

THE USAGE OF SOCIAL MEDIA IN WEIGHT MANAGEMENT AMONG UNDERGRADUATE NURSING STUDENTS

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Abstract: *Social media platforms have become an integral part of the lives of many young adults, and they can have both positive and negative effects on weight management. They tend to utilize their smartphones to check on social media and find information through the internet in their lives. This convenience makes it a go-to device for quick information to seek information related to physical exercise and diet practice for weight management. Physical exercise and diet are two crucial components of weight management. This study aimed to assess the association between the usage of social media and weight management among undergraduate students. This study aimed to assess the association between usage of social media and physical activities and dietary practice. A cross-sectional sectional study was conducted among 191 undergraduate nursing students. A convenient sampling method was used. The participants answer the online questionnaire that sent via WhatsApp link to self-reported Google forms. The questionnaire consists of socio-demographic parts, a social media usage questionnaire, a dietary practice questionnaire, and IPAQ-SF. The results showed that there is an association between the frequency of posting on social media and physical activity with a p-value <0.05. The frequency of time spent on social media daily is associated with dietary practices among the participants (p<0.05). This study also revealed that WhatsApp and Instagram are the most popular social media sites among the participants. This study underscores the frequency of time spent on social media daily is associated with dietary practices among undergraduate students where they have a high possibility to engage more with any post related to dietary practice information.*

Keywords: *Social Media, Physical Activity, Exercise, Diet, Undergraduate Students*

Introduction

Approximately 46.7% of Malaysian undergraduate students fell into categories other than normal weight, with a prevalence of 6.1% being underweight, 23.0% overweight, and 17.6% obese (Wan Mohamed Radzi et al. 2019). In this context, a higher occurrence of excessive weight was observed compared to underweight. The prevalence of excessive weight among undergraduate students may be attributed to their primary activities, such as attending lectures and studying until graduation. This could result in reduced physical activity as they allocate more time to studying in their own rooms. Moreover, they are more likely to snack during self-study. Research indicates that late-night snacking, the availability of fatty meals in dormitories, and insufficient physical exercise contribute to 70% of undergraduate students gaining weight and accumulating body fat by the time they graduate (O'Connor, 2012).

Recently social media has been widely used in daily life among undergraduate students. They utilise their smartphone to access social media sites regularly to search for information related to their education (Chen & Xiao, 2022). The most significant factors of social media use includes creating awareness, facilitating communication, assisting in maintaining contacts, lowering the cost of acquiring books, reducing stress, and enhancing social and communication skills (Georgescu & Popescu, 2018). Moreover, the most popular social media sites among undergraduate students are WhatsApp, followed by Instagram, YouTube, Facebook, Snapchat, Google and Twitter (Kircaburun et al. (2020). Interestingly, social media sites positively impact the undergraduate students' physical activity levels (Nahla et al. 2021) and they can provide a convenient and engaging platform for them to stay informed and connected. Additionally, social media is growing in popularity and attracting a lot of attention particularly among undergraduate students (Dongke and Shahrul, 2021). The authors added that social media has become a crucial aspect of people's lives as a fun way to pass the time and, independently, as a source of information for pleasure and education.

As a result, the potential to combat obesity and overweight using digital tools has grown in recent years (Sama et al. 2014). Although different studies assume the advantages and possibilities of social media to combat overweight, there is a scarce of information regarding the usage of social media in seeking information and social support regarding weight management that lead to the behaviour of gaining, reducing or maintaining body weight among undergraduate students. Therefore, this study is relevant to understand the association of social media usage and weight management among undergraduate students in this country. The aim of the study is to explore the association between the usage of social media and weight management undergraduate students.

Literature Review

Association Between Social Media Usage And Body Weight Management

A study conducted by Murad et al. (2018) across five different universities in Malaysia, involving 388 undergraduate students. It revealed that a significant number of undergraduate students dedicate four to five hours to social media, followed by two to three hours daily. This observation indicates that the majority of undergraduate students allocate a moderate amount of time to social media, possibly influenced by their need to manage time effectively as students, distributing their time across various responsibilities. In contrast, a study by Chadrasena and Ilankoon (2022) presents different findings, indicating that the majority of undergraduate students use social media with a frequency ranging from one to ten times per day. Despite this disparity in usage frequency, both studies highlight a similarity in the

frequency of posting content on social media. In both cases, undergraduate students opt to post either every month or every week. The need to keep up to date with the trends may be the reasons of the current findings.

