

Kertas Asli/Original Articles

Knowledge about Autism Spectrum Disorder (ASD) Predicts Motivation to Volunteer: A Cross-Sectional Survey among Psychology Students

(Pengetahuan mengenai ASD merupakan peramal untuk kesukarelawanan:

Kajian keratan rentas dalam kalangan pelajar Psikologi)

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ABSTRACT

Children with Autism Spectrum Disorder (ASD) and their parents require support from the community, and could profit from volunteer work involving the family. At the same time, university students demonstrate a high willingness to volunteer in community initiatives such as work involving children with ASD. This study aims to examine the relationship between ASD knowledge and the motivation to volunteer among university students. Students (N=150) from a private university in the Klang Valley, Malaysia, participated in this study. Instruments utilized in this study were the Stone Autism Survey and Volunteer Functions Inventory. The results indicated that a higher level of ASD knowledge was the strongest predictor of higher motivation to volunteer after adjusting for relevant demographic factors and exposure to ASD children. Meanwhile, female and Hindu participants reported a significantly higher motivation to volunteer. This study emphasizes the need to increase factual knowledge about ASD among university students, and any effort to encourage students to volunteer in helping individuals with ASD should include knowledge sharing about this population.

Keywords: Autism spectrum disorder; ASD; knowledge; volunteerism

ABSTRAK

Kanak-kanak yang mengalami ASD dan ibu bapa mereka memerlukan sokongan daripada masyarakat, dan kerja sukarela yang melibatkan keluarga amat berfaedah untuk mereka. Pada masa yang sama, pelajar universiti menunjukkan kesediaan yang tinggi untuk menjadi sukarelawan dalam inisiatif kemasyarakatan seperti aktiviti yang melibatkan kanak-kanak dengan ASD. Kajian ini bertujuan untuk mengkaji hubungan antara pengetahuan mengenai ASD dengan motivasi menjadi sukarelawan dalam kalangan pelajar universiti. Pelajar dari sebuah universiti swasta (N=150) di Lembah Klang, Malaysia, mengambil bahagian dalam kajian ini. Instrumen yang digunakan dalam kajian ini ialah Soal Selidik Stone dan Inventori Fungsi Sukarelawan. Hasil kajian menunjukkan bahawa tahap pengetahuan ASD yang lebih tinggi adalah peramal terkuat motivasi tinggi menjadi sukarelawan selepas mengawal untuk faktor demografi yang relevan dan pendedahan kepada kanak-kanak ASD. Sementara itu, peserta wanita dan Hindu melaporkan motivasi lebih tinggi untuk menjadi sukarelawan. Kajian ini menekankan keperluan untuk meningkatkan pengetahuan mengenai ASD dalam kalangan pelajar universiti, dan sebarang usaha untuk menggalakkan pelajar menjadi sukarelawan dalam membantu individu yang mempunyai ASD perlu meliputi perkongsian pengetahuan mengenai populasi ini.

Kata Kunci: ASD; pengetahuan; sukarelawan

INTRODUCTION

ASD is a lifelong condition, typically marked by two major clusters of symptoms known as impairments in social communication skills as well as restricted, stereotyped behavioural patterns and/or interests (American Psychiatric

Association 2013). In 2018, the estimation rate of ASD prevalence is 1 out of 59 children stated in United States of America (USA), which indicated an increase of 15% in prevalence rate within 2 years (Centers for Disease Control and Prevention 2014). In Asia, the ASD prevalence is 0.51% in East Asia, 0.31% in South Asia and 0.35% in West Asia

(Qiu et al. 2020). However, in Malaysia, there is no epidemiological data on the prevalence of ASD (Neik et al. 2014).

There are numerous challenges exclusive to bringing up a child with ASD (Manan et al. 2018), and his/her family benefits greatly from active involvement of the community to share this responsibility (Ilias et al. 2018; Ooi et al. 2016). Community members such as peers, university professors, employers and policy makers hold influential positions that could impact an individual with ASD's chances to have equal opportunities for a good university experience, jobs and recreation within the community (Corrigan 2004; Zeedyk et al. 2019). Due to the lack of resources for individuals with disabilities in this country, the role of volunteers takes on an important place in contributing to the welfare of children with autism.

