Association between social media use for medical information during pregnancy and likelihood of vaccination against COVID-19

OBJECTIVE: Pregnant individuals are a high-risk group for COVID-19 because of an increased risk for adverse outcomes.[1] Vaccines are effective at preventing severe disease.[2] However, obstacles to universal vaccine uptake remain.[3]

There are several factors that could impact vaccine acceptance during pregnancy, including the source of medical information upon which individuals rely. It is unknown whether the use of social media for medical information during pregnancy influences COVID-19 vaccination uptake.

We examined the Assessing the Safety of Pregnancy in the Coronavirus Pandemic (ASPIRE) cohort[4] to test the hypothesis that the use of social media for medical information during pregnancy would be associated with a reduced likelihood of COVID-19 vaccination.

STUDY DESIGN: Between April 2020 and December 2021, 7880 pregnant individuals aged ≥18 years at <10 weeks' gestation consented to an institutional review board–approved prospective cohort study of pregnancy and infant outