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ABSTRACT

The objective of this study was to analyze the moderation effect of Age Sensitivity on the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa. The study adopted a cross-sectional research design where data were collected and analyzed at one point in time. In line with the requirements of cross-sectional design, quantitative research methods were used to collect, analyze and present the findings. Data were analyzed using descriptive statistics, regressions, modegraphs, and confirmatory analysis in structural equation modelling. Results reveal that the moderation effect of Age Sensitivity is high. Inversely, the moderation effect is low when Age Sensitivity is low. Therefore, high Age Sensitivity will influence Cognitive Factors to create high Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa. We learn that individuals with strong beliefs become more self-regulated once they become age-sensitive. Given that Self-Regulation positively influences health behavior, we are confident that the moderation effect of Age Sensitivity in the relationship between Cognitive Factors and Self-Regulation results in positive learning. Therefore, it is important for social media developers to enhance the knowledge of their users. At the same time, they should be mindful of users' beliefs and ages when packaging health-related content. This will promote information acceptance and consumption, thereby helping to change the Health Behaviors of social media users positively. Further, governments and relevant regulatory institutions should prohibit children from accessing adult content via social media. An age limit requirement could be placed on different online content such that individuals below that age are not eligible to access or watch such information.

Introduction

Social media platforms are increasingly becoming prominent in the daily lives of many across the globe. According to Dewing (2012), social media platforms have been used over the past decade to share personal as well as business information over the internet amongst individuals, groups of people, and organizations. Saleh et al. (2012) define social media as electronic platforms that support users in creating and engaging in online communities for the purposes of sharing ideas, experiences, and other information via multiple data formats. Social media users can create targeted content depending on the goal, and this information can be shared publicly or privately. Some social media platforms currently in use include Facebook, WhatsApp, TikTok, YouTube, Instagram, and X, among others. The Digital 2024 global report reveals that 5.04 billion people use social media (Kemp, 2024). According to the United Nations, this is approximately 62% of the number of people leaving on earth, which currently stands at 8.08 billion (UN, 2024). According to Kemp (2024), Uganda has 13.3 million internet users, out of whom 3 million are actively engaged on social media platforms. This is approximately 7% of the country's population. Comparatively, Cameroon, our second country of study, has 12.7 million internet users, and 5 million, representing 17% of the population, are on

social media. On the other hand, Nigeria, our third country of study, has 103 million internet users, of whom 37 million are on social media (Kemp, 2024).

As seen above, millions of people use social media platforms that allow different people to meet and share information freely (Morrison et al. 2008). Hospitals and other healthcare service providers, manufacturers, educationists, and political and spiritual leaders use these platforms to inform, educate, convince, and mobilize support and demand for their products and services. Tailored information services are also available (Moorhead et al. 2014; Martinasek et al. 2011). However, not all information is shared via social media brings about positive behavioral change. For example, as earlier seen, information about contraceptives may lead to moral decay (Purdy, 2011; Levine, 2009). Deliberately attractive information about tobacco products targeting youths and other non-smokers may cause smoking addiction and its accompanying effects, such as cancers (Liang et al., 2015; Wrzosiński, 2022). Alcohol and other spirits advertisements may lead to alcoholism and associated socio-economic implications (McQuiston, 2023; Lozoff, 2023). Online sex networks may lead to prostitution, the spread of sexually transmitted diseases and moral degradation (Rocha et al., 2023; Holme, 2014; Fottrell, 2023; Weiss, 2010). Yet all these are readily and indiscriminately available on

social media. Worse still, the business corporations pay influential people to present these advertisements, effectively acting as role models.

The above scenarios and incidences are likely to cause new Health Behaviors among social media users. Some are immediate, while others will be felt in the long run. The immediate health behavioral changes will be manifested in an increasing number of youths and other groups adopting risky and immoral sexual behavior such as prostitution, masturbation, homosexuality and lesbianism, and cross-generational sex due to increased materialism, among others. This is because attractive information about these sexual acts is readily available via social media. The long-term effect of these acts is a systemic breakdown in morals, religious faiths and beliefs in society, the spread of diseases, the emergence of new sexually transmitted diseases, and population degradation due to single-sex marriages and deaths, among others. This study sought to analyze the moderation effect of Age Sensitivity in the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa.

