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## Examining the interlink of social media use, purchase behavior, and mental health

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### Abstract

The widespread use of social media has created a huge market for digital marketing platforms. However, as people spend more time on social media daily, concerns about its impact on mental health have grown. Although several studies on the effects of social media on mental health have been conducted, the number of studies focusing on this issue, particularly in Malaysia, is still limited. As a result, little is known about the link between social media and purchasing behavior, as well as mental health. In order to fill this gap, the current study examines the relationships between social media use and purchase behavior, social media use and mental health, and purchase behavior and mental health. The data were collected using a quantitative method by distributing a questionnaire to social media users, particularly the X, Y, and Z generations. Data from 195 social media users were analyzed using Partial Least Squares-Structural Equation Modelling (PLS-SEM). There are significant associations between social media use and purchase behavior, as well as the impact of social media use on users' mental health. There is no evidence, however, to support the significant association between purchase behavior and users' mental health. The findings can help relevant agencies to better understand the impact of social media use on purchase behavior and mental health, and the impact of purchase behavior on mental health.

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*Keywords:* social media use; purchase behavior; mental health; survey.

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## 1. Introduction

The number of people using social media has been increasing over the years, making social media an essential medium for disseminating information and marketing products. As of January 2021, there were 4.20 billion active social media users around the world [1]. Malaysia had 28 million social media users, up 7.7% from the previous year (between 2020 and 2021) [2]. The portal [2] also reported that the number of social media users in Malaysia was equivalent to 86.0% of the total population in January 2021. YouTube, WhatsApp, Facebook, and Instagram are among the most popular social media platforms, with an average of 181 minutes spent on social media per day.

The widespread use of social media has created a huge market for digital marketing platforms. In this context, social media has been used for social networking as well as online purchasing and selling of goods and services. A survey conducted by Deloitte in 2015 has revealed that consumers who use social media are 29% more likely to make a purchase the same day [3]. According to the report [3], consumers who are influenced by social media are four times more likely to spend more on their purchases. In 2021, 59.5% of Internet users in Malaysia look for brands using social networks, and a total of \$120.8 million has been spent on social media advertisements by ad format [2]. Therefore, the impact of social media on consumers' purchase behavior is visible [4, 5, 6].

The ever-increasing number of social media users in Malaysia (increment of four million from 2020 to 2021) has demonstrated that social media has become an integral part of people's lives. However, the increasing hours spent daily on social media (2:45 hours in 2020 to 3:01 hours in 2021) has raised concerns about its impact on mental health. Prolonged use of social media tends to influence an individual's mental health or well-being [7, 8, 9]. These include increased risks of anxiety, depression, sleep disruption, loneliness, self-harm, and suicidal thoughts. The longer the use of social media, the higher the potential pitfalls of the young people's mental health [9]. A systematic review of the influence of social media on mental health by prior researchers has shown that social media use can be classified into four domains: investment, time spent, activity, and addiction [10]. The researchers concluded that depression, anxiety, and psychological distress are associated with all four social domains.

While the tone of the literature is generally optimistic about the relationship between social media use and purchase behavior due to the value of the investment made for social media advertisements, more research is needed to understand the impact of purchase behavior on mental health. Even though most of the research has been carried out on the effect of social media on mental health, the number of studies focusing on this issue, particularly in Malaysia, is still limited. As a result, not much is known about the association between social media and purchase behavior and mental health. Hence, this study sheds light on this gap by examining the association between (1) social media use and purchase behavior; (2) social media use and mental health; and (3) purchase behavior and mental health. In this context, this study focuses on exploring the relationships between social media and purchase behavior and their impacts on mental health, particularly on the X, Y, and Z generations. Such findings could further enhance the understanding of social media use and its impact on both purchase behavior and mental health.

This paper is structured as follows. Firstly, the research aims and their importance are introduced. Following this, a review of the literature and hypotheses of the study are explained. The research method is then elaborated on, followed by the measurement and structural model, discussion, conclusion, research implications, and limitations.

## 2. Literature Review

### 2.1. Social media use and purchase behavior

Social media refers to the use of various web 2.0 platforms that are based on user-generated content, which allows users to create their online portfolios that can be linked and shared through social media services [11]. As social media users are increasing, businesses have taken this as an opportunity to use it as a marketing platform [12, 13]. The selection of social media as an advertising platform is driven by the potential of social media to establish a global business presence [14], increase brand awareness [15] and brand loyalty [16], and support many-to-many interactions [17] for keeping in touch with consumers [18]. Purchase behavior refers to the process where consumers decide to choose from multiple products to fulfil their needs, minimize cost, and maximize satisfaction [19]. The ability of social media to shorten users' purchasing journeys (i.e., from awareness, findability, reputation, conversion to advocacy) and

their purchasing decisions, could be influenced by the presence of social media proof (i.e., a recommendation in social media), the power of influencers (i.e., social media users that have a robust loyal audience), and testimonials.

Most extant studies have operationalized purchasing behavior as the intention to purchase [4, 20, 21] relative to actual purchase. For example, Facebook has been found to positively influence the behavioral attitude toward intention to purchase and actual purchase among millennials in South Africa [22]. In a similar context, intention to purchase has been found to have a positive impact on purchasing among Generation Y in a developing African and European country [23]. Having said that, there is a need to study social media use and how it can affect actual purchase behavior, especially in the Malaysian context. The following hypothesis is, therefore, proposed:

H1: Social media use is positively associated with purchase behavior.

## 2.2. Social media use and mental health

The terms ‘mental health’ and ‘mental well-being’ have been used interchangeably in studies when the state of an individual’s ability to manage or deal with normal life stresses is referred to. The World Health Organization (WHO) defines health as a “complete state of physical, mental, and social well-being, and not merely the absence of disease or infirmity”. Mental health is a key to achieving lifelong wellness as it is related to physical, mental, and social well-being, which is in turn, related to and crucial for all, including the society and country as a whole.

Mental health can be affected, amongst others, by anxiety, depression, bullying, and social disadvantages, such as poverty. According to the National Health and Morbidity Survey conducted in 2019, nearly half a million Malaysians are suffering from depression; between January and June 2020, the Ministry of Health (MoH) recorded 465 attempted suicide cases [24]. In 2014-2015, the media and journals in Malaysia reported on the various types of mental illness among adolescents [25]. A total of 3,073 cases were found to be linked to depression. As the number of Malaysian adults and children suffering from depression is on the rise, there is a concern with whether or not social media could actually contribute to the status of mental health of users.

The impact of social media has been widely reported on the net. For example, a study conducted by the University of Michigan in 2013 has revealed that the use of Facebook could reduce its users’ well-being [26]. Further, an assessment of over a billion emotional content postings made by 100 million Facebook users has found that a good or bad mood could be spread among social media users; women are under greater pressure than men with Twitter usage; and other factors, such as cyber-bullying, or feeling like social media is a waste of time, have been found to increase anxiety and depression among the most active social media users [27].

In line with the raising concerns with the negative impact of social media on mental health, several studies have addressed related issues. In a systematic review of social media influence on adolescents [10], the authors concluded that most of the studies have used depression as an indicator of mental health, with others using anxiety and psychological distress. Time spent on social media, type of activities, personal problems, and addictive usage, have been identified as major risks. In a longitudinal study to investigate the association between time spent on social media and internalizing and externalizing problems among youth in the United States [28], the findings indicate that (1) spending more than 30 minutes on social media, relative to no use, is linked to an increased risk of internalizing problems; and (2) internalizing problems and comorbid internalizing and externalizing problems are significantly associated with using social media for more than three hours per day, but not externalizing problems alone. Internalizing problems are related to depression and anxiety syndrome, whereas externalizing problems include bullying and attention problems. Studies have also been carried out to better understand the impact of social media on mental health-related issues, such as on the well-being of young adults or adolescents [7, 29]; university students [30]; youth [31, 32]; and depressive symptoms amongst early to late adolescents [33]. Several studies [10, 34] have focused on a systematic review of prior studies on social media use and mental health.

Despite the fact that many studies were conducted to understand the impact of social media on mental health, the results of the studies were not entirely consistent. This inconsistency is due to the methodological limitation of cross-sectional design, sampling, measures, and design of the study (qualitative, quantitative, and longitudinal) [10]. In addition, not much research has been conducted on the impact of social media use on the mental health of the millennial generation, especially in Malaysia. This gap will be addressed accordingly in this study. The following hypothesis is, therefore, proposed:

H2: Social media use is positively associated with mental health.

