

# Do it for the gram: results from the physical activity and social media support (PASS) study



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CPP Student RCSA Conference 2022

Kellogg Honors College Capstone Project



**Background:** Sedentary lifestyles and physical inactivity are prevalent global public health issues [1]. These issues have been further perpetuated by the current COVID-19 pandemic. Researchers have enlisted different modes to deliver interventions to promote physical activity. Physical activity promotion interventions provide education and motivational strategies which have been shown to produce positive effects on physical activity [1]. Internet-based interventions may offer the most potential due to the opportunity for widespread community outreach, large-scale physical activity promotion, and active user engagement [2]. Social media-based interventions are becoming increasingly common as a mode of delivery for physical activity promotion interventions as they can produce moderate improvements in physical activity, but this is still an understudied area [4]. Instagram is of particular interest because of the various methods of interaction with options including sharing photos, videos, hashtags, temporary stories, and commenting on other posts. Its wide reach and potential for increased user engagement make it a promising platform for physical activity promotion interventions. Alongside the increased use of social media as an educational modality is the staggering prevalence of physical activity related misinformation on the platform as perpetuated by various sources. This misinformation can become increasingly problematic if users accept content at face value and do not consider if the source is credible [7]. The impact of misinformation spread throughout the social media platform could be harmful to the effectiveness of social media as a physical activity education modality. With the potential reach of Instagram as a physical activity promotion intervention, research is needed to determine if the Instagram profile and content play a role in the user's trust in the information and their level of engagement with the platform.



**Purpose:** The primary purpose of the current study is to determine the level of trust that participants place in account holders and if users do further verification regarding provided educational content. The current study also aims to fill the current literature gaps and understanding of the possible role of Instagram as a social media platform for physical activity promotion and content delivery.

TRUST

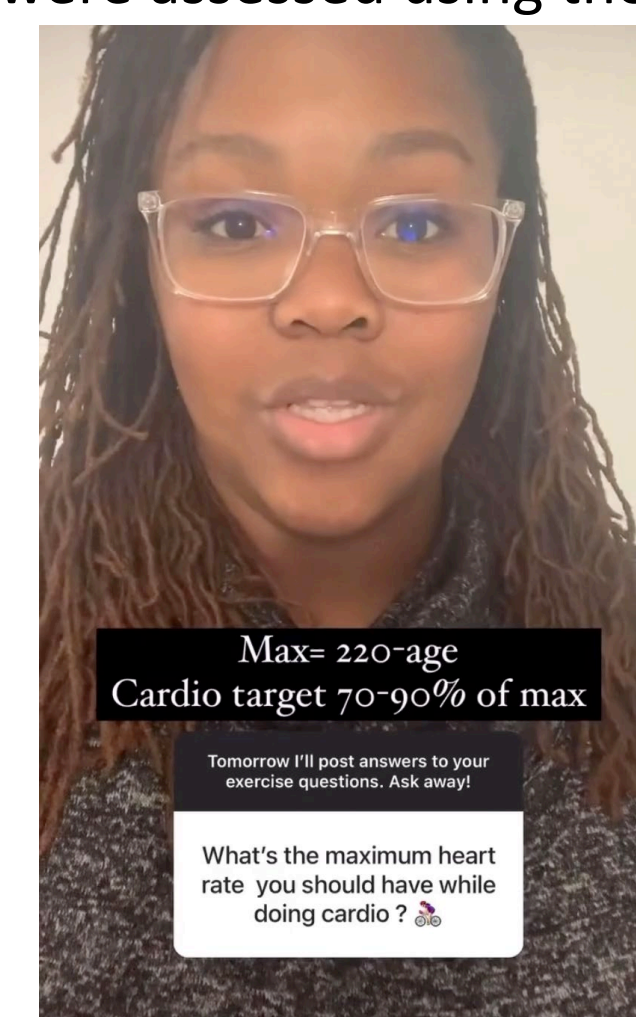


**METHODS:** The PASS study was approved by the Institutional Review Board (IRB-21-8) and registered on clinicaltrials.gov (NCT04744077). The PASS study took place from January to June 2021 and all study activities were completed virtually. Participants were recruited on a rolling basis from February to March 2021. Eligibility criteria required participants to be 18 years or older, engage in 150 minutes of moderate-to-vigorous exercise per week, and must have a personal Instagram account.

