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Exploring evolutionary adaptations for natural activity and their impact on physical health: A nature-based perspective

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Abstract

In the context of human evolution and adaptation to natural environments, this study delved into the influence of such adaptations on the dietary habits and physical health of university students. Employing a cross-sectional descriptive research design, the study encompassed 382 students meeting the inclusion criteria. Data collection relied on a questionnaire, and subsequent analysis utilized statistical software such as SPSS and Microsoft Excel. Among the plethora of social media platforms, WhatsApp emerged as the most prevalent (98.7%), followed by Snapchat, YouTube, Instagram, and Twitter, with Facebook being the least utilized (93.4%, 92.4%, 86.9%, 84.6%, and 5.3%, respectively). On average, students dedicated 3-4 hours daily to social media usage. Notably, social networking sites were accessed for a similar duration. Findings revealed a significant association between students' perceptions of their dietary habits and their use of social media to share insights about their physical activity preferences ($p < 0.05$). Intriguingly, no significant correlation surfaced between perceptions of physical activity and overall health ($p > 0.05$). However, students who employed social media to document their physical activity preferences tended to hold a more positive perception of their dietary habits. Conversely, those who frequently shared their physical activity endeavors on social media were inclined to engage in less physical exercise. This exploration into human evolution and adaptation underscores the complex interplay between modern technology, social behaviors, and the primal instincts ingrained through evolution, shedding light on how these factors shape dietary habits and physical health among contemporary university students.

Keywords: Dietary habits, Jazan University, physical activity, social media

Introduction

Through social media, the general population is constantly exposed to a wide range of health information (Folkvord et al., 2020). More than a third of the world's population (38%), and consumption rates are high (two-thirds or more) in many advanced, growing, and developing countries (e.g., the United States, Australia, South Korea, Jordan, and Tunisia) (Ofcom, 2020; Pew Research Centre, 2018 & 2019). The general public, specialists, influencers, and/or accredited organizations disseminate a variety of information relating to health issues and lifestyles via sites such as Facebook, YouTube, and Instagram (Moorhead et al., 2013; Raggatt et al.,2018), and in areas such as physical activity and food (Folkvord et al., 2020; Raggatt et al., 2018; Pappa et al., 2017). In recent years, the usage of social networks in Saudi Arabia has significantly increased, influencing a wide range of activities in the kingdom (Tobey et al., 2016). As of January 2021, Saudi Arabia has 33.58 million internet users, accounting for 95.7% of the population, and 27.8 million active social media users, accounting for 79.3% of the overall population (Alanzi et al.,2021).

There is evidence that social media is utilized to impact physical activity and eating behavior in adolescents and adults in educational, therapeutic, workplace, and community settings (Lupton, 2018). There is presently little advice on how policymakers, experts, or organizations might utilize social media ethically and successfully in physical activity and nutrition interventions (Muller et al., 2016). Physical exercise and dietary changes (Williams et al., 2014). As a result, there is inadequate study and research to assist researchers, practitioners, and individual users in maximizing the potential advantages of social media in encouraging and sustaining good physical activity and diet-related behaviors.

According to a review of the literature, Saudi Arabia has seen tremendous changes in lifestyle and food-consumption patterns over the last few decades, with calorie-dense foods and sugar-sweetened beverages becoming increasingly accessible and sedentary lifestyles becoming especially prevalent among Saudi children and youth (Al-Hazzaa et al., 2011). Furthermore, these results suggest that the usage of social networks has a huge potential for spreading health services and raising health awareness. As a result, the current study sought to ascertain the effects of social media use on the food habits and physical activity of university students.

Material and methods

A quantitative cross-sectional design was used in this investigation. At Jazan University, an anonymous study was done to investigate the impact of social media use on university students' dietary habits and physical activity. Adults (over the age of 18) residing in Saudi Arabia and enrolled in an undergraduate or postgraduate study at Jazan University were eligible. The instrument was developed based on a review of existing research that contained validated items from a range of areas, including social media usage, genuine physical activity, perceptions of physical activity, weight perceptions, and so on (Hill, 2013; Al Ali et al., 2021).