University life is a unique time to equip students with more advanced knowledge and volunteering experience with individuals with ASD. For example, university students could volunteer in providing respite care for parents of ASD children (Breithaupt et al. 2015), or decrease social isolation and sedentary lifestyles among children with autism through organising an athletic programme for the latter (Marggraff & Constantino 2018). This motivation to volunteer may be influenced by knowledge and awareness of ASD.

Studies indicated that ASD knowledge among university students in the US and Australia is adequate and has been improving (Kuzminski et al. 2019; Stronach et al. 2019; White et al. 2019). However, a comparative study between UK and Malaysian university students indicated that Malaysian students were less knowledgeable and less willing to interact with ASD individuals (de Vries et al. 2020). Another study indicated that senior medical students were more knowledgeable of ASD symptoms compared to junior students (Low & Zailan 2020). Knowledge of ASD is important as it increases the chance of early detection and thus treatment of children with ASD. A study had indicated that children with ASD were diagnosed only three years after initial recognition of ASD symptoms (Bagal et al. 2016). In addition, knowledge of ASD has been shown to be associated with decreased stigma towards children with autism and their parents (Gillespie-Lynch et al. 2015).

Knowledge of ASD can be increased if students are exposed to individuals with ASD, meaning that they may have personal interactions with these individuals and their social support (e.g., family members, friends) and this results in more positive attitudes among peers of individuals with ASD (Gillespie-Lynch et al. 2019; White et al. 2019). This indicates the advantage of knowing other individuals with ASD in which students are able to understand ASD thoroughly and learn new knowledge about ASD in their daily interaction with those individuals. In contrast, past studies also highlighted that students who does not have any

exposure to ASD often displayed fewer positive attitudes towards individuals with ASD (Gillespie-Lynch et al. 2019; White et al. 2019).

Psychology students are important as they would play an important role in the assessment, treatment, research, and awareness of ASD in the future (Harris et al. 2020). Due to the dearth of research on the relationship between ASD knowledge and volunteerism (e.g., Kane 2014), this study aims to examine the influence of ASD knowledge on motivation to volunteer among psychology students in Malaysia after controlling for sociodemographic variables. To be more precise, the predictor variables in this study were ASD knowledge, and the dependent variable was motivation to volunteer, while the variables which were being adjusted were age, gender, nationality, religion and prior exposure to children with autism.

MATERIALS AND METHODS

PARTICIPANTS

Psychology majors from a private university in Malaysia were recruited (N = 150). Inclusion criteria included those who were 18 years and above, majoring in Psychology at the undergraduate level, and were able to provide consent. Exclusion criteria included students who were not able or willing to participate in this study, and those who are less than 18 years old.

INSTRUMENTS

Demographic Information

A demographic questionnaire was used to gather information regarding participants' age, gender, nationality, religion, and previous exposure to children with ASD.

Stone Autism Survey (Stone 1987)

ASD knowledge was assessed by the Stone Autism Survey (Stone 1987). We used the revised version to accommodate for the updates in current research on and awareness towards ASD and related disorders (Swiezy 2007). This measure consisted of 24 statements regarding knowledge in the areas of emotional/social, cognitive and prognosis/treatment of autism (e.g., "autism can occur in mild as well as extreme forms" and "autism is an emotional disorder"). The participants rated each item on a 6-point scale, ranging from 1 (strongly agree) to 6 (strongly disagree). Higher scores indicated more knowledge of ASD. The total scale score had an acceptable internal consistency reliability of Cronbach's $\alpha=0.717$.

Volunteer Functions Inventory (Clary et al. 1998)

The level of motivation to volunteer was measured using the Volunteer Functions Inventory (VFI) was used. The VFI was developed by Clary and colleagues (1992), thus assessed the understanding and motivation of volunteers. This inventory consists of 30-item measure of motivations to volunteer (e.g., “I am concerned about those less fortunate than myself” and “Volunteering makes me feel better about myself”). Participants answered each item on a 7-point scale ranging from 1 (not at all important) to 7 (extremely important). This study recorded a mean internal consistency reliability of 0.90 across eight studies (Chacón et al. 2017). The internal consistency reliability of the scale score was Cronbach’s $\alpha=0.874$.

PROCEDURES

Participants were conveniently sampled from a private university in the Klang Valley, Malaysia using a pen-and-paper survey questionnaire packet. Purposive sampling was done to ensure approximately equal representativeness from year 1, 2 and 3 psychology majors. Participants were approached at the beginning of the class session. They were briefed about the research, and those who provided informed consent were given the questionnaire packet. The questionnaires were self-administered by the participants. After approximately half an hour, all participants were asked to return the questionnaires to the researchers. No identifiers were collected from them. The data was cleaned and analyzed using the IBM Statistical Package for the Social Sciences v. 23 (SPSS Inc., Armonk NY, 2017). The study was conducted in accordance with the Declaration of Helsinki Ethical Principles.

RESULTS

A total of 150 students (Mean age=21.4 years, SD=1.65) completed the survey. Most of the participants were female (62.7%), in their first year (40.0%), Malaysians (71.3%), and Hindus (30.7%). Only 36.7% of the participants reported that they had prior exposure to an individual with ASD (refer to Table 1).

TABLE 1. Participant Demographics (N=150)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	56	37.3
Female	94	62.7

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Year of Study		
Year 1	60	40.0
Year 2	50	33.3
Year 3	40	26.7
Nationality		
Malaysian	107	71.3
Non-Malaysian	42	28.6
Religion		
Islam	41	27.3
Christianity	18	12.0
Buddhism	27	18.0
Hinduism	46	30.7
Others	18	12.0
Prior exposure to children with autism		
Yes	55	36.7
No	95	63.3

Prior to calculating the r , the assumptions of normality, linearity and homoscedasticity were assessed, and found to be supported. A normally distributed data should have an absolute value for skewness that is less than 3.0 (Kline 2005) and kurtosis that is less than 10.0 (DeCarlo, 1997). Specifically, a visual inspection of the normal Q-Q and detrended Q-Q plot for each variable confirmed that both were normally distributed. Similarly, visually inspecting a scatterplot of ASD knowledge against motivation to volunteer confirmed that the relationship between these variables was linear and heteroscedastic. There was a moderate positive correlation between ASD knowledge and motivation to volunteer ($r = 0.383$, $p < 0.001$).

An independent samples t-test was used to compare the level of volunteerism among genders and motivation to volunteer based on prior exposure to individuals with ASD. Levene’s test was also non-significant, thus equal variances can be assumed. The t-test was statistically significant, indicated that males ($M = 133.93$, $SD = 16.61$) had a lower level of volunteerism compared to females ($M = 142.44$, $SD = 22.56$), $t(141.36) = 2.645$, $p = 0.009$. However, there were no significant differences in the mean scores of the motivation to volunteer based on prior exposure to individuals with ASD, $t(148) = 0.119$, $p = 0.906$.

A multiple linear regression was conducted with motivation to volunteer as the dependent variable. Prior to interpreting the results, several assumptions were evaluated as suggested by Pallant (2020). First, stem and leaf plots and boxplots indicated that each variable in the regression was normally distributed, and free from univariate outliers. Second, inspection of the normal probability plot of standardized residuals as well as scatterplot of standardized

residuals against standardized predicted values indicated that the assumptions of normality, linearity and homoscedasticity of residuals were met. Third, Mahalanobis distance did not exceed the critical value indicating that multivariate outliers were not of concern. Fourth, relatively high tolerances for both predictors in the regression model indicated that multicollinearity would not interfere with our ability to interpret the outcome of the MRA. The results of the regression indicated that the predictors accounted