The study by Catalig et al. (2020), conducted among 645 undergraduate students from the University of the Philippines Manila, aimed to explore the relationship between perceived weight status and unhealthy dietary practices. The results indicated that 35% of students who overestimated their body mass index (BMI) skipped at least one meal a day, and 34.8% of those who overestimated their BMI excluded at least one food group. These findings suggest that undergraduate students may adopt dietary practices without fully considering their health implications, potentially viewing them as methods to manage their body weight. In contrast, a study by Farshbaf et al. (2021) found no significant association between BMI and physical activity among undergraduate students. This lack of correlation might be attributed to various factors, and one possible reason suggested by the study is a lack of motivation, particularly among individuals with higher-than-normal BMI. This idea is supported by a study conducted by Baillot et al. (2021), which identified low motivation as one of the barriers to physical activity among individuals with higher-than-normal BMI.

Another study by Pattanapongsa et al. (2019) on 66 undergraduate students. The participants were divided into two (2) groups (33 students in experimental group and 33 students in control group). The study comprised of a four-month intervention and a two month follow up to compare the effectiveness of weight loss education and support interventions delivered through online social media (experimental group) and through conventional method (control group). This study finding showed the knowledge factor from the first month to the sixth month was significantly different across study groups at p-value of 0.03. They also explained that the difference in body mass index (BMI) between the two groups was 0.7, which was statistically significant at p-value of 0.02. The difference in waist circumference to height ratio between the two groups is statistically significant at a p-value of 0.01.

Lozano-Chacon et al. (2021) conducted a systematic review to assess the impact of social-media-delivered weight loss interventions among teenagers and young adults. The review findings showed that there were differences between weight loss interventions delivered via social media and those based on traditional approaches such as brochures and questionnaires even though both groups followed the same dietary and physical activity requirements. They discovered that social media-delivered weight loss interventions were beneficial not only for the targeted groups but also for other social media users due to the relationships formed online, which appear to be a valuable source of social support among young people with a high level of digital health literacy.

Previous studies focused on the impact of social media toward on weight loss management. There are also studies carried out on the usage of social media leading to decrease in exercise and poor eating habits that eventually will affect the body weight. However, information is scarce regarding the usage of social media in seeking information and social support of body weight management that leads to the behaviour of gaining, reducing or maintaining body weight among undergraduate students. Therefore, the objective of this study is to determine the association between social media usage and body weight management among undergraduate students.

Methodology

A quantitative cross-sectional study was conducted from February to April 2022 using convenient sampling. The total population of undergraduate nursing students in this cohort is 553. The Raosoft sample size calculator was employed for the study, with a 5% margin of error, a 90% confidence interval, and a 50% response rate. Consequently, the minimum required sample size for this study was determined to be 227 participants.

The inclusion criteria encompassed full-time undergraduate nursing students with at least one active social media account. The exclusion criteria applied to undergraduate nursing students who declined to participate in the study. The questionnaire was distributed via WhatsApp link to self-reported Google forms to the undergraduate nursing students, and all participants were required to fill out a consent form before proceeding to the questionnaire. Subsequently, the researchers compiled and reviewed all the questionnaires to identify and isolate any incomplete submissions. Out of the 248 questionnaires received from the participants, 57 were deemed incomplete, leaving a total of 191 fully completed questionnaires for analysis.