The PASS study was a three-arm randomized intervention that took place through Instagram. Once eligibility was determined, participants were randomized to one of three groups and corresponding Instagram accounts. The three accounts consisted of the control group, student group, and scientist group. Participants randomized to the control group were asked to follow a public account, @itschloeting, a popular fitness influencer that has amassed 749,000 followers. This account was selected as the control as this page accurately represents exercise content that users are commonly exposed to. The two intervention groups were led by a student and a scientist to determine if account holder had an impact on user trust and acceptance of educational and motivational content. The first intervention group was managed by a Kinesiology student and health care worker (SD). SD did not disclose this information and presented herself as a general college student. By withholding area of study and career aspirations, a baseline level of trust could be studied when users are not influenced by academic qualifications and large following. The scientist account was managed by a Kinesiology professor and certified exercise physiologist (ZHL). ZHL disclosed this information on the account and was considered the gold standard as participants could expect reliable information.

Both intervention groups, student-led and scientist-led posted identical educational and informative content daily for thirteen weeks. All delivered content was evidence-based and sourced from reputable organizations such as the American College of Sports Medicine, American Heart Association, Center for Disease Control, and World Health Organization. To determine whether participants had confidence in the presented information, source references were not available for participants. Participants were asked to complete weekly questionnaires for a period of four weeks and complete follow-up questionnaires at two and three months through Qualtrics (Qualtrics XM, Qualtrics, Drive Provo, UT USA). As an incentive to complete the study surveys, participants were entered into a raffle where 30% of participants received a free wearable activity monitor, valued at \$150. Participants rated their trust in the content presented by the Instagram account and their enjoyment of the Instagram account on a scale of 1 to 10, with 1 being the lower boundary and 10 being the upper boundary. Participants also answered if they learned something new, did any further research, and satisfaction by rating on a 5-point scale from extremely disagree to extremely agree.

The Statistical Package for the Social Sciences (SPSS, version 26, IBM, Chicago, IL USA) were used to perform the analysis. The  $\alpha$ -level was set at 0.05. Descriptive statistics were calculated by means and frequencies. Comparisons between groups at 4-weeks were analyzed using non-parametric method through Kruskal-Wallis and Fisher's exact tests for continuous or categorical variables, respectively. Non-parametric methods were used as the data was not normally distributed. Post comparisons within groups were analyzed using Wilcoxon Signed Rank test. Outcomes were assessed using the intent-to-treat principle carrying the last measurements forward.



**RESULTS:** Participants were not statistically different by study groups. Overall, participants were young adult (18-25 years of age), White, and female. Most participants resided within the United States outside of California in states including Arizona, Colorado, Georgia, Illinois, Maryland, Missouri, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, and Utah. Nearly all participants received at least some college education and were regular Instagram users that have used the platform for two years or more and check the app 7 or more times per day. Most participants were categorized as high physical activity based on the IPAQ. Participants were excluded for being active based on a single-item questions that asked the individual to report how many minutes of planned exercise they complete each week. A summary of baseline and 4-week values is displayed in **Table 1**. There were no group differences on the study outcomes from baseline to 4-weeks using the intent-to-treat principle. With the exception of enjoyment which was different between the control and student group. There was also no difference in pre-post values within study groups with the exception of "learning something" in the student group.

	Scientist Group (n=16)	Student Group (n=16)	Control Group (n=14)	Total (n=45)
%				
Age				
18-25 years	33.3	44.4	53.8	46.5
26-35 years	40.0	33.3	38.5	39.5
40-59 years	26.7	5.6	7.7	14.0
Gender				
Male	46.7	14.3	7.7	23.8
Female	46.7	86.7	9.3	73.8
Non-binary	6.7	-	-	2.4
Race				
White	46.7	64.3	30.8	47.6
African American/Black	16.6	14.3	23.1	16.7
Asian	20.0	14.3	23.1	23.8
Other	6.7	7.1	23.1	11.9
Where do you reside?				
CA	40.0	35.7	61.5	45.2
Other	60.0	64.3	38.5	54.8
Level of education				
High school graduate	-	20.0	-	7.0
Some college	20.0	40.0	53.8	37.2
2-year degree	13.3	6.7	7.7	9.3
4-year degree	40.0	6.7	23.1	23.3
Professional degree	26.7	26.7	15.4	23.3