### *2.3. Purchase behavior and mental health*

The impact of purchase behavior on mental health has been mostly studied from the aspects of consumers' post-purchase mental health, such as anxiety and dissatisfaction. Post-purchase behavior focuses on how a consumer thinks, feels, and acts after buying something. In a study on online post-purchase of fashion products' regret phenomena, the authors [35] discovered two regretful experiences among online purchasers, namely, regretting the outcome and regretting the process. The former exists due to the regret that the consumer feels resulting from his or her prior expectations not being fulfilled (e.g., product quality); while the latter is more concerned with consumers who experience regret as a result of their participation in the process, both before and after the purchase (e.g., social influence and impulsive buying).

Generally, purchase behavior and mental health refer to consumers who might feel anxious about their purchase decision, especially if the purchase is related to compulsive or impulsive buying. Compulsive purchase has to do with the addiction that causes someone to spend (i.e., a disorder) [36]. Impulsive buying, on the other hand, refers to unplanned purchase and is marked by a strong desire that is difficult to resist [37]. One factor that influences impulsive buying is online reviews, and such behavior has been shown to reduce post-purchase regret [38]. Their finding indicates that online reviews, including those available on social media, could influence purchase decisions. A recent study on the impact of bad experiences, disappointment, and shopping intensity among online consumers [39], has found that bad experiences and disappointments felt by consumers have an impact on their anxiety. The more bad the experiences are, the more disappointment there is in online shopping, and the higher would be the level of anxiety among consumers.

While many studies have been done to determine the impact of online purchasing behavior on mental health (such as depression, anxiety, or stress), not many studies have explored the relationship between the two. Therefore, this study addresses this gap. The following hypothesis is proposed:

H3: Purchase behavior is positively associated with mental health.

## **3. Research method**

All items to measure the latent variables in this study (i.e., social media use, purchase behavior, and mental health) are based on prior literature. Social media is operationalized into two items: a range of social media technologies use [40] and the time users spend on social media platforms [41]. The five items of purchase behavior are operationalized by the extent to which the use of social media could influence users to purchase the products [41]. Mental health is operationalized by seven items of stress, one of the mental health dimensions proposed by the Depression Anxiety Stress Scales (DASS-21) instrument [42]. A DASS-21 instrument measures the emotional situation of the individual in the three areas of depression, anxiety, and tension (or stress). It receives much attention due to its ability to cover the three areas in a single survey administration [43].

Data were collected using an online survey (hence, quantitative), which was designed in a dual language (English and Malay). This method is chosen as it is faster, convenient for respondents to record their answers at their own time, and provides the most effective way of collecting data, especially during this unprecedented coronavirus disease 2019 (COVID-19) pandemic. The targeted respondents of the study are social media users from three generations: Gen X (born 1965-1980), Gen Y (born 1981-1994), and Gen Z (born 1995-2012) [44]. The baby boomers (born 1946-1964) are excluded. The younger generations have been found to use social media more frequently than baby boomers [45].

The survey was pre-tested by six academicians and six users of social media, and distributed to the respondents via social media platforms (Facebook and WhatsApp) using a convenience sampling method. A total of 195 responses were received: Gen X (35.90%), Gen Y (16.41%), and Gen Z (47.69%). Most of the respondents live in urban areas (63.08%) compared to rural areas (36.92%). On average, the majority of them (65.64%) spent more than two hours on social media in a day; while 34.36% spent less than one hour. The most popular social media platforms were WhatsApp, Facebook, Telegram, and Instagram.

#### 4. Measurement and structural model

Partial Least Squares-Structural Equation Modelling (PLS-SEM) technique (version 3.0) was used in the analysis. The research model was evaluated by assessing the relationship between the items and the constructs (measurement model) and the relationship between its constructs (structural model). Assessing the measurement model involved determining convergent and discriminant validity. Item reliability, internal consistency reliability, and average variance extracted (AVE) values were considered in assessing convergent validity. As presented in Table 1, all items load above the recommended value of .60 [46], and hence, are considered reliable. The composite reliability (CR) scores of the construct are higher than .70 as recommended [46], and hence, are reliable. The AVE value of each construct is higher than the recommended threshold value of .50 [47], thus indicating convergent validity.

Table 1. Item Loadings, Composite Reliability, and AVE.