for a significant 31.4% of the variance in knowledge of autism ($R^2 = 0.314$; adjusted $R^2 = 0.269$, $F(9, 146) = 6.980$, $p < 0.001$). Based on the results, motivation to volunteer was the strongest predictor for knowledge of ASD, whereby those with better knowledge reported higher motivation to volunteer ($\beta = 0.475$, $p < 0.001$). Those from the Hindu faith ($\beta = 0.352$, $p = 0.006$) and females ($\beta = 0.236$, $p = 0.002$) were also more motivated to volunteer (refer to Table 2).

TABLE 2. Multiple linear regression analysis of predictors of motivation to volunteer among psychology undergraduate students

Variable	B	95% CI		β	t	p-value
		Lower	Upper			
Constant	66.360	20.053	112.668			
Knowledge of autism	0.810	0.568	1.052	0.475	6.620	<0.001
Age	-0.876	-2.725	0.973	-0.069	-0.937	0.350
Gender						
Female	10.197	3.954	16.440	0.236	3.230	0.002
Male*						
Nationality						
Malaysian	-2.712	-10.662	5.238	-0.058	-0.675	0.501
Non-Malaysian*						
Religion						
Islam	5.510	-5.075	16.096	0.116	1.029	0.305
Christian	10.914	-1.927	23.754	0.171	1.681	0.095
Buddhism	7.944	-4.491	20.378	0.145	1.263	0.209
Hinduism	15.898	4.584	27.212	0.352	2.779	0.006
Others*						
Prior exposure to children with autism						
Yes	1.978	-4.246	8.203	0.045	0.629	0.531
No*						

Abbreviation: CI, Confidence Interval. *Reference group. $R^2 = 0.314$; adjusted $R^2 = 0.269$, $F(9, 146) = 6.980$, $p < 0.001$

DISCUSSION

There is a lack of resources for children with ASD and their parents in Malaysia, which highlights the importance of community involvement through volunteerism. University students, especially psychology majors, are anticipated to play a role as advocates and helpers for individuals with ASD and their families. The results of this study showed that participants who had better ASD knowledge had a higher motivation to volunteer. This may be due to the greater awareness generated on the need of children with ASD and their families. Another study indicated that teachers with increased ASD knowledge had also shown an increased self-efficacy to help individuals who have ASD (Lu et al. 2020). Perhaps increased knowledge provides the confidence to initiate helping behavior. In addition, past studies have also shown that those with better knowledge tended to report decreased stigmatization of individuals with ASD (Yu et al. 2020), which may indirectly increase prosocial behavior.

This study also found a significant difference in the motivation to volunteer between males and females. This can be related with previous studies where women had higher rates of volunteerism compared to men (e.g. Babcock et al. 2017). According to Baez and colleagues (2017), females have been culturally influenced to report higher empathy, and may therefore take on a more caregiving role compared to men (Babcock et al. 2017). Perhaps there is a connection between caregiving roles and knowledge of ASD. This study also sheds light that there may be a difference in volunteerism based on cultural factors such as different religious beliefs, whereby Hindus were more motivated to volunteer. However, the results should be treated with caution as religion is a complex field of study, and this study is unable to ascertain whether it was the level of religiosity or the different creeds or dogma of Hinduism that led to a higher level of motivation to volunteer among its adherents.

However, there is no relationship between prior exposure to children with ASD to motivation to volunteer, as was indicated in past studies (Harris et al. 2020; White et al. 2019). Perhaps in the Malaysian context, other factors such as gender socialization and cultural values were more important in motivating individuals to volunteer.

This study has a few limitations. The cross-sectional design was used in this study was a disadvantage as we could only establish the correlations between the variables, and not the causation. It is also possible that there may be bias among participants as they might be displaying social desirability to appear more motivated to volunteer. Finally, the participants were limited to a single major (psychology) in a Malaysian private university, and therefore has limited generalizability. Future studies could employ an experimental approach, where individuals were tested on their motivation to volunteer and actual volunteering behaviors before and after a program to increase ASD knowledge. A larger study on the state of ASD knowledge across disciplines among university students in Malaysia should also be conducted.