The final anonymous survey, which took an average of 10 minutes to complete, was administered online using Google Forms. To contact eligible participants (university students over the age of 18 who are currently enrolled in an undergraduate or postgraduate study at Jazan University), university group email lists were employed. As soon as they launched the survey platform, participants were requested to read and agree to the terms of an online consent form. The survey ran from January 1 through January 15, 2023. The following measures were employed to mitigate potential failure to react bias: A short survey (10 minutes), with email reminders every three days. Just those who filled out the questionnaire (382 people) were included in the sample. A data matrix was constructed from the completed questionnaires using Microsoft Excel 2016 and IBM Inc.'s SPSS v.24 for Windows. The primary findings of the study were social media usage, health-related social media use, actual physical activity, physical activity perceptions, and dietary habits. Descriptive statistics were used to provide demographic data and examine media use, physical activity perception of physical activity, and eating habits. Data were summarized as frequencies (numbers and percentages) for categorical categories and mean for numerical variables. To determine the correlations between variables, the Chi-Square and T-tests were performed. The correlation was determined to be significant at (0.05). The work

received ethical approval from the Jazan University Research Ethics Committee. Before the commencement of the survey, each participant provided informed consent online.

Results

Survey responses revealed that most of the participants (86.6%) were females, while males were 13.4%. Participants in health-related colleges were the majority (52.4%) while 47.6% were from non-health-related colleges. Most of the participants were at the fourth level and above (72.5%), 11.8% were at the second level, 8.1% were at the third level, and 7.6% were at the first level. Concerning BMI, the majority (56.3%) were normal weight, while one-quarter of them (25%) were overweight/obese (Table 1).

Table 1. General characteristics of the study group.

Criteria	Categories	N	%
Sex	Male	51	13.4
	Female	330	86.6
Specialization	Non-health	181	47.5
	Health	200	52.5
University level	First	29	7.6
	Second	45	11.8
	Third	31	8.1
	Fourth and above	276	72.4
BMI	Underweight (<18.5)	68	17.8
	Normal weight (18.5–24.9)	215	56.3
	Overweight (25–29.9)	81	21.2
	Obesity (BMI of 30 or greater)	18	4.7
Age (M, SD, Range)		**21.5, 1.5,18-24**	

Table 2. Frequency of media use (N=382)

		I don't use it	I use it	Less than 1 hour	1-2 hours	3-4 hours	More than 4 hours	M±Sd
Facebook	F	362	20	3	1	3	13	1.17±0.78
	%	94.8	5.3	0.8	0.3	0.8	3.4	
Twitter	F	59	323	47	28	56	192	3.72±1.54
	%	15.4	84.6	12.3	7.3	14.7	50.3	
Instagram	F	50	332	42	33	76	181	3.77±1.46
	%	13.1	86.9	11	8.6	19.9	47.4	
YouTube	F	29	353	42	31	81	199	3.99±1.32

	%	7.6	92.4	11	8.1	21.2	52.1	
Snapchat	F	25	357	18	31	86	222	4.21±1.18
	%	6.5	93.4	4.7	8.1	22.5	58.1	
WhatsApp	F	5	377	32	36	117	192	4.20±1.01
	%	1.3	98.7	8.4	9.4	30.6	50.3	
Overall								3.51±6.94

Concerning the frequency of media use, the results in Table 2 show that WhatsApp was the most used site among the participants (98.7%), followed by Snapchat, YouTube, Instagram, and Twitter; then Facebook (93.4%, 92.4%, 86.9%, 84.6%, 5.3%, respectively). on average, social media sites were used for 3-4 hours per day as indicated by the overall mean (3.51).

Table 3. Health-related social media use by students (N = 382)

		Not use	**Use**	**Facebook**	**Twitter**	**Instagram**	**YouTube**	**Snapchat**	**WhatsApp**	**Another app**
I use this site to post about my food habits or likes.	**F**	138	244	7	67	49	7	88	11	15
	%	36.1	63.7	1.8	17.5	12.8	1.8	23	2.9	3.9
I use this site to post about my physical activity habits/likes.	**F**	168	214	5	59	48	12	57	11	22
	%	44	56	1.3	15.4	12.6	3.1	14.9	2.9	5.8
I use this site to post about my weight.	**F**	237	145	9	22	26	7	43	14	24
	%	62	38.1	2.4	5.8	6.8	1.8	11.3	3.7	6.3
I use this site to post about my fitness goals.	**F**	195	187	6	49	32	13	54	11	22
	%	51	49	1.6	12.8	8.4	3.4	14.1	2.9	5.8

The results show that 63.7% use social media sites to post about their food habits or likes, 56% for physical activity habits/likes, 38.1% to post about their weight, and 49% mentioned fitness goals (Table 3).

Table 4. Student's Actual Physical Activity and their Likelihood to Post about Physical Activity on social media (N=382)

		I don't use it	I use it
Vigorous physical activity	F	278	104
	%	72.8	27.2
Moderate physical activity	F	152	230
	%	39.8	60.2
Walking for at least 10 minutes at a time	F	77	305
	%	20.2	79.8

Sit and watch TV or movies	F	66	316
	%	17.3	82.7
Use a computer or other electronic device	F	47	335
	%	12.3	87.7
Spend time on social media (such as Facebook, Twitter, YouTube, etc.	F	15	367
	%	3.9	96.1

According to the findings, individuals who posted about their physical activity on social media spent the majority of their time on social media (96.1%), using a computer or other electronic device (87.7%), and sitting and watching TV or movies (Table 4).

Table 5. Perceptions of dietary habits and health

		F	%
Does dietary activity play an important role in your overall health	Yes	322	84.3
	No	60	15.7
How healthy is your diet in general	poor	129	33.8
	good	253	66.2
How would you describe your current health?	poor	48	12.6
	good	334	87.4

As in Table 5, the results depict that most of the participants (84.3%) agreed that dietary activity was crucial to their general health, while 15.7% did not. The majority of the participants (66.2%) claimed that they have a good healthy diet, and 33.8% reported a poor diet. The majority (87.4%) thought that they had good health, and 12.6% said they had poor health.

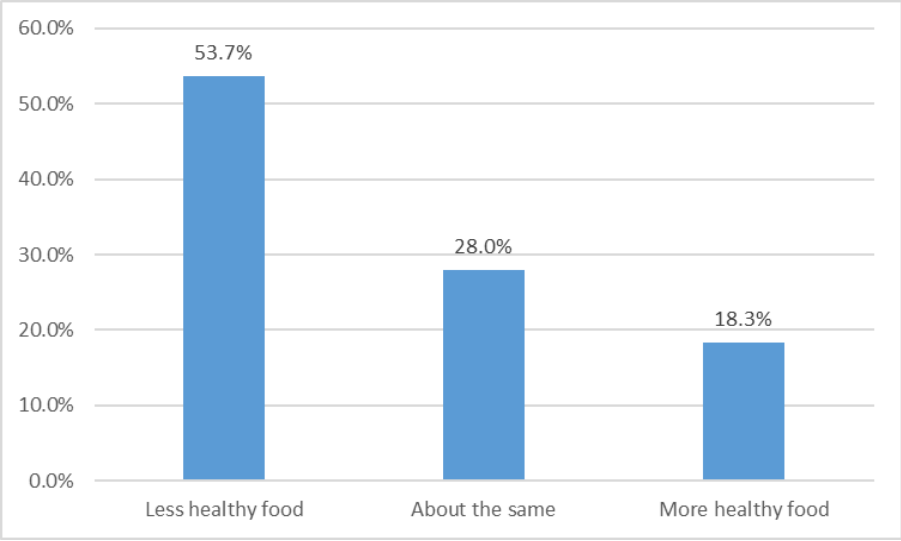

Figure 1. Compared to most men/women your age, do you think you eat (N= 382**)**

The majority (53.7%) thought that they have less healthy food compared to their to most men/women your age peers, 28% mentioned the same, and 18.3% reported having more healthy diet than their peers (Figure 1).

Table 6. Participants perception about physical activity and health in association with using social media to post about physical activity habits/likes (N= 382)

			Use social media to post about my physical activity habits/ likes		Total	P-value
			Don't use	Use		
Physical activity compared to most men/women your age	Less	F	61	66	127	.072
		%	36.3%	30.8%	33.2%	
	About the same	F	74	84	158	
		%	44.0%	39.3%	41.4%	
	More	F	33	64	97	
		%	19.6%	29.9%	25.4%	

Table 6 shows that there was no significant association between participants' perception of their physical activity and using social media to post about their physical activity habits/likes (P>0.05).

Table 7. Participants perception about dietary habits and health in Association with using social media to post about dietary habits/likes (N= 382)

			using social media to post about dietary habits/likes		Total	p-value
			not use	use		
Compared to most men/women your age, do you think you eat…	less healthy food	F	87	118	205	.020
		%	63.0%	48.4%	53.7%	
	alike	F	32	75	107	
		%	23.2%	30.7%	28.0%	
	more healthy food	F	19	51	70	
		%	13.8%	20.9%	18.3%	
How healthy is your diet in general?	poor	F	58	72	130	.013
		%	42.0%	29.5%	34.0%	
	good	F	80	172	252	
		%	58.0%	70.5%	66.0%	
Does dietary activity play an important role in your overall health?	Yes	F	119	215	334	.594
		%	86.2%	88.1%	87.4%	
	No	F	19	29	48	

		%	13.8%	11.9%	12.6%	

The results show that participants' perceptions of how healthy their diet in general, and how healthy is their diet were significantly associated with using social media to post about their dietary habits/likes (P<0.05). Those who used social media to post about their dietary habits/likes had better perceptions of their dietary habits compared to their peers (Table 7).

Table 8. Participants' perception of dietary habits and health in Association with using social media to post about weight

			Using social media to post about my weight		Total	p-value
			not use	use		
Compared to most men/women your age, do you think you eat…	Less healthy food	F	133	72	205	.037
		%	56.1%	49.7%	53.7%	
	Alike	F	70	37	107	
		%	29.5%	25.5%	28.0%	
	More healthy food	F	34	36	70	
		%	14.3%	24.8%	18.3%	
Does dietary activity play an important role in your	Yes	F	205	129	334	.480
		%	86.5%	89.0%	87.4%	
	No	F	32	16	48	
		%	13.5%	11.0%	12.6%	
How healthy is your diet in general?	Poor	F	90	40	130	.038
		%	38.0%	27.6%	34.0%	
	Good	F	147	105	252	
		%	62.0%	72.4%	66.0%	

The results show that participants' perceptions of how healthy their diet in general, and how healthy is their diet were significantly associated with using social media to post about their weight (P<0.05). Those who used social media to post about their weight had better perceptions of their dietary habits compared to their peers (Table 8).

Table 9. Association between actual physical activity and posting about physical activity

	using social media to post about physical activity	Mean	Std. Deviation	t.	p-value
Vigorous physical activity	not use	1.16	0.37	-4.44	.00
	use	1.36	0.48		
Moderate physical activity	not use	1.49	0.50	-4.11	.00
	use	1.69	0.46		
Walking for at least 10 minutes at a time	not use	1.71	0.46	-3.96	.00
	use	1.87	0.34		
Sit and watch TV or movies	not use	1.83	0.37	0.28	0.78
	use	1.82	0.38		

Use a computer or other electronic device	not use	1.89	0.32	0.52	0.60
	use	1.87	0.34		
Spend time on social media (such as Facebook, Twitter, YouTube, etc.	not use	1.98	0.15	1.38	0.17
	use	1.95	0.22		

The results show that participants who made posts about their physical activity on social media were mostly spending time on social media (1.95), using a computer or other electronic device (1.87) and sitting and watching TV or movies (1.82). vigorous/moderate physical activity and regular walking were significantly negatively associated with posting on social media (Table 9).

Table 10. Association between BMI and posting about weight

			using social media to post about my weight		Total	p-value
			not use	use		
	underweight	F	43	25	68	.290
		%	18.1%	17.2%	17.8%	
	normal weight	F	126	89	215	
		%	53.2%	61.4%	56.3%	
	overweight	F	54	27	81	
		%	22.8%	18.6%	21.2%	
	obesity	F	14	4	18	
		%	5.9%	2.8%	4.7%	
Total		F	237	145	382	
		%	100.0%	100.0%	100.0%	

As shown in the results (Table 10), no significant association was found between participants' posting on social media bout weight and their BMI (P>0.05).