Latent Variable	Item	Loadings	CR	AVE	Latent Variable	Item	Loadings	CR	AVE
Mental health (MH)	MH1	.768	.938	.683	Purchase behavior (PB)	PB1	.920	.933	.736
	MH2	.771				PB2	.913		
	MH3	.852				PB3	.833		
	MH4	.891				PB4	.856		
	MH5	.872				PB5	.758		
	MH6	.822				Social media use (SM)	SM1	.882	.727 .579
	MH7	.802				SM2	.617		

For discriminant validity, we assessed whether each construct is different using the Fornell-Larcker criterion [47]. The square root of AVE was checked and the correlation between all constructs was compared. The finding shows that the square root of the AVE of each construct is greater than the cross-correlation between them, thereby indicating discriminant validity (Table 2). The loading of each indicator is also greater than all of its cross-loadings [46] (Table 3). Considering that both convergent and discriminant validity requirements were met, none of the items was removed from the dataset.

Table 2. Discriminant validity.

Latent variable	MH	PB	SM
Mental health (MH)	<b>.827</b>		
Purchase behavior (PB)	-.049	<b>.858</b>	
Social media use (SM)	.130	.190	<b>.761</b>

Table 3. Cross Loadings.

Latent variable	Item	MH	PB	SM
Mental health (MH)	MH1	<b>.768</b>	-.028	.088
	MH2	<b>.771</b>	-.002	.080
	MH3	<b>.852</b>	-.003	.114
	MH4	<b>.891</b>	-.060	.113
	MH5	<b>.872</b>	.014	.117
	MH6	<b>.822</b>	-.112	.115
	MH7	<b>.802</b>	-.035	.114
Social media use (SM)	SM1	.110	.181	<b>.882</b>
	SM2	.088	.093	<b>.617</b>
Purchase behavior (PB)	PB1	-.043	<b>.920</b>	.198

Latent variable	Item	MH	PB	SM
	PB2	-.048	.913	.166
	PB3	.029	.833	.151
	PB4	-.076	.856	.149
	PB5	-.061	.758	.140

The structural model of the study was assessed using a bootstrap value of 500 resamples. Table 4 summarizes the results of the statistical significance of path coefficients.

Table 4. Hypothesis testing.

Hypothesis	$\beta$	SD	t-stat	p-value	Supported/ Not supported
H1: SM $\rightarrow$ PB	.190	.073	2.584	.010	Supported
H2: SM $\rightarrow$ MH	.145	.071	2.038	.042	Supported
H3: PB $\rightarrow$ MH	-.076	.100	.764	.446	Not supported

## 5. Discussion, conclusion, implications, and limitations of the study

The study uncovers significant associations between social media use and purchase behavior, as well as the impact of social media use on users' mental health, particularly among the X, Y, and Z generations (Table 4). However, there is no evidence to support the significant association between purchase behavior and users' mental health.

The rising number and special features of social media, such as being user-friendly and visually appealing, have attracted companies to promote and conduct business through social media. Social media is a new platform for individuals to purchase products or services. Through social media marketing, the purchase process is shortened so that consumers can skip various stages of purchasing and form purchase intentions (individual's willingness to buy a specific product or service), which is more likely to result in purchasing behavior [48]. When information is readily available, it lowers all types of search costs for consumers, which predicts high levels of purchase behavior [49]. Several studies have revealed that there is a significant association between the two variables (i.e., social media use and purchase behavior). In line with other studies [4, 6], we found that social media use is a significant driver of purchase behavior ( $\beta = .190, p < .05$ ). Nonetheless, users' purchase behavior does not lead to their mental health ( $\beta = -.076, p > .05$ ). The finding indicates that purchase activities can make consumers happy [50] as opposed to being stressed.

Despite the advantages of using social media, such as convenience and saving time, several studies [8, 9, 29] have suggested a likely negative effect of social media use on mental health. For example, a descriptive study on the impact of social media networking on students' mental illness and psychological well-being, has revealed that more than 60% of the respondents have either severe or extremely severe anxiety levels, followed by depression (31%) and stress (20%) [51]. Our finding ( $\beta = .145, p < .05$ ) is similar, implying that the longer people use social media, the more likely their mental health will be affected.