Cognitive Factors and Self-Regulation of Social Media Users

Cognitive or personal factors are those attributes unique to an individual that help the learning process. These include beliefs, knowledge, and attitudes. Bayrón (2013) argues that not all that is observed can be learned or imitated. This is because Cognitive Factors come into play during the observation process and can block some obscure messages observed from being learned by the subject. Hence, Cognitive Factors help the subject learn a new behavior, but only selectively.

For example, a Muslim may observe their role model eating pork, but because of his religious beliefs, such a person may not start eating pork. Similarly, an individual having knowledge of the consequences of eating pork as a Muslim will unlikely imitate the act. Hence, there will be no behavioral change. However, if the subject's beliefs are similar to the role model – in this case, he is not Muslim and his religious beliefs permit him to eat pork, such a person will learn the observed act and do it through imitation. This causes behavioral change.

Just like beliefs, Self-Regulation is the inner feeling that compels the subject to learn an observed act or not. Self-Regulation goes hand in hand with ultimate rewards and punishment. If the subject perceives rewards after imitating the observed act, such a person will actually do the act. On the other hand, if a person perceives the outcome as punishment, they will not do the observed act for fear of punishment. The example of Muslims eating pork can also apply here. A Muslim will not eat pork even if they observe their role model eat it because they fear the consequence of punishment by Allah.

In terms of SM and Health Behavior, whereas a celebrity or even a medical doctor may share information concerning the use of contraceptives for better family planning and prevention of Sexually Transmitted Diseases (STDs), a subject from the catholic religious faith may not learn and actually use contraceptives. This is because the Catholic Church forbids its followers from using such contraceptives.

Blalock et al. (2023) define Self-Regulation as the act of controlling oneself through goal setting, self-instruction, self-rewarding, inner feedback communication and self-evaluation to identify areas where the individual can seek external support from the environment. Bandura (1986) argues that Self-Regulation helps one to learn new behaviors consciously. Self-regulated individuals set their own goals, monitor themselves, seek and maintain social support necessary for achieving their goals, and have contingency plans for countering barriers (Blalock et al., 2023).

According to Winters (2003), Self-Regulation is essential to the learning process. On SM, it helps the learners set their learning goals, eliminate "noise" or unwanted information that circulates around SM, and ensure that they only seek support from the online society to achieve their goals. Individuals can observe their own engagements and know what to do, why and when to stop. By doing this, Blalock et al. (2023) argue that one can set a purpose for his engagement. Through self-reinforcement, an individual feels good about his accomplishments and regrets the bad things they have done. Self-regulated individuals learn to reward themselves for accomplishments and punish themselves for failures or offenses committed against themselves and others.

Age Sensitivity and the Learning of Health Behaviors by Social Media Users

An element lacking in Bandura's Social Cognitive Theory and even in Rotter's Social Learning Theory is the role played by Age Sensitivity in influencing behavioral change. Even in the presence of Cognitive Factors such as beliefs, knowledge, and attitudes, an individual's Self-Regulation will change relative to

Age Sensitivity. Studies by the United Kingdom's National Institute for Health and Clinical Excellence (NIHCE) and the World Health Organization (WHO, 2000) show that Age Sensitivity influences behavioral change. The study carried out in the UK posits that national attempts to change people's Health Behavior did not result in universality. They did not apply across the population because different age groups responded differently to the incentives (NIHCE, 2007). Given the same cognitive attributes, a young person will be quick to change compared to an older person. This also applies in the case of motivation, whereby a given motivational factor may not apply to different age groups. Moreover, age alone per-se may not cause change in the absence of Cognitive Factors.

Furthermore, individuals participating in online communities are quite selective about the age groups of users they interact with. For example, if an individual is older, he/she may prefer to join online communities with a mature age group. Such a person may not learn new Health Behaviors from their age groups. Inversely, young people prefer to join online social media communities where members are relatively young and may desist information from mature people (Cahill & Coffey, 2023). A study by the Australian Communications and Media Authority revealed that young people joined online social network communities of fellow youths, where they engaged in various activities, among which were sexting and bullying. Children of 16 to 17 years reported that they had received or sent sexually provocative images or videos of themselves or others in their communities (ACMA, 2013). The same study shows that adult parents aged 45 and above were keen on monitoring their children's activity on online social networks, although they did not join such communities.

Research design

The study adopted a cross-sectional research design where data were collected and analyzed at one point in time. In line with the requirements of cross-sectional design, quantitative research methods were used to collect, analyze and present the findings.