Discussion

In this study, WhatsApp, Snapchat, YouTube, Instagram, and Twitter were the most used social media platforms. on average, social media sites were used for 3-4 hours per day. These results were different from those reported by Goodyear et al. 2018. Who found that most participants tended to spend between 1-2h (30%) and 2–4 h (27%) on social media, and the most popular media were WhatsApp (75%), Facebook (70%) and YouTube (54%). With the increase of time spent on social media, the level of influence of students from social media increases, and their exposure to news and posts about nutrition and food increases, thus increasing social media's effect on eating behavior (Eser Durmaz et al., 2022). Social media sites were more widely used by the students to post about their dietary habits and physical activity. Snapchat and Twitter were the most used platforms by the students. Similar results were reported by previous studies

(Duggan et al., 2015). Snapchat offers many services that have become a popular platform among college students because it is an easy way to share everyday moments. Unlike other websites, Snapchat messages disappear when opened.

The results of the current study have also indicated that participants who made posts about their physical activity on social media were mostly spending more screen time (time spent watching TV, movies, on the computer, playing video games, or on social media). Recent meta-analyses confirmed that a greater quantity of screen time is associated with an increased risk of obesity (Fang et al., 2019). This phenomenon may be explained by the displacement of time for physical activity by screen-based sedentary behaviors (Stiglic & Viner, 2019). This study indicated important differences between users and nonusers when investigating their actual health behaviors, the trends in the resulting data seem valuable. Further research could reveal significant relationships. Despite the fact that the students in this study had mostly indicated positive perceptions regarding their physical activity and overall health these were not associated with using social media to post about their physical activity and fitness goals. Different results were reported by (Al Ali et al., 2021), while (Hill, 2013) reported similar results. On the other hand, students' perceptions of dietary habits were significantly associated with social media to post about their physical activity habits/likes. Those who used social media to post about their physical activity habits/likes had better perceptions of their dietary habits compared to their peers. (Hill, 2013)found that student health perception in regard to food and dietary habits was not significantly related to social media use.

Limitations

This study had a small sample size and was limited to students from a single university, limiting the generalizability of the findings to other locations and fields. The use of self-reported surveys might lead to bias in results, particularly when it comes to student views of nutrition, weight, and physical activity.

Conclusion

The study concluded that social media is widely used by the students. Snapchat and Twitter were the most used platforms for posts on dietary habits and physical activities. Students who made posts about their physical activity on social media were mostly spending more screen time. Student's positive perceptions regarding their physical activity and overall health were not associated with using social media to post about their physical activity and fitness goals.

Students' perceptions of dietary habits were significantly associated with using social media to post about their physical activity habits/likes. Future health strategies and social media interventions should take into account the contextual factors that drive the use of social media for health (work, housing, lifestyle arrangements, existing health-related knowledge and behaviors, and the beneficial effects of social media recognition). Implementation and assessment techniques that promote behavioral change in a variety of groups should be adapted to the needs of target populations.

References

Al Ali, N. M., Alkhateeb, E. 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.

Alanzi, T., Altuwailib, M., Saadah, A.M., Alanezi, F. (2021). Perception of healthcare providers about the use of social media to manage a healthy diet in Saudi Arabia. Frontiers in Public Health. 2021:490.

Al-Hazzaa, H. M., Abahussain, N.A., Al-Sobayel, H.I., Qahwaji, D. M., Musaiger, A. O. (2011). Physical activity, sedentary behaviors and dietary habits among Saudi adolescents relative to age, gender and region. International Journal of Behavioral Nutrition and Physical Activity. 8:1-4.

Chau, M. M., Burgermaster, M., Mamykina, L. (2018). The use of social media in nutrition interventions for adolescents and young adults-a systematic review. International Journal of Medical Informatics. 120:77–91.

Duggan, M., Ellison, N. B., Lampe, C., Lenhart, A., Madden, M. (2015). Social media update 2014. Pew Research Center. 9;19:1-2.

England, P. H.(2017). Public Health England Social Marketing Strategy 2017 to 2020. [Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/646715/public_health_england_marketing_strategy_2017_to_2020.pdf.