A questionnaire consists of 22 items was divided into three sections. Part A consist of 6 items on sociodemographic status which were gender (male/female), faculty (medicine, nursing, science, pharmacy, allied health sciences and dentistry), year of study (first year/ second year/third year/fourth year/ fifth year), housing type (living in campus/ living off campus), marital status (single/ married) and self-reported BMI. Part B consists of 9-items related to social media type being used the most (Facebook, Twitter, WhatsApp, any other need to specify), the number of social media accounts (one, two, three, more than three), time spent daily on social media (1 hour or less, 2-3 hours, 4-5 hours, more than 5 hours), frequency on social media (not everyday, once a day, 2-5 times a day, 5-10 times a day, more than 10 times a day), frequency of post on social media (never, every month, every weeks, daily, multiple times a day), situation when accessing social media (during free time, while at university, during lectures, during social occasions, meal times, any spare moment), duration have been using social media (less than 1 year, 1 year, 2 years, 3 years, more than 3 years), social media used before get out from bed (yes, no), social media used before going to sleep (yes, no), reasons for using social media (communicating with friends, entertainment, online learning, communicating with family, news, passing away time, reading community event information, any other need to specify). Part C consists of dietary practice questionnaire to measure the dietary practices in managing weight. The International Physical Activity Questionnaire (IPAQ) (Booth, 2000) were used to measure the physical activity pattern among the participants. IPAQ consists of 7 questions to assess the intensity of physical activities categorized as vigorous (aerobic walking, jogging, and running), moderate (brisk walking, general home exercises, recreational swimming), and just normal walking. The Questionnaire indicates the type, frequency (days per week), and duration (hours or minutes per day) of each physical activity the participant performed during the last seven days. The data was categorized to low, moderate and high physical activity based on the guideline of IPAQ scoring. The questionnaires were distributed using an online Google form disseminated through social media platforms such as WhatsApp and Facebook. This study was approved by the Institutional Review Board (IRB) committees. Informed consent has been obtained from the participants to ensure confidentiality prior to data collection.

Results

Characteristics of study participants

Table 1 displays the characteristics of study participants. A total of 191 participants completed the survey questionnaire and were included in the final analysis. The majority of participants were female (n=159, 83.2%) and the other 32 (16.8%) were male. There were 73 (38.2%) from faculty of nursing, followed by 44 (23.0%) faculty of allied health sciences, 32 (16.8%) faculty of science, 27 (14.1%) faculty of pharmacy, 11 (5.8%) faculty of medicine and 4 (2.1%) faculty of dentistry. Furthermore, most of the students involved in this study were fourth-year (n=124, 64.9%), 31 (16.2%) third-year, 22 (11.5%) second-year, 13 (6.8%) first-year and 1 (0.5%) fifth-year students. Besides that, 182 (95.3%) were living on campus while the other 9 (4.7%) were living off campus. For marital status, there were 189 (99.0%) who reported being single and the other 2 (1.0%) already married. The self-reported BMI was also collected and categorized into underweight, normal, overweight, and obese. There were 123 (64.4%) were categorized as normal, followed by 27 (14.1%) underweight, 22 (11.5%) overweight and 19 (9.9%) obese.

Table 1: Socio-demographic data of participants (N=191)

Variable	Undergraduate Students	
	Frequency	Percentage (%)
Gender		
Male	32	16.8
Female	159	83.2
Faculty		
Nursing	73	38.2
Medicine	11	5.8
Science	32	16.8
Allied Health Sciences	44	23.0
Dentistry	4	2.1
Pharmacy	27	14.1
Year of Study		
First Year	13	6.8
Second Year	22	11.5
Third Year	31	16.2
Fourth Year	124	64.9
Fifth Year	1	0.5
Housing type		
Living on campus	182	95.3
Living off campus	9	4.7
Marital status		
Single	189	99.0
Married	2	1.0
BMI		
Underweight	27	14.1
Normal	123	64.4
Overweight	22	11.5
Obese	19	9.9

Social media usage

Table 2 presents the use for social media which was measured based on types of social media, duration spent daily, time spent daily, frequency of posts, situation when accessing, and reasons for using social media. WhatsApp was the most frequently used social media (35.6%), followed by Instagram (30.2%), Twitter (16.6%), other social media (9.5%) and Facebook (8.1%). Other social media reports used by the participants were TikTok, YouTube, Discord, Telegram, and Reddit. Other than that, 69 (36.1%) participants reported to spend 4-5 hours daily on their preferred social media sites, 66 (34.6%) spent 2-3 hours, 50 (26.2%) spent more than 5 hours and only 6 (3.1%) spent an hour or less.