Sample design

Given that this study involved several countries, the researcher used a convenience sampling technique to select 3 countries that participated in the study. These included Uganda (located in East Africa, which has 9 countries), Cameroon (located in Central Africa, which has 9 countries) and Nigeria (located in West Africa, which has 16 countries). This was done to ensure a fair distribution of samples across the Sub-Saharan Africa region. Further, these countries were selected because the researcher could access them for data collection using his academic and social networks. According to Dörnyei (2007), convenience sampling is a nonprobability sampling technique used to select elements of the population as long as they meet the cardinal criteria of inclusion. Some reasons for using this method are accessibility, privacy, and willingness to participate in the study.

Given that the study population was unknown, a formula for determining sample sizes using population proportion Hyde (2024) was used with the following assumptions:

> Population proportion = 0.5
> Margin of error = 4%
> Confidence level = 95% (z=1.96)

Determining the sample for each country

$$n=p(1-p) (z/E)2$$

Where;
p = population proportion / percentage picking a choice of 50% (0.5)
z = standard normal deviation set at 95% confidence level (1.96)
E = Estimate / Margin of error ±4%

$$n=0.5(1-0.5) (1.96/0.042$$
$$n=0.25(49)2$$
$$n=12.252$$
$$n=150.0625$$
$$n=151$$

Hence total sample for all three countries = 152 x 3 = 453

A total of 151 survey respondents comprising ordinary social media users were selected using simple random sampling from each participating country. This gave a total survey sample of 453, as seen in the computation above. This sample is consistent with Roscoe's (1975) rule of thumb that a sample between 30 and 500 is sufficient for surveys. The sample also meets the 100 required minimum samples for conducting factors analysis and the threshold of 200 respondents for structural equation modelling. A simple random technique was used to select 151 respondents from each country. It was praised for being unbiased as it gave each element of the population the same chance of being selected to participate in the study. Table 1

shows the survey sample.

Table 1:
The survey sample

Country	Sample category	Sampling technique	Sample size
Uganda	Social media users	Simple random	151
Nigeria	Social media users	Simple random	151
Cameroon	Social media users	Simple random	151
Total			453

Data Collection and Analysis Methods

Data were collected using online questionnaires developed on Google Forms. The data were analyzed using descriptive statistics, correlation, and regression methods. A Modgraph by Jose was used to show moderation effects.

Moderator Variable

A moderator variable influences the relationship between the independent and dependent variables by changing the impact of intervening variables. It affects the strength of a relationship between two variables (Statistics Solutions, 2016). In this study, the moderator variable is Age Sensitivity.

Research Hypothesis

The research hypothesis was "Age Sensitivity positively moderates the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa".

Results

Sociodemographic data
3.1 Respondents Gender
Descriptive statistics were used to analyze respondents' gender, as seen in Table 2.

Table 2:
Gender

		Frequency	Percent	Cumulative Percent
Valid	Female	165	46.0	46.0
	Male	193	53.9	100.0
Total		**358**	**100.0**	

Results in Table 2 show that the majority of the respondents were male (Freq=193, 54%). Female respondents were 165, representing 46%.

Respondents' Age

Further, descriptive statistics were used to examine the age groups of respondents. Table 3 presents the results.

Table 3:
Age group

		Frequency	Percent	Cumulative Percent
Valid	20-29 years	123	34.3	34.3
	30-39 years	138	38.5	72.8
	40-49 years	66	18.4	91.2
	50 years and above	31	8.65	100.0
Total		**358**	**100.0**	

Results in Table 3 reveal that most respondents were in the age group 30 to 39 years (Freq=138, representing 38.5%). This was followed by the age group 20 to 29 years with 123 respondents, representing 34%.

The third age group was 40 to 49 years, with 66 respondents representing 18%. The least age group represented was 50 years and above, with only 31 respondents, representing 8.7%.

Respondents' Level of Education

Descriptive statistics were also used to analyze the respondents' levels of education. Table 4 presents the results.

Table 4: Level of education

Table 4:
Level of education

		Frequency	Percent	Cumulative Percent
Valid	Certificate	11	3.07	3.07
	Diploma	68	18.9	21.9
	Degree	176	49.1	71.1
	Masters	96	26.8	98.0
	PhD	7	1.95	100.0
Total		**358**	**100.0**	

Results in Table 4 indicate that the majority of the respondents were degree holders (Freq=176, 49%). This was followed by master's degree holders (Freq=96, 27%) and diploma holders (Freq=68, 19%). The least respondents were certificate holders (Freq=11, 3%) and PhD holders (Freq=7, 2%).

