

## Introduction

- Internet addiction (IA) has become a major issue with the availability of the internet.
- IA is defined as excessive internet use, which is associated with preoccupation of internet use, tolerance development, and withdrawal symptoms.<sup>1</sup>
- Two local studies done showed that the prevalence of IA was 43%<sup>2</sup> and 36.9%<sup>3</sup> respectively.
- IA is associated with negative consequences such as dietary issues, poor academic performance, limited social activities and tendency to engage in high risk behaviours.<sup>4</sup>
- The adolescence is a vulnerable subgroup as they are digital natives with wide exposure to the internet and are at high risk of initiation of addictive behaviour.<sup>5</sup> Therefore, early detection of IA is important for early intervention.

## Objective

- To determine the prevalence of IA among adolescents in the primary care setting in Malaysia.
- To identify factors associated with IA among adolescents in the primary care setting in Malaysia.

## Methodology

|                    |   |
|--------------------|---|
| Study design       | Cross-sectional   |
| Setting            | 15 primary care clinics all over Malaysia   |
| Duration           | 1 year (June 2017 - June 2018)  |
| Sample             | Adolescents aged 10 - 19 years old  |
| Inclusion criteria | Participants who were able to read and understand English and Bahasa Malaysia   |
| Exclusion criteria | <ul style="list-style-type: none"> <li>Participants with cognitive impairment.</li> <li>Participants with active psychiatric illness.</li> </ul>  |
| Data collection    | <ul style="list-style-type: none"> <li>All participants gave written informed consent.</li> <li>Parental written consent was taken for participants below the age of 18 years.</li> <li>Participants answered a standardized-questionnaire on socio-demographic data and questions assessing IA.</li> <li>IA was assessed with a validated Malay version of Internet Addiction Test (IAT).</li> <li>IA is defined as a score test of more or equal to 43 points. Participants that score less than 43 points does not have IA.</li> </ul> |
| Data analysis      | <ul style="list-style-type: none"> <li>Data analyses were done using Statistical Package for Social Sciences (SPSS) 21.</li> <li>Findings were described in terms of frequencies, percentages, means, and standard deviations.</li> <li>The association between socio-demographic factors and IA was determined by using univariate analysis.</li> <li>Multivariate logistic regressions were used to identify predictors of IA with a P-value &lt; 0.05 considered as statistically significant.</li> </ul>                              |

## Acknowledgments

We thank FMSA for the grant (FMSA (7):04/16-18).

We thank the Director-General of Health Malaysia for permission to publish this study.

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## Results

- The total participants of this study were 921.