Table 2: Social media usage

Variables	Undergraduate Students	
	Frequency	Percentage (%)
Types*		
Facebook	40	8.1
Twitter	82	16.6
WhatsApp	176	35.6
Instagram	149	30.2
Other	47	9.5
Duration spent daily		
1 hour or less	6	3.1
2-3 hours	66	34.6
4-5 hours	69	36.1
More than 5 hours	50	26.2
Time spent daily		
Not everyday	1	0.5
Once a day	1	0.5
2-5 times a day	55	28.8
5-10 times a day	58	30.4
More than 10 times	76	39.8
Frequency of posts		
Never	33	17.3
Every month	77	40.3
Every week	48	25.1
Daily	27	14.1
Multiple times a day	6	3.1
The situation when accessing*		
During free time	186	28.7
While at university	84	13.0
During lectures	36	5.6
During social occasions	78	12.1
Meal times	115	17.8
Any spare moment	148	22.9
Reasons for using*		
Communicating with friends	170	17.9
Entertainment	182	19.0
Online learning	109	11.4
Communicating with family	144	15.0

News	141	14.7
Passing away time	127	13.3
Reading community event information	84	8.8

*Multiple answers were allowed

Most of the participants (76, 39.8%) spent on social media more than 10 times a day, 58 (30.4%) 5-10 times, 55 (28.8%) 2-5 times, once a day (0.5%) and not every day (0.5%). The majority of participants (77, 40.3%) reported that they post on social media every month, while 48 (25.1%) every week, 33 (17.3%) never post on social media, 27 (14.1%) daily post and 6 (3.1%) of them post multiple times a day. Most of the participants used social media during their free time (28.7%), 22.9% accessed on any spare time that they had, 17.8% used during mealtimes, 13.0% used while they at the university, the usage of social media during social occasions and lectures were 12.1% and 5.6% respectively. Lastly, 19.0% of the participants reported that they used social media for entertainment and communicating with friends (17.9%), 15.0% used to communicate with family, 14.7% used to read news, pass away time (13.3%), online learning (11.4%), and read community event information (84%).

Association between the usage of social media and physical activity

Table 5 presents the association between duration spent, time spent daily, frequency of posts, the situation when accessing and reasons for using on social media and physical activity. The results of Fisher's Exact Test revealed that the frequency of posts on social media has a significant association ($p < 0.05$) with physical activity.

Table 5: Association between the usage of social media and physical activity

Variables	Frequency (n)	Physical Activity			X ²	P Value
		Low (n)	Moderate (n)	High (n)		
Duration spent daily						
1 hour or less	6	5	0	1	4.336	0.593 ^b
2-3 hours	66	31	25	10		
4-5 hours	69	35	25	9		
More than 5 hours	50	28	16	6		
Time spent daily						
Not everyday	1	1	0	0	3.675	0.921 ^b
Once a day	1	0	1	0		
2-5 times a day	55	30	17	8		
5-10 times a day	58	31	19	8		
More than 10 times	76	37	29	10		
Frequency of posts						
Never	33	22	10	1	21.313	0.014 ^b
Every month	77	44	24	9		
Every week	48	22	19	7		
Daily	27	10	8	9		
Multiple times a day	6	1	5	0		
The situation when accessing*						
During free time	186	96	64	26	8.472	0.747 ^a
While at university	84	45	27	12		
During lectures	36	18	13	5		

During social occasions	78	39	29	10		
Meal times	115	54	43	18		
Any spare moment	148	82	46	20		
Reasons for using*						
Communicating with friends	170	87	58	25	14.131	0.440 ^a
Entertainment	182	93	64	25		
Online learning	109	59	36	14		
Communicating with family	144	79	49	16		
News	141	77	44	20		
Passing away time	127	67	39	21		
Reading community event information	84	44	27	13		

^aChi Square Test, ^bFisher's Exact Test, *Multiple answers were allowed

Table 6 presents the association between duration spent, time spent daily, frequency of posts, the situation when accessing and reasons for using on social media and dietary practice. The results of Fisher's Exact Test revealed that there is a statistically significant ($p < 0.05$) between the time spent daily on social media and dietary practice ($p = 0.042$).