Testing for Moderation

Multiple Hierarchical Regression analysis was used to examine the moderating effect of Age Sensitivity on the relationship between Cognitive Factors and Self-Regulation. Table 5 presents the results.

Table 5:
Age Sensitivity Moderating Cognitive Factors and Self-Regulation

Model	Model 1		Model 2		
Variable	B	Beta	B	Beta	n
(Constant)	2.489**		4.484**		
Cognitive Factors	0.134*	0.124*	-0.324	-0.299	358
Age Sensitivity	0.26**	0.388**	-0.277	-0.414	
Cognitive Factors * Age Sensitivity		0.388**	0.122*	1.021*	
R	.443		.454		
R2	.196		.206		
Adj R2	.192		.199		
R2 Change	.196		.010		
F Change	43.303		4.468		
Sig. F	.000		.035		
F	43.303		30.640		
Sig.	.000		.000		

**.Significant at 0.01*
. Significant at 0.05

Results in Table 5, model 1 reveal that the relationship between Cognitive Factors and Self-Regulation is significant at a 95% confidence level (Beta=0.124*, P<0.5). Further, the relationship between Age Sensitivity and Self-Regulation is significant at a 99% confidence level (Beta=0.388**). The predicting power of Cognitive Factors and Age Sensitivity on Self-Regulation is 19% (Adj R2= .192).

In model 2, Cognitive Factors, Age Sensitivity together with the product of Cognitive Factors and Age Sensitivity contribute 19.9% of Self-Regulation (Adj R2=.199). The product of Cognitive Factors and Age Sensitivity contributes to 1% of Self-Regulation (R2 Change=.010). This means that Age Sensitivity

moderates the relationship between Cognitive Factors and Self-Regulation. For moderation to manifest, all the above relationships should be present and significant. However, the moderation effect, though significant, is very small, given that the product of Cognitive Factors and Age Sensitivity contributed only 1% of Self-Regulation.
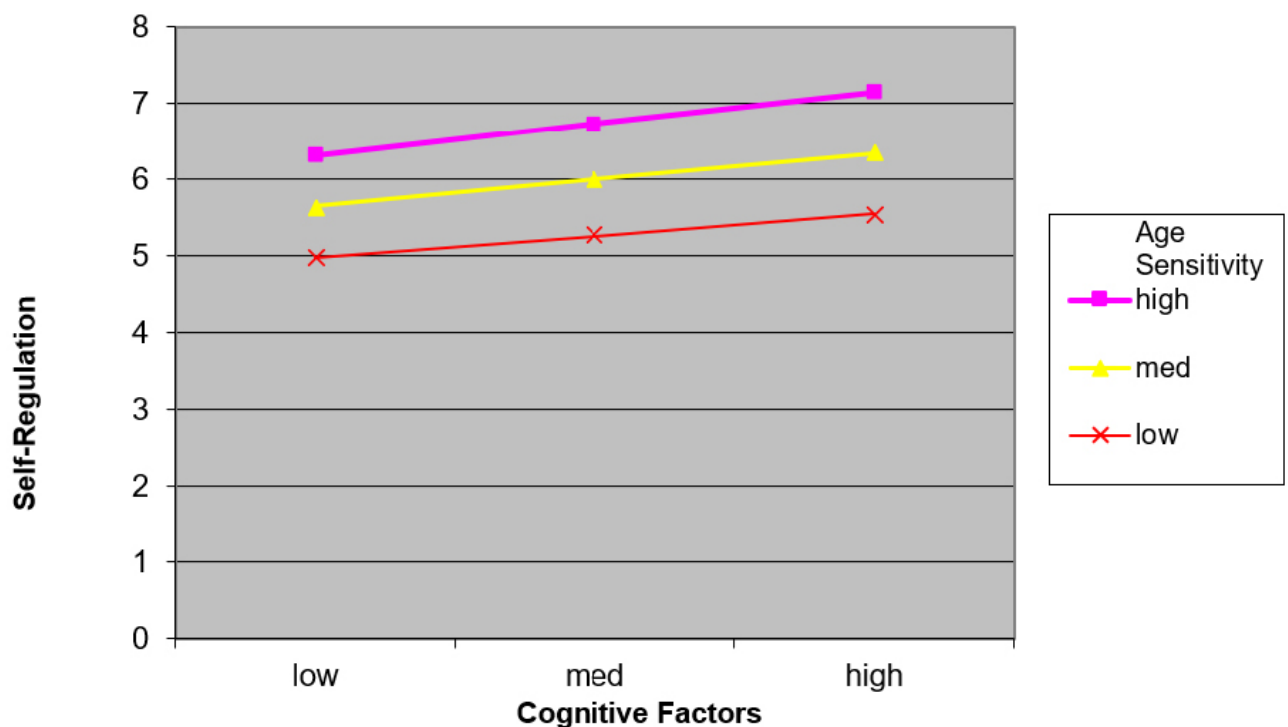
Table 6:

Coordinates for Age Sensitivity

	3 x 3 Table Continuous		
	Low	**Med**	**High**
Age Sensitivity			
High	6.31266	6.73045	7.14825
Med	5.64733	5.99747	6.34762
Low	4.98199	5.26449	5.54699

Figure 1:

Moderation effect of Age Sensitivity

Since low, medium and high coordinates of Age Sensitivity do not intersect, the resultant lines representing the Age Sensitivity moderation effect are parallel, although they are moving towards the intersection. This indicates that Age Sensitivity moderates the relationship between Cognitive Factors and Self-Regulation, as shown in Figure 1. A further examination of Figure 1 reveals that the moderation effect is high when Age Sensitivity is high. Inversely, the moderation effect is low when Age Sensitivity is low. Therefore, high Age Sensitivity will influence

Testing for Moderation Effect Using a Modgraph

To further examine the moderating effect of Age Sensitivity on the relationship between Cognitive Factors and Self-Regulation, Jose's (2013) Modgraph was used. Results are presented in Table 6 and Figure 1

Cognitive Factors to create high Self-Regulation.

Confirmatory Analysis

Confirmatory analysis was conducted using the structural equation modelling technique to confirm the findings from regression and Modgraph. Table 7 presents the results.

Table 7:
Age Sensitivity Moderating Cognitive Factors and Self-Regulation - Model Fit Summary

X2	DF	P	X2/DF	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
8.653	6	.194	1.442	.993	.968	.983	.940	.995	.981	.994	.035

			Estimate	S.E.	C.R.	Beta	P	Hypothesis
Self-Regulation	8.653	Cognitive Factors	.185	.055	3.332	.151	***	Hypothesis is supported
Self-Regulation		Age Sensitivity	.360	.035	10.174	.473	***	
Self-Regulation		Age Sensitivity * Cognitive Factors	.105	.030	3.561	.157	***	

Confirmatory results in Table 7 reveal a significant positive relationship between the moderator variable Age Sensitivity and Self-Regulation (Beta=.473, P<0.001). At the same time, there was a significant positive relationship between the interaction variable Age Sensitivity * Cognitive Factors and the dependent variable Self-Regulation (Beta=.157, P<0.001). Given that the independent variable, Cognitive Factors, had a positive significant relationship with its dependent variable Self-Regulation (Beta=.151, P<0.001), it was suggested that Age Sensitivity positively moderates the relationship between Cognitive Factors and Self-Regulation. This implies that Age Sensitivity enhances the relationship between Cognitive Factors and Self-Regulation. Looking at the Modgraph in Figure 1, we observe that the effect of Cognitive Factors on Self-Regulation is more at higher levels of Age Sensitivity. In other words, the more age-sensitive the social media users are, the more their cognitive attributes, such as knowledge and skills, will increase their level of Self-Regulation. Conversely, the less age-sensitive the social media users are, the less their cognitive attributes will increase their level of Self-Regulation. It is, however, worth noting that the moderation effect of Age Sensitivity on the relationship between Cognitive Factors and Self-Regulation is weak owing to slight differences in the slopes at the different levels of Age Sensitivity.

Based on the above findings, the research hypothesis was supported. Therefore, Age Sensitivity positively moderates the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa.

Discussion

Correlation and regression findings supported the research hypothesis that Age Sensitivity moderates the relationship between Cognitive Factors and Self-Regulation. Further, SEM results revealed that the moderation effect of Age Sensitivity in the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms was positive and significant. This finding suggests that where Age Sensitivity is high, the relationship between Cognitive Factors and Self-Regulation is also high. The current finding confirms suggestions by literature that Age Sensitivity moderates an individual's knowledge and beliefs, thereby making them more self-regulated in terms of controlling one's actions and setting one's learning goals, among others (NIHCE, 2007; WHO, 2000). The findings help to validate a study by Warwas et al. (2021), which established that young people were heavy users compared to older people. According to Warwas et al. (2021), younger people used social media 7 times more than the elders. This is further reinforced by Xu (2022), who argues that young people and women are widespread social media users. These groups used social media by posting their status more than the male adults, which significantly influenced them to learn new behaviors from users with similar preferences.