The findings add to the existing body of knowledge on the relationship between social media use and purchase behavior, as well as the relationship between social media use and users' mental health, and purchase behavior and mental health. People's mental health may be jeopardized if they spend too much time on social media. Nonetheless, social media can be useful in raising awareness about a certain topic and pushing people to change their behavior. The finding is important for the development of safe social media guidelines, and it urges related agencies, such as the Malaysian Communications and Multimedia Commission, to regulate the amount of time spent on social media platforms more strictly.

The study is cross-sectional, where data was collected at a single point in time. Hence, the cause-and-effect relationship of the latent variables could not be determined. Also, convenience sampling was used for data collection. Therefore, applying the findings to the entire population should be done with caution. In addition, the study is based on quantitative data, which limits our ability to interpret how social media influences purchase behavior and mental health, as well as how purchase behavior influences mental health. As a result, future research in this field should

concentrate on qualitative data (e.g., in-depth interviews), which can provide additional insight into the findings. Moreover, mental health is measured by the stress dimension suggested by the DASS21 instrument. The other two dimensions of mental health, depression and anxiety, however, were excluded. Further research in this area may cover all the proposed dimensions of mental health, allowing for a more comprehensive view of mental health.

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## References

- [1] Chaffey, D. (2021) "Global social media research summary 2021." Retrieved from <https://www.smartsights.com/social-media-marketing/social-media-strategy/new-global-social-media-research/>
- [2] DataReportal. (2021) "Digital 2021: Malaysia." Retrieved from <https://datareportal.com/reports/digital-2021-malaysia>
- [3] Deloitte (2015) "Navigating the new digital divide: Capitalizing on digital influence in retail." Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/us-cb-navigating-the-new-digital-divide-051315.pdf>
- [4] Makudza, F., Mugarisanwa, C., and Siziba, S. (2020) "The effect of social media on consumer purchase behavior in the mobile telephony industry in Zimbabwe." *Dutch Journal of Finance and Management* **4** (2): em0065.
- [5] McClure, C., and Seock, Y. K. (2020) "The role of involvement: Investigating the effect of brand's social media pages on consumer purchase intention." *Journal of Retailing and Consumer Services* **53**: 101975.
- [6] Tsai, F. M., and Bui, T. D. (2021) "Impact of word of mouth via social media on consumer intention to purchase cruise travel products." *Maritime Policy & Management*, **48** (2): 167-183.
- [7] Beyens, I., Pouwels, J. L., van Driel, I. I., Keijzers, L., and Valkenburg, P. M. (2020) "The effect of social media on well-being differs from adolescent to adolescent." *Scientific Reports* **10** (1): 1–11.
- [8] Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., and Booth, M. (2020) "Does time spent using social media impact mental health?: An eight year longitudinal study." *Computers in Human Behavior* **104** (2020): 1–9.
- [9] Kelly, Y., Zilanawala, A., Booker, C., and Sacker, A. (2018) "Social media use and adolescent mental health: Findings from the UK Millennium Cohort Study." *EClinicalMedicine* **6**: 59-68.
- [10] Keles, B., McCrae, N., and Grealish, A. (2020) "A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents." *International Journal of Adolescence and Youth* **25** (1): 79-93.
- [11] Obar, J. A., and Wildman, S. S. (2015) "Social media definition and the governance challenge—an introduction to the special issue." *Telecommunications Policy* **39** (9): 745-750.
- [12] Akar, E., and Topcu, B. (2011) "An examination of the factors influencing consumers' attitudes toward social media marketing" *Journal of Internet Commerce* **10** (1): 35–67.
- [13] Tuten, T., and Mintu-Wimsatt, A. (2018) "Advancing our understanding of the theory and practice of social media marketing: introduction to the special issue." *Journal of Marketing Theory and Practice* **26** (1–2): 1–3
- [14] Eid, R., Abdelmoety, Z., and Agag, G. (2019) "Antecedents and consequences of social media marketing use: an empirical study of the UK exporting B2B SMEs." *Journal of Business and Industrial Marketing* **35** (2): 284–305.
- [15] Maria, S., Pusriadi, T., Hakim, Y. P., and Darma, D. C. (2019) "The effect of social media marketing, word of mouth, and effectiveness of advertising on brand awareness and intention to buy." *Jurnal Manajemen Indonesia* **19** (2): 107–122.
- [16] Kaplan, A. M., and Haenlein, M. (2010) "Users of the world, unite! The challenges and opportunities of social media." *Business Horizons* **53** (1): 59–68.
- [17] Siamagka, N. T., Christodoulides, G., Michaelidou, N., and Valvi, A. (2015) "Determinants of social media adoption by B2B organizations" *Industrial Marketing Management* **51**: 89–99.
- [18] Sohail, M. S., and Al-Jabri, I. (2017) "Evolving factors influencing consumers' attitudes toward social media marketing and their impact on social media usage." *International Journal of Marketing, Communication and New Media* **2**: 3–25.
- [19] Pande, S., and Narayan, A. (2019) "Evaluating emerging Indian retail scenario: Consumer preferences, perceived risks, and uncertainties—store brands vs. national brands." In *Maintaining Financial Stability in Times of Risk and Uncertainty* (pp. 282-306). IGI Global.
- [20] Eti, I. A., Horaira, M. A., and Bari, M. M. (2021) "Power and stimulus of social media marketing on consumer purchase intention in Bangladesh during the COVID-19." *International Journal of Research in Business and Social Science* **10** (1): 28–37.
- [21] Manzoor, U., Baig, S. A., Hashim, M., and Sami, A. (2020) "Impact of social media marketing on consumer's purchase intentions: the mediating role of customer trust." *International Journal of Entrepreneurial Research* **3** (2): 41–48.
- [22] Duffett, R. G. (2015) "Facebook advertising's influence on intention-to-purchase and purchase amongst Millennials." *Internet Research* **25** (4): 498–526.
- [23] Duffett, R. G., Edu, T., Negricea, I. C., and Zaharia, R. M. (2020) "Modelling the effect of YouTube as an advertising medium on converting intention-to-purchase into purchase," *Transformations in Business & Economics* **19** (1-49): 112–132.