Table 6: Association between the usage of social media and dietary practice

Variables	Frequency (n)	Dietary Practice		X ²	P Value
		Yes (n)	No (n)		
Duration spent daily					
1 hour or less	6	3	3	0.646	0.904 ^b
2-3 hours	66	31	35		
4-5 hours	69	36	33		
More than 5 hours	50	27	23		
Time spent daily					
Not everyday	1	1	0	8.397	0.042 ^b
Once a day	1	0	1		
2-5 times a day	55	25	30		
5-10 times a day	58	24	34		
More than 10 times	76	47	29		
Frequency of posts					
Never	33	11	22	8.970	0.058 ^b
Every month	77	37	40		
Every week	48	27	21		
Daily	27	19	8		
Multiple times a day	6	3	3		
The situation when accessing*					
During free time	186	95	91	2.806	0.833 ^a
While at university	84	41	43		
During lectures	36	17	19		
During social occasions	78	40	38		
Meal times	115	58	57		
Any spare moment	148	71	77		

Reasons for using*

Communicating with friends	170	85	85	4.914	0.670 ^a
Entertainment	182	93	89		
Online learning	109	59	50		
Communicating with family	144	70	74		
News	141	71	70		
Passing away time	127	61	66		
Reading community event information	84	46	38		

^aChi Square Test, ^bFisher's Exact Test, *Multiple answers were allowed

Discussion

The present study revealed the participants commonly used WhatsApp, and Instagram as their preferred social media sites reported 35.6% and 30.2% respectively similar to a study where WhatsApp and Instagram were the most used social media among undergraduates (Georgescu & Popescul, 2018). In contrast, the prevalence of students using Facebook is lower compared to a study that showed Facebook is the second most preferable social media site among undergraduate students at the University of Sri Jayewardenepura, Sri Lanka. This is probably due to the different popular social media sites in each region in Asia (Kircaburun et al. 2020).

A previous study that was conducted in five different universities in Malaysia with 388 undergraduate students supported the current findings that most of the undergraduate students spend their time on social media for four to five hours followed by two to three hours in a day (Murad et al. 2018). This finding shows that majority of the undergraduate students spend their time on social media in moderate amounts that probably due to time management as a student as they need to divide their time accordingly.

The current study showed that more than half of the undergraduate students used social media daily with a frequency of five to more than ten times a day. This is in contrast with a previous study where the majority of undergraduate students frequency of using social media one to ten times per day (Chandrasena, 2022). Both studies show the similarity in the frequency of posting something on social media whereas the students choose to post every month and every week. The need to keep up to date with the trends may be the reason for the current findings.

In addition, most of the undergraduate students checked social media sites during their free time and any spare time while they checked on social media during lectures whereas the findings are similar to a previous study (Chandrasena, 2022). However, this contradicts the finding where the study shows that the majority of undergraduate students at King Saud University, College Medicine, Saudi Arabia checked their social media during lectures (Eiad et al. 2018). This is probably happening due to the difference in the lectures' environment that influences their mood to study.

Current findings found that only the frequency of posts on social media has a significant association ($p < 0.05$) with physical activity. However, no statistically significant association ($p > 0.05$) was found between the types of social media used, duration spent daily on social media, time spent daily on social media, frequency of posts on social media, situation when accessing social media and reasons for using social media with physical activity. In addition, there are statistically significant ($p < 0.05$) between the time spent daily on social media and dietary practice ($p = 0.042$). However, no significant association was found between types of

social media, duration spent daily on social media, frequency of posts on social media, situation when accessing social media, and reasons for using social media with dietary practice.

A previous study findings contradict the current findings where frequency (times per day) of social media used was significantly associated with physical activity (Shimoga et al. 2019), thus physical activity increased with increasing frequency (times per day) of social media used. Moreover, social media use was not significantly associated with healthy habits such as fitness. Social media which has been used widely can be a medium to search for fitness information. Thus, increasing their physical activity as they follow the fitness tips in the social media. However, this pattern can only happen if they have high motivation to do fitness. If they spend a large amount of time using social media, it may decrease the available time to do fitness. The usage of social media is often a sedentary activity that is not usually linked to eating well or exercising (Austin_McCain, 2017).