## Demographical Results

	Scientist Group (n=16)	Student Group (n=16)	Control Group (n=14)	Total (n=45)
%				
Time using Instagram				
6-12 months	6.7	-	-	2.3
1-2 years	-	-	7.7	2.3
>2 years	93.3	100.0	92.3	95.3
Frequency using Instagram				
1-3 times per month	6.7	-	7.7	4.7
1-6 times per week	6.7	6.7	7.7	7.0
1-2 times per day	6.7	13.3	15.4	11.6
3-6 times per day	20.0	40.0	38.5	32.6
7+ times per day	60.0	40.0	30.8	44.2
Physical activity category				
High	53.3	60.0	57.1	56.8
Moderate	26.7	6.7	35.7	22.7
Low	20.0	33.3	7.1	20.5

## Results

		Control (n=13)		Student (n=17)		Scientist (n=16)	
		Baseline	4-weeks	Baseline	4-weeks	Baseline	4-weeks
Trust	Median (range)	6.00	5.00	5.00	5.00	7.00	7.00
Enjoyment	Median (range) <sup>a</sup>	7.00	2.50	6.00	7.00	6.00	7.00
Learning something (%) <sup>†</sup>	Strongly Agree	7.7	0.0	20.0	17.6	13.3	25.0
	Somewhat Agree	61.5	23.1	26.7	47.1	40.0	25.0
	Neither Agree nor Disagree	23.1	23.1	33.3	29.4	26.7	25.0
	Somewhat Disagree	7.7	23.1	13.3	5.9	20.0	18.8
Further research (%)	Strongly Disagree	0.0	30.8	6.7	0.0	0.0	6.3
	Strongly Agree	0.0	0.0	6.7	0.0	6.7	0.0
	Somewhat Agree	69.2	30.8	80.0	29.4	46.7	25.0
	Neither Agree nor Disagree	23.1	30.8	6.7	23.5	20.0	6.3
Overall satisfaction (%)	Somewhat Disagree	0.0	15.4	6.7	31.3	20.0	31.3
	Strongly Disagree	7.7	23.1	0.0	37.5	6.7	37.5
	Extremely Satisfied	-	0.0	-	15.4	-	10.0
	Somewhat Satisfied	20.0	-	-	61.5	-	40.0
	Neither Satisfied nor Dissatisfied	20.0	-	-	15.4	-	30.0
Overall satisfaction (%)	Somewhat Dissatisfied	30.0	-	7.7	-	20.0	-
	Extremely Dissatisfied	30.0	-	0.0	-	0.0	-

<sup>a</sup>Statistically different between control and student group (<0.05)  
<sup>†</sup>Statistically different pre-post in student group (<0.05)

**DISCUSSION:** The present study is novel as the results of different Instagram accounts were compared, while most other research does not compare intervention structure. Supplementing the limited research regarding comparative social media-based intervention structures is essential to consider for future use. As most of the results were null, we can conclude that account owner qualifications and identity do not have a meaningful influence on participant trust levels, learning, and overall satisfaction. However, enjoyment significantly differed from the control and student group at 4 weeks. Possible reasoning for this difference in enjoyment could be explained by posting frequency. At the 4-week mark, the student-led group had been consistently posting daily for 4 weeks. In contrast, the control account had decreased posting frequency and new content population. This suggests that interventions are more enjoyable to participants with regular posting frequency. Additionally, only the student-led group reported learning something new over 4 weeks. This could result from reliability as the student account was managed by a white, young adult female, similar to much of the participant demographic. More research is needed to determine whether identity homogeneity plays a meaningful role in participant receptiveness to new information.

## CONCLUSION:

The present study investigated the level of trust that participants place in Instagram account holders and if users do further verification regarding provided educational physical activity content. These factors were not statistically significant amongst groups. However, level of enjoyment differed when comparing the control and student groups. Further research should be done on the impact of posting schedule and account holders identity on intervention enjoyment to be used in future study implementation.

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