We learn from this finding that social media users who are highly knowledgeable and possess strong beliefs in their cultural norms and religion, coupled with their beliefs towards certain age groups, are more reserved in terms of sharing and consuming health-related information via social media platforms (Xu, 2022). The higher one's Age Sensitivity towards social media participants, the more their knowledge and personal beliefs will influence that person to

become more self-regulated.

This finding can facilitate the learning process in the sense that individuals with solid beliefs and who base their learning on age groups where information emanates from are likely to employ selective learning. This helps them to consume only desired information which will benefit their health and positively change their Health Behaviors. For example, an older person who is highly knowledgeable and with strong religious beliefs while searching for information about sexual pleasure may avoid visiting pornographic pages and or communities in favor of a religious or scientific page or online community for learning. This enables them to learn without distortion.

Conclusion

The study sought to analyze the moderation effect of Age Sensitivity on the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa. Findings revealed a positive and significant moderation effect of Age Sensitivity in the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms. Therefore, we conclude that the interaction of Age Sensitivity helped to improve the relationship between Cognitive Factors and Self-Regulation of social media users in learning new health behaviors via social media platforms in Sub-Sahara Africa.

Recommendations

For the case of Age Sensitivity positively moderating Cognitive Factors and Self-Regulation, we learn that individuals who are knowledgeable with strong beliefs, once they become age-sensitive, they also become more self-regulated. Given that Self-Regulation has a positive influence on Health Behavior, we are confident that the moderation effect of Age Sensitivity in the relationship between Cognitive Factors and Self-Regulation results in positive learning. Therefore, it is important for social media developers to enhance the knowledge of their users, and at the same time, they should be mindful of users' beliefs and ages when packaging health-related content. This will promote information acceptance and consumption, thereby helping to positively change the Health Behaviors of social media users. Further, governments and relevant regulatory institutions should prohibit children from accessing adult content via social media. An age limit requirement could be placed on different online content such that individuals below that age are not eligible to access or watch such information. For example, online channels that teach people how to satisfy their partners sexually should not be accessible to children below the legal age of consent in the respective countries. This can be enforced through national Information Communication Technology regulatory institutions.

Limitations of the Study

We note a weak regression of R=0.443 and 0.454 for Cognitive Factors and Age Sensitivity on Sefl-Regulation. The total variance of 45.4% means that other unknown factors explain 54.6% of changes in Self-Regulation. Future research should be directed towards establishing these other factors and how they influence Self-Regulation of social media users.

References

ACMA. (2013). *Like, post, share: Young Australians' a of social media.* Australian Communications and Media Authority.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory* Prentice-Hall.

Bayrón, C. E. (2013). Social cognitive theory, entrepreneurial self-efficacy and entrepreneurial intentions: Tools to maximize the effectiveness of formal entrepreneurship education and address the decline in entrepreneurial activity. *Revista Griot*, 6(1), 66–77.

Blalock, S. J., Bone, L., Brewer, N. T., Butterfoss, F. D., Champion, V. L., & Epstein, R. E. (2023) Health behavior and health education: Theory, research, and practice. In K. G., Rimer, B. K., &

Viswanath, K. (Eds.), *Perelman School of Medicine, University of Pennsylvania.* Retrieved March 3, 2023, from http://www.med.upenn edu/hbhe4

Cahill, H., & Coffey, J. (2023). *Learning partnerships.* University of Melbourne. Retrieved March 29, 2023, from http://education.unimelb edu.au/__data/assets/pdf_file/0007/1338469 YRC_ResearchReport38.pdf

Dewing, M. (2012). *Social media: An introduction.* Library of Parliament.

Dörnyei, Z. (2007). *Research methods in applied linguistics.* Oxford University Press.