This study's findings on frequency of posting on social media have a significant association with the physical activity is probably due to the support that they get from social media. Undergraduate students tend to post their achievements or journey in their weight management to share or get support from their online friends. They received encouragement and a sense of sharing in one another's fitness and health journeys from the online community (Raggatt et al. 2018). They keep physically active to manage their weight as they do want to impress their online friends. Furthermore, getting negative feedback on the pictures that they post on social media regarding their body looks also can increase physical activity as they will exercise to achieve their desired weight. In addition, an association between time spent on social media and dietary practice among young adults (Sidani et al. 2016) relate to the findings in the current study. One of the reasons for this finding may be due to the frequent use of social media in a day will increase the duration of engagement towards social media, thus undergraduate students may have a high possibility to engage more with any post related to dietary practice information. If they engage more in posting regarding how their friends manage weight by practicing a certain diet, the undergraduate students will try to follow the diet tips from them. This is supported by a study by O'Reilly (2018) where undergraduates who read online profiles of successful classmates had significant levels of restricted eating.

Conclusion

The prevalence of social media usage was found to be quite high especially the frequency of checking social media in a day while the prevalence of physical activity and practicing diet as a weight management intervention was found low among undergraduate students. This study findings suggest a potential area of concern regarding the health and wellness of undergraduate students. High social media usage, especially with frequent checking, may contribute to a sedentary lifestyle. The low prevalence of physical activity and diet practices for weight management could have implications for the overall health of the student population.

In summary, while social media is deeply integrated into the lives of undergraduate students, there are concerns about their physical health behaviors. Addressing these concerns may involve promoting a healthier lifestyle, emphasizing the importance of physical activity, and encouraging balanced use of social media in conjunction with maintaining overall well-being.

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References

- Austin-McCain, M. (2017). An Examination of the Association of Social Media Use with the Satisfaction with Daily Routines and Healthy Lifestyle Habits for Undergraduate and Graduate Students. *The Open Journal of Occupational Therapy*, 5(4). <https://doi.org/10.15453/2168-6408.1327>.
- Baillet, A., Chenail, S., Barros Polita, N., Simoneau, M., Libourel, M., Nazon, E., Riesco, E., Bond, D. S., & Romain, A. J. (2021). Physical activity motives, barriers, and preferences in people with obesity: A systematic review. *PloS one*, 16(6), e0253114. <https://doi.org/10.1371/journal.pone.0253114>.
- Catlig, M. A. P., Leyso, N. L. C., Estrellado, V. P., Pinlac, P. A. V., & Cochon, K. L. (2020). Association of Weight Misperception with Unhealthy Diet-related Behaviors among University of the Philippines Manila Undergraduate Students. *Acta Medica Philippina*, 54(5). <https://doi.org/10.47895/amp.v54i5.2263>
- Chandrasena P. P. C. M., & Ilankoon, I. M. P. S. (2022). The impact of social media on academic performance and interpersonal relations among health sciences undergraduates. *J Educ Health Promot*. Apr 28;11:117. doi: 10.4103/jehp.jehp_603_21. PMID: 35677283; PMCID: PMC9170224.
- Chen, M., & Xiao, X. (2022) The effect of social media on the development of students' affective variables. *Front. Psychol*. 13:1010766. doi: 10.3389/fpsyg.2022.1010766.
- Dongke, P., & Shahrul, N. S. (2021). Social Media Use among Undergraduate students in Malaysia during the COVID-19 Pandemic. *Higher Education and Oriental Studies*, 1(4). <https://doi.org/10.54435/heos.v1i4.28>.
- Eiad, A., Irfan, F., Gominda, P., Jamal, A., Van der Vleuten, C., Al Maflehi, N., Al-Qeas, S., Alenezi, A., Alrowaished, M., Alsaman, R., & Ahmed, A. M.A. (2018): The pattern of social media use and its association with academic performance among medical students, *Medical Teacher*, DOI: 10.1080/0142159X.2018.1465536.
- Farshbaf-Khalili, A., Monshikarimi, A., Shakouri, S. K., Jafarilar-Aghdam, N., & Ghassab-Abdollahi, N. (2021). Objective and Subjective Investigation of Physical Activity Levels and Its Relation with Socio-Demographic Characteristics among Medical Students. *Journal of lifestyle medicine*, 11(1), 23.
- Georgescu, M., & Popescul, D. (2018). Students in Social Media: Behavior, Expectations and Views. 10.1007/978-3-319-73459-0_6.
- Lozano-Chacon, B., Suarez-Lledo, V., & Alvarez-Galvez, J. (2021). Use and Effectiveness of Social Media-Delivered Weight Loss Interventions among Teenagers and Young Adults: A Systematic Review. *International Journal of Environmental Research and Public Health*, 18(16), 8493.
- Kircaburun, K., Alhabash, S., Tosuntaş, Ş. B., & Griffiths, M. D. (2020). Uses and gratifications of problematic social media use among undergraduate students: A simultaneous examination of the Big Five of personality traits, social media platforms, and social media use motives. *International Journal of Mental Health and Addiction*, 18(3), 525-547.
- Murad, A., Raja. A. I. R. Y., Mohd, N. A., & Muhaimin, S. (2018). The Influence of Contents Utility on Students' Use of Social Media. *Pertanika Journal of Social Sciences & Humanities*, 26 (S), 93 – 110.
- Nahla, M. A., Esra'a, A., Jaradat, D., & Bashtawi, M. (2021) Social media use among university students in Jordan and its impact on their dietary habits and physical activity, *Cogent Education*, 8:1, 1993519, DOI: 10.1080/2331186X.2021.1993519.
- O'Connor, A. (2012, September 26). 70% of Students Gain Weight During College: Study. Health.com; Health. <https://www.health.com/family/college-gain-weight>.
- O'Reilly, I. (2018). *Social Media and its associations with body satisfaction, exercise, and*