- [24] Bernama (2020) "Survey finds almost half a million Malaysians experience symptoms of depression." Retrieved from <https://www.astroawani.com/berita-malaysia/survey-finds-almost-half-million-malaysians-experience-symptoms-depression-262944>
- [25] Kamarulzaman, W., and Jodi, K. H. M. (2018) "A review of mental illness among adolescent in Malaysia." *International Journal of Education* **3** (20): 72–81.
- [26] University of Michigan. (2013) "Facebook use predicts declines in happiness, new study finds." Michigan News. <https://news.umich.edu/facebook-use-predicts-declines-in-happiness-new-study-finds/>
- [27] Brown, J. (2018) "Is social media bad for you? The evidence and the unknowns." Retrieved from <https://www.bbc.com/future/article/20180104-is-social-media-bad-for-you-the-evidence-and-the-unknowns>
- [28] Riehm, K. E., Feder, K. A., Tormohlen, K. N., Crum, R. M., Young, A. S., Green, K. M., ... and Mojtabai, R. (2019) "Associations between time spent using social media and internalizing and externalizing problems among US youth." *JAMA Psychiatry* **76** (12): 1266–1273.
- [29] Kross, E., Verdun, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., and Ybarra, O. (2013) "Facebook Use Predicts Declines in Subjective Well-Being in Young Adults." *PLoS ONE* **8** (8): 1–6.
- [30] Alammar, A. M., Alsalem, S. A., Al-Garni, A. M., Alammar, R. saeed, Alhumayed, R. suliman, and Alammar, A. M. (2020) "Using Social Media on Mental Health among University Medical Students in Abha City, Southern Saudi Arabia." Retrieved from [https://www.researchgate.net/publication/343619607\\_Using\\_Social\\_Media\\_on\\_Mental\\_Health\\_among\\_University\\_Medical\\_Students\\_in\\_Abha\\_City\\_Southern\\_Saudi\\_Arabia](https://www.researchgate.net/publication/343619607_Using_Social_Media_on_Mental_Health_among_University_Medical_Students_in_Abha_City_Southern_Saudi_Arabia)
- [31] Berryman, C., Ferguson, C. J., and Negy, C. (2018) "Social media use and mental health among young adults." *Psychiatric Quarterly* **89** (2): 307–314.
- [32] Nesi, J. (2020) "Understanding the Impact of Social Media on Youth Mental Health: Challenges and opportunities." *NC Medical Journal* **81** (2): 116–121.
- [33] Puukko, K., Hietajärvi, L., Maksniemi, E., Alho, K., and Salmela-Aro, K. (2020) "Social media use and depressive symptoms—a longitudinal study from early to late adolescence." *International Journal of Environmental Research and Public Health* **17** (16): 1–18.
- [34] Schønning, V., Hjetland, G. J., Aarø, L. E., and Skogen, J. C. (2020) "Social media use and mental health and well-being among adolescents—A scoping review." *Frontiers in Psychology* **11** (1949): 1–15.
- [35] Izah, V. N., and Iskandar, B. P. I. (2019) "See it, I buy it, I regret it: a study of online post-purchase regret phenomena of fashion products." *Proceeding Book of the 4th ICMEM 2019 and The 11th IICIES 2019*, 7-9 August 2019, Bali, Indonesia
- [36] Black D. W. (2007) "A review of compulsive buying disorder." *World Psychiatry* **6** (1): 14–18.
- [37] Secapramana, L. V. H., Magdalena, G. J., and Yuwanto, L. (2021) "Impulsive buying, post-purchase regret, and credit card." In *2nd International Conference on Business and Management of Technology* 5–10.