CONCLUSION

In conclusion, the fact that students who has better knowledge were more motivated to volunteer emphasizes the need to increase factual knowledge about ASD among university students, and any effort to encourage students to volunteer in helping individuals with ASD should include knowledge sharing about this population. University administrators, especially those from the healthcare professions, should encourage volunteer activities among students as a step towards increasing the quality of life and social inclusion of children with ASD and their parents.

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REFERENCES

American Psychiatric Association. 2013. Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.

Babcock, L., Recalde, M.P., Vesterlund, L. & Weingart, L. 2017. Gender differences in accepting and receiving requests for tasks with low promotability. *American Economic Review* 107(3): 714-47.

Baez, S., Flichtentrei, D., Prats, M., Mastandueno, R., García, A.M., Cetkovich, M. & et al. 2017. Men, women... who cares? A population-based study on sex differences and gender roles in empathy and moral cognition. *PloS One* 12(6): e0179336.

Bagal, R., Kadam, K. & Parkar, S. 2016. To study the age of recognition of symptoms and their correlates in children diagnosed with autism spectrum disorders: A retrospective study. *Journal of Indian Association for Child and Adolescent Mental Health* 12(4).

Breithaupt, A.G., Thomas, K.C., Wong, C.S., Mesibov, G.B. & Morrissey, J.P. 2015. Finding common ground: Exploring undergraduate student volunteering as a support for parents of children with autism. *Focus on Autism and Other Developmental Disabilities* 32(3): 229-239.

Centers for Disease Control and Prevention. 2014. Prevalence of Autism Spectrum Disorder Among Children Aged 8 Years — Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States. Retrieved from https://www.cdc.gov/mmwr/volumes/67/ss/ss6706a1.htm?s_cid=ss6706a1_w

Chacón, F., Gutiérrez, G., Sauto, V., Vecina, M.L. & Pérez, A. 2017. Volunteer functions inventory: A systematic review. *Psicothema* 29(3): 306-316.

Clary, E., Snyder, M. & Ridge, R. 1992. Volunteers' motivations: A functional strategy for the recruitment, placement, and retention of volunteers. *Nonprofit Management and Leadership*. 2(4): 333-350.

Clary, E.G., Snyder, M., Ridge, R.B., Copeland, J., Stukas, A. A., Haugen, J. & et al. 1998. Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology* 74(6): 1516-1530.

Corrigan, P.W. 2004. Target-specific stigma change: A strategy for impacting mental illness stigma. *Psychiatric Rehabilitation Journal* 28(2): 113-121.

DeCarlo, L.T. 1997. On the meaning and use of kurtosis. *Psychological Methods* 2(3): 292-307.

de Vries, M., Cader, S., Colleer, L., Batteux, E., Yasdiman, M.B., Tan, Y.J. & et al. 2020. University students' notion of Autism Spectrum Conditions: A cross-cultural study. *Journal of Autism and Developmental Disorders* 50: 1281-1294.

Gillespie-Lynch, K., Brooks, P.J., Someki, F., Obeid, R., Shane-Simpson, C., Kapp, S.K. & et al. 2015. Changing college students' conceptions of autism: An online training to increase knowledge and decrease stigma. *Journal of Autism and Developmental Disorders* 45(8): 2553-66.

Gillespie-Lynch, K., Daou, N., Sanchez-Ruiz, M.J., Kapp, S.K., Obeid, R., Brooks, P.J. & et al. 2019. Factors underlying cross-cultural differences in stigma toward autism among college students in Lebanon and the United States. *Autism* 23(8): 1993-2006.