Eşer Durmaz, S., Keser, A., Tunçer, E. (2022). Effect of Emotional Eating and Social Media on nutritional behavior and obesity in university students who were receiving distance education due to the COVID-19 pandemic. Journal of Public Health. 22:1-0.

Fang, K., Mu, M., Liu, K., He, Y. (2019). Screen time and childhood overweight/obesity: A systematic review and meta-analysis. Child: Care, Health and Development. 45, 744–753.

Folkvord, F., Roes, E., Bevelander, K.(2020). Promoting healthy foods in the new digital era on Instagram: an experimental study on the effect of a popular real versus fictitious fit influencer on brand attitude and purchase intentions. BMC Public Health ;20(1):1677.

Goodyear, V. A., Armour, K. M., Wood, H. (2018). Young people and their engagement with health-related social media: new perspectives. Sport Education Society. 24(7):673–88.

Hamm, M. P., Shulhan, J., Williams, G., Milne, A., Scott, S. D., Hartling, L. A. (2014). A systematic review of the use and effectiveness of social media in child health. BMC Pediatrics. 14(1):138.

Hill, E. (2013). College Student Social Media Use and its relation to Health Behaviors (Doctoral dissertation, The Ohio State University).

Li, C., Cheng, G., Sha, T., Cheng, W., Yan, Y. (2020). The Relationships between Screen Use and Health Indicators among Infants, Toddlers, and Preschoolers: A Meta-Analysis and Systematic Review. International Journal of Environmental Research. Public Health, 17, 7324.

Lupton, D. (2018). 'Better understanding about what's going on': Young Australians' use of digital technologies for health and fitness. Sport Education Society. 25(1):1–13.

Lupton, D., Michael, M. (2017). "For Me, the Biggest Benefit Is Being Ahead of the Game": The Use of Social Media in Health Work. Social Media Society:1–10.

Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., Hoving, C. A. (2013). new dimension of health care: a systematic review of the uses, benefits, and limitations of social media for health communication. Journal of Medical Internet Research,15(4):e85.

Muller. A. M., Alley, S., Schoeppe, S., Vandelanotte, C. (2016). The effectiveness of e-& mHealth interventions to promote physical activity and healthy diets in developing countries: a systematic review. International Journal of Behavioral Nutrition and Physical Activity. 13(1):109.

Ofcom.(2020). Adults' Media Use and Attitudes Report. Available from: https://www.ofcom.org.uk/__data/assets/pdf_file/0031/196375/adults-media-use-and-attitudes-2020-report.pdf.

Pappa, G. L., Cunha, T.O., Bicalho, P.V., Ribeiro, A., Couto Silva, A. P., Meira, W. J. r., et al. (2017). Factors associated with weight change in online weight management communities: a case study in the LoseIt Reddit community. Journal of Medical Internet Research.19(1):e17.

Pew Research Center. (2018). Social Media Use Continues to Rise in Developing Countries, but Plateaus Across Developed Ones 2018 Available from: https://medienorge.uib.no/files/Eksterne_pub/Pew-Research-Center_Global-Tech-Social-Media-Use_2018.06.19.pdf.

Pew Research Centre Methodology. (2019). Available from: https://www.pewresearch.org/wp-content/uploads/2019/04/FT_19.04.10_SocialMedia2019_topline_methodology.pdf.

Raggatt, M., Wright, C. J. C., Carrotte, E., Jenkinson, R., Mulgrew, K., Prichard, I., et al. (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(1):1002.

Stiglic, N., Viner, R.M. (2019). Effects of screentime on the health and well-being of children and adolescents: A systematic review of reviews. British medical journal Open, 9, e023191.

Tobey, L. N., Koenig, H. F., Brown, N. A., Manore, M. M. (2016). Reaching low-income mothers to improve family fruit and vegetable intake: food hero social marketing campaign—research steps, development and testing. Nutrients. Sep 13;8(9):562.

Williams, G., Hamm, M.P., Shulhan, J., Vandermeer, B., Hartling, L.(2014). Social media interventions for diet and exercise behaviors: a systematic review and meta-analysis of randomized controlled trials. British Medical Journal Open.4(2):e003926. doi: 10.1136/bmjopen-2013-003926