- [38] Lazim, N. A. M., Sulaiman, Z., Zakuan, N., Mas'od, A., Chin, T. A., and Awang, S. R. (2020) "Measuring post-purchase regret and impulse buying in online shopping experience from cognitive dissonance theory perspective." *6th International Conference on Information Management* 7–13.
- [39] Widayat, W and Irfani, A. D. (2020) "The impact of bad experience, disappointment, and shopping intensity on digital shoppers' anxiety." *5th ASEAN Conference on Psychology, Counselling, and Humanities*: 195–200.
- [40] Hassan, Haslinda, et al. (2017) "Factors influencing cloud computing adoption in small medium enterprises." *Journal of Information and Communication Technology* **16**.1: 21–41.
- [41] Duffett, Rodney Graeme. (2017) "Influence of social media marketing communications on young consumers' attitudes." *Young Consumers*; 19–39.
- [42] Lovibond, Peter F., and Sydney H. Lovibond. (1995) "The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories." *Behavior Research and Therapy* **33**.3: 335–343.
- [43] Ramli, M., Rosnani, S., and Fasrul, A. A. (2012) "Psychometric Profile of Malaysian version of the Depressive, Anxiety and Stress Scale 42-item (DASS-42)." *MJP Online Early* **1** (1): 7.
- [44] Salleh, Mohd Sharil Mat, Nur Nazuha Mahbob, and Nik Sulaiman Baharudin. (2017) "Overview of "Generation Z" Behavioral Characteristic and its Effect Towards Hostel Facility." *International Journal of Real Estate Studies* **11**.2: 59–67.
- [45] Cox (2019). How different generations use social media. The Manifest. [https://themmanifest.com/social-media/how-different-generations-use-social-media#:~:text=Social%20media%20users%20across%20generations,such%20as%20images%20and%20videos.&text=As%20a%20whole%2C%20younger%20generations,baby%20boomers%20\(ages%2055%2B\).](https://themmanifest.com/social-media/how-different-generations-use-social-media#:~:text=Social%20media%20users%20across%20generations,such%20as%20images%20and%20videos.&text=As%20a%20whole%2C%20younger%20generations,baby%20boomers%20(ages%2055%2B).)
- [46] Wynne, Chin W. (1998) "Issues and opinion on structural equation modelling." *Management Information Systems Quarterly* **22** (1): 1–8.
- [47] Fornell, Claes, and David F. Larcker. (1981) "Evaluating structural equation models with unobservable variables and measurement error." *Journal of Marketing Research* **18**.1: 39–50.
- [48] Permatasari, Anggraeni, and Erianti Kuswadi. (2017) "The impact of social media on consumers' purchase intention: A study of ecommerce sites in Jakarta, Indonesia." *Review of Integrative Business and Economics Research* **6**: 321–335.
- [49] Never (2019). "The impact of social media on consumer behavior." *International Journal of Sciences and Management* **6**(2): 143–152.
- [50] Shrum, L. J., et al. (2014) "Materialism: The good, the bad, and the ugly." *Journal of Marketing Management* **30**.17–18: 1858–1881.
- [51] Nee, K. G., and Fan, W. S. (2013) "My Online Friends Understand Me Better – The Impact of Social Networking Site Usage on Adolescent Social Ties and Mental Health." Retrieved from [https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/IMU\\_SKMM.pdf](https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/IMU_SKMM.pdf).