding ASD correlates positively with fostering more favorable attitudes toward individuals affected by ASD. Accordingly, concerted efforts should be directed towards the widespread dissemination of accurate information pertaining to ASD, thereby catalyzing heightened societal acceptance of the disorder. By prioritizing targeted informational campaigns, stakeholders can effectively mitigate misconceptions and dismantle prevailing stigmas associated with ASD. Through accessible and comprehensive educational initiatives, the broader community can be empowered to develop a deeper understanding of ASD, thereby fostering a climate of inclusivity and empathy. In essence, the imperative to enhance awareness and knowledge of ASD transcends mere informational dissemination; it represents a fundamental step towards nurturing a more compassionate and supportive societal ethos, wherein individuals with ASD are embraced and afforded the dignity and respect they rightfully deserve (Chu et al., 2023).

Moving forward, it is imperative for future research endeavors to extend their purview beyond current areas of inquiry and explore additional community sectors characterized by inadequate awareness of ASD. By identifying these underserved segments, researchers can devise targeted educational interventions aimed at enhancing community awareness and knowledge of ASD. Moreover, policymakers within the healthcare sector must prioritize initiatives aimed at bolstering parental understanding of various developmental disabilities, including ASD. Through the implementation of frequent and targeted educational campaigns, particularly tailored to individuals at elevated risk of having children with ASD, policymakers can facilitate early detection and intervention. Such proactive measures are essential for ensuring timely access to support services and interventions, thereby optimizing developmental outcomes for

children on the autism spectrum. By embracing a multifaceted approach that encompasses both research and policy interventions, stakeholders can collectively contribute to fostering a more informed and supportive societal milieu for individuals with ASD and their families (Abualhommos et al., 2022).

One limitation of our study was the nature of the targeted population, which primarily consisted of individuals who were already exposed to autism. This may have introduced a bias in our findings, as the sample might not fully represent broader community perspectives or levels of awareness regarding ASD. Consequently, the results may not accurately reflect the knowledge gaps and attitudes towards ASD within the general population. This limitation suggests a need for future research to include a more diverse sample that encompasses individuals with varying levels of exposure to autism, including those with limited prior knowledge or experience. By broadening the scope of the study population, researchers can obtain a more comprehensive understanding of the knowledge deficits and attitudes towards ASD across different demographic groups and communities. Furthermore, future studies could employ mixed-method approaches to explore the perspectives of both individuals who are already familiar with autism and those who are not. This would enable researchers to triangulate findings from different sources and provide a more nuanced understanding of the factors influencing knowledge acquisition and attitudes towards ASD. Despite this limitation, our study offers valuable insights into the existing awareness levels and attitudes towards ASD within a specific subset of the population. By acknowledging this limitation and considering its implications, future research can build upon our findings to develop more robust interventions and educational initiatives aimed at promoting understanding and acceptance of ASD within broader society.

Conclusion

The findings of our study highlight a fundamental awareness within our study population concerning ASD, yet significant deficiencies persist in knowledge acquisition and the cultivation of supportive attitudes toward individuals on the autism spectrum. To effectively address these gaps, it is imperative to strengthen collaborative efforts between governmental bodies and non-profit organizations. These partnerships should be strategically intensified, focusing on the dissemination of knowledge and the promotion of positive attitudes regarding ASD within the community. Moreover, concerted efforts are necessary to enhance public understanding and acceptance of ASD, thereby reducing stigma and fostering inclusivity. Central to this objective is the provision of comprehensive healthcare services tailored to the specific needs of individuals diagnosed with ASD. Through prioritizing the dissemination of accurate information, destigmatization initiatives, and the improvement of healthcare accessibility, we can collectively work towards establishing a more supportive and inclusive environment for individuals navigating the challenges associated with ASD.

This study underscores the importance of collaborative action in addressing the multifaceted challenges posed by ASD. By harnessing the collective resources and expertise of governmental and non-profit entities, we can implement targeted interventions aimed at enhancing knowledge, promoting positive attitudes, and improving healthcare provisions for individuals with ASD. Through these efforts, we can strive towards a society that is better equipped to support and include individuals with ASD in all aspects of community life.

Acknowledgement

This research is self-funded.

Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

REFERENCES

- [1] Abualhommos, A.K., Aldoukhi, A.H., Alyaseen, A.A.A., AlQanbar, F.A., Alshawarib, N., Almuhanna, Z.A. (2022): Community knowledge about autism spectrum disorder in the Kingdom of Saudi Arabia. – *International Journal of Environmental Research and Public Health* 19(6): 12p.
- [2] American Psychiatric Association (2000): Diagnostic and statistical manual of mental disorders: Text revision. – American Psychiatric Association 992p.
- [3] Anwar, M.S., Tahir, M., Nusrat, K., Khan, M.R., Khan, M. (2018): Knowledge, awareness, and perceptions regarding autism among parents in Karachi, Pakistan. – *Cureus* 10(9): 12p.
- [4] Arif, M.M., Niazy, A., Hassan, B., Ahmed, F. (2013): Awareness of autism in primary school teachers. – *Autism Research and Treatment* 6p.
- [5] Chu, S.Y., Lee, J., Wong, Y.Y., Gan, C.H., Fierro, V., Hersh, D. (2023): Knowledge mediates attitude in autism spectrum disorders? Data from Malaysia. – *International Journal of Developmental Disabilities* 69(4): 568-577.
- [6] Dillenburger, K., Jordan, J.A., McKerr, L. (2013): Autism spectrum disorder: Public awareness and attitudes. – *Research Update* 84(1): 4p.
- [7] Liu, Y., Li, J., Zheng, Q., Zaroff, C.M., Hall, B.J., Li, X., Hao, Y. (2016): Knowledge, attitudes, and perceptions of autism spectrum disorder in a stratified sampling of preschool teachers in China. – *BMC Psychiatry* 16: 1-12.
- [8] Maenner, M.J. (2020): Prevalence of autism spectrum disorder among children aged 8 years-autism and developmental disabilities monitoring network, 11 sites, United States, 2016. *MMWR*. – *Surveillance Summaries* 69(4): 12p.
- [9] Ministry of Health Malaysia (2014): Clinical Practice Guidelines on the Management of Autism Spectrum Disorder in Children and Adolescents. – Malaysian Health Technology Assessment Section (MaHTAS) 76p.
- [10] Nur Adli, M.K., Devakirubai, B.G., Zahidah, F.F., Hakim, L.Z., Ikram, M.H., Amira, S. (2017): The knowledge and attitude of autism among community in Mukim Dengkil, Sepang, Selangor. – *International Journal of Scientific and Research Publications* 7(2): 220-225.