Figure 1. Prevalence of internet addiction among adolescents

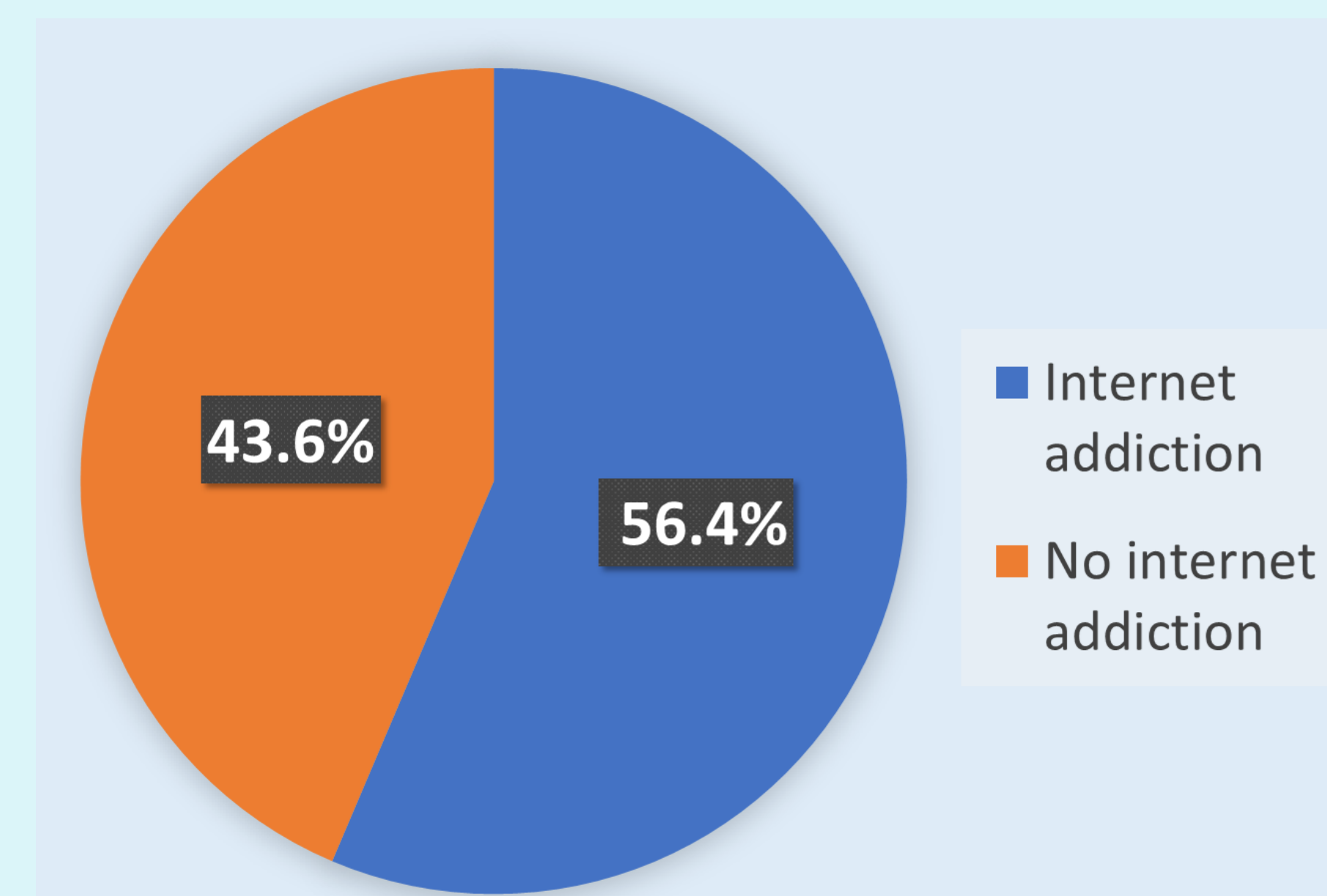


Table 1. Predictors of internet addiction on multiple logistic regression

| Variables                  | OR <sup>a</sup> | 95% CI <sup>b</sup> | p value |
|----------------------------|-----------------|---------------------|---------|
| Age                        | 1.18            | 1.09 - 1.29         | < 0.001 |
| Mother's education level   |                 |                     |         |
| Primary school level       | 1               |                     |         |
| Above primary school level | 3.1             | 1.61 - 5.99         | 0.001   |
| Have a smartphone          |                 |                     |         |
| Yes                        | 2.54            | 1.23 - 5.25         | 0.012   |
| No                         | 1               |                     |         |

<sup>a</sup>Odds ratio, <sup>b</sup>Confidence interval

Table 2. Socio-demographic characteristics of participants

| Characteristics                  | Frequency          | Percentage (%) |
|----------------------------------|--------------------|----------------|
| Gender (n=920)                   |                    |                |
| Male                             | 456                | 49.5           |
| Age (years)                      | Median 17, IQR* 3  |                |
| Ethnicity (n=918)                |                    |                |
| Malay                            | 684                | 74.5           |
| Chinese                          | 67                 | 7.3            |
| Indian                           | 43                 | 4.7            |
| Others                           | 124                | 13.5           |
| Mother's age (years)             | Median 45, IQR* 9  |                |
| Mother's education level (n=620) |                    |                |
| Primary school level             | 49                 | 7.9            |
| Above primary school level       | 571                | 92.1           |
| Father's age (years)             | Median 49, IQR* 10 |                |
| Father's education level (n=603) |                    |                |
| Primary school level             | 43                 | 7.1            |
| Above primary school level       | 560                | 92.9           |
| Have a smartphone (n=911)        |                    |                |
| Yes                              | 843                | 92.5           |
| Usage of smartphone (hours/week) | Median 12, IQR* 30 |                |

\*Interquartile range

## Discussion

- The prevalence of IA among adolescents in Malaysia was high (56.4%) compared to other studies conducted in Korea (21.6%)<sup>6</sup> and Italy (12.1%).<sup>7</sup>
- Having a smartphone was a significant predictor of IA as smartphones have become the device of choice for users to access the internet.
- Adolescents who were older were more likely to have IA because younger adolescents have limited access to electronic devices that enable them to have internet access.
- Higher mother's education level was found to be associated with IA among adolescents because it might be associated with higher socioeconomic background and thus better access to electronic devices and internet subscription.

## Conclusion

- This study highlights that there is a high prevalence of IA among adolescents in Malaysia.
- Further investigations are necessary to determine the cause for this association.