- eating habits in undergraduate students* (Unpublished thesis). Department of Psychology, Dublin.
- Pattanapongsa, T., Jiamjarasrangi, W., Hanvoravongchai, P., & Pekthong, D. (2019). Effectiveness of social media for weight reduction on overweight undergraduate students in Thailand. *Journal of Health Research*, 34(2), pp.90-99.
- Raggatt, M., Wright, C.J.C., & Carrotte, E. (2018). "I aspire to look and feel healthy like the posts convey": engagement with fitness inspiration on social media and perceptions of its influence on health and wellbeing. *BMC Public Health*, 18, 1002. <https://doi.org/10.1186/s12889-018-5930-7>.
- Shimoga, S. V., Erlyana, E., & Rebello, V. (2019). Associations of Social Media Use With Physical Activity and Sleep Adequacy Among Adolescents: Cross-Sectional Survey. *J Med Internet Res*, 21(6):e14290, URL: <http://www.jmir.org/2019/6/e14290>.
- Sidani, J. E., Shensa, A., Hoffman, B., Hanmer, J., & Primack, B. A. (2016). The association between social media use and eating concerns among US young adults. *Journal of the Academy of Nutrition and Dietetics*, 116(9), 1465–1472, <https://doi.org/10.1016/j.jand.2016.03.021>.
- Sama, P.R., Eapen, Z.J., Weinfurt, K.P., Shah, B.R., & Schulman, K. (2014). An Evaluation of Mobile Health Application Tools. *JMIR mHealth uHealth*, 2, e19.
- Wan Mohamed Radzi, C.W.J., Salarzadeh Jenatabadi, H., Alanzi, A.R.A., Mokhtar, M.I., Mamat, M.Z., Abdullah, N.A., (2019). Analysis of Obesity among Malaysian University Students: A Combination Study with the Application of Bayesian Structural Equation Modelling and Pearson Correlation. *Int J Environ Res Public Health*. 10;16(3):492. doi: 10.3390/ijerph16030492. PMID: 30744209; PMCID: PMC6388275.