Fottrell, Q. (2023). Friends, prostitutes commingle on social networks. *MarketWatch.* Retrieved March 26, 2023, from http://www.

marketwatch.com/story/friends-prostitutes comingle-on-social-networks-2013-05-16

Holme, P. (2014). The social, economic, and sexual networks of prostitution. ACM. https://doi.org/10.1145/2745-9781

Hyde, S. K. (2024). Math 221: Confidence intervals for a population proportion Chapter 19 (Moore, 5th ed.). *Brigham Young University.* Retrieved January 30, 2024, from http://jekyll.math.byuh.edu/courses m221/handouts/handout19_prop_ci.pdf

Kemp, S. (2024). Digital 2024: *Global overview report.* Datareport.

Levine, D. (2009). Using new media to promote adolescent sexual health: Examples from the field. *Act Youth Center of Excellence.*

Liang, Y., Zheng, X., Zeng, D. D., Zhou, X., Leischow, S. J., & Chung, W. (2015). Exploring how the tobacco industry presents and promotes itself in social media. *Journal of Medical Internet Research,* 17(1), e24. https://doi.org/10.2196/jmir.3683

Lozoff, T. (2023). 4 beer companies with social media on tap. *Mashable.* Retrieved March 6, 2023, from http://mashable com/2010/08/27/beer-social-media/

Martinasek, M. P., Panzera, A. D., Schneider, T., Lindenberger, J. H., Bryant, C. A.,

McDermott, R., & Couluris, M. (2011). Benefits and barriers of pediatric healthcare providers toward using social media in asthma care. *American Journal of Health Education,* 42(3), 150–157. https:/ doi.org/10.1080/19325037.2011.10599194

McQuiston, T. (2023). The ultimate guide to craft beer social media marketing. *Portable Bar Company.* Retrieved March 6, 2023, from https://theportablebarcompany com/craft-beer-social-media-marketing/

Moorhead, A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., & Hoving, C. (2014). A new dimension of health care: Systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of Medical Internet Research,* 16(3), e85. https://doi.org/10.2196/jmir.1933

Morrison, R. S., Joan, D., Brian, J. C., Caust Ellenbogen, M., Litke, A., Spragens, L., &

Meier, D. E. (2008). Cost savings associated with US hospital palliative care consultation programs. *American Medical Association,* 300(14), 1670 1677. https://doi.org/10.1001/jama.300.14.1670

NIHCE. (2007). *Behavior change at population,* community and individual levels. National Institute for Health and Clinical Excellence.

Purdy, H. C. (2011). Using the internet and social media to promote condom use in Turkey. *Reproductive Health Matters,* 19(37), 157–165. https://doi.org/10.1016/S0968-8080(11)37553-2

Rocha, L. E. C., Liljeros, F., & Holme, P. (2023). Information dynamics shape the sexual networks of internet-mediated prostitution. *Sungkyunkwan University.* Retrieved March 25, 2023, from http://arxiv.org/ftp/arxiv papers/1003/1003.3089.pdf

Roscoe, J. T. (1975). *Fundamental research statistics for the behavioral sciences* (2nd ed.). Holt Rinehart & Winston.

Saleh, J., Robinson, B., Kugler, N., Illingworth, K., Patel, P., & Saleh, K. (2012). Effect of social media in health care and orthopedic surgery. *The Cutting Edge,* 35(4), 294–298.

Statistics Solutions. (2023). Moderator variable. Retrieved March 7, 2023, from https://www.statisticssolutions.com/directory of-statistical-analyses general-moderator-variable/

UN. (2024). *World population prospects 2024.* United Nations.

Warwas, I., Dziminska, M., & Krzewinska, A. (2021). The frequency of using websites and social media by various age groups to form opinions about scientific topics: Findings from the European context. *Hawaii International Conference on Systems Sciences.*

Weiss, R. (2010). Smart phones, social networking, sexting and problematic sexual behaviors—A call for research. *Sexual Addiction & Compulsivity,* 17(3), 241–246. https://doi.org/10.1080/10720162.2010.513810

WHO. (2000). *Health and health behavior among young people.* World Health Organization Policy Series: Health policy for children and adolescents Issue 1; International Report.

Winters, E., Petosa, R., & Charleton, T. (2003). Using social cognitive theory to explain discretionary "leisure-time" physical exercise among high school students. J*ournal of Adolescent Health,* 32(5), 436–442. https://doi.org/10.1016 S1054-139X(02)00757-3

Wrzosiński, P. (2022). Tobacco in social media. K-Message. Retrieved March 26, 2022, from http:/ www.k-message.com/tobacco-in-social-media/

Xu, J. (2022). Motivation for social

media use by life stage and gender.
International Conference on Mental Health.