- Harris, B., McClain, M.B., Schwartz, S. & Haverkamp, C.R. 2020. Knowledge of Autism Spectrum Disorder among school psychology graduate students. *Contemporary School Psychology* 24: 239-247.
- Ilias, K., Cornish, K., Park, M.S.A., Toran, H. & Golden, K.J. 2018. Risk and resilience among mothers and fathers of primary school age children with ASD in Malaysia: A qualitative constructive grounded theory approach. *Frontiers in Psychology* 9: 2275.
- Kane, K. 2014. Public Perception of Autism-Determinants of attitudes towards adults and children with ASD and their intention to volunteer [Unpublished undergraduate dissertation]. The University of Edinburgh.
- Kline, R.B. 2005. *Principles and practice of structural equation modeling* (Jld. 2). New York: Guilford Press.
- Kuzminski, R., Netto, J., Wilson, J., Falkmer, T., Chamberlain, A. & Falkmer, M. 2019. Linking knowledge and attitudes: Determining neurotypical knowledge about and attitudes towards autism. *PLoS One* 14(7): e0220197.
- Low, H.M. & Zailan, F. 2018. Medical students' perceptions, awareness, societal attitudes and knowledge of autism spectrum disorder: An exploratory study in Malaysia. *International Journal of Developmental Disabilities* 64(2): 86-95.
- Lu, M., Zou, Y., Chen, X., Chen, J., He, W. & Pang, F. 2020. Knowledge, attitude and professional self-efficacy of Chinese mainstream primary school teachers regarding children with autism spectrum disorder. *Research in Autism Spectrum Disorders* 72: 101513.
- Manan, A.I.A., Amit, N., Said, Z. & Ahmad, M. 2018. The influences of parenting stress, children behavioral problems and children quality of life on depression symptoms among parents of children with autism: preliminary findings. *Jurnal Sains Kesehatan Malaysia (Malaysian Journal of Health Sciences)* 16: 137-143.
- Marggraff, A. & Constantino, J.N. 2018. Physical and psychosocial impact of a university-based, volunteer student-led running program for children with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry* 57(12): 974-7.
- Neik, T.T., Lee, L.W., Low, H.M., Chia, N.K. & Chua, A.C. 2014. Prevalence, diagnosis, treatment and research on autism spectrum disorders (ASD) in Singapore and Malaysia. *International Journal of Special Education* 29(3): 82-92.
- Ooi, K.L., Ong, Y.S., Jacob, S.A. & Khan, T.M. 2016. A meta-synthesis on parenting a child with autism. *Neuropsychiatric Disease and Treatment* 12: 745-762.
- Pallant, J. 2020. *SPSS Survival Manual* (7th ed.). London: Routledge.
- Qiu, S., Lu, Y., Li, Y., Shi, J., Cui, H., Gu, Y. & et al. 2020. Prevalence of autism spectrum disorder in Asia: A systematic review and meta-analysis. *Psychiatry Research* 284: 112679.
- Stone, W.L. 1987. Cross-disciplinary perspectives on autism. *Journal of Pediatric Psychology* 12(4): 615-630.
- Stronach, S., Wiegand, S. & Mentz, E. 2019. Brief report: Autism knowledge and stigma in university and community samples. *Journal of Autism and Developmental Disorders* 49(3): 1298-1302.
- Swiezy, N.A. 2007. Autism Knowledge Questionnaire-Revised. Indianapolis, IN: Christian Sarkine Autism Treatment Center, HANDS in Autism.
- White, D., Hillier, A., Frye, A. & Makrez, E. 2019. College students' knowledge and attitudes towards students on the autism spectrum. *Journal of Autism and Developmental Disorders* 49(7): 2699-2705.
- Yu, L., Stronach, S., & Harrison, A.J. 2020. Public knowledge and stigma of autism spectrum disorder: Comparing China with the United States. *Autism* 24(6): 1531-1545.
- Zeedyk, S.M., Bolourian, Y. & Blacher, J. 2019. University life with ASD: Faculty knowledge and student needs. *Autism*. 23(3): 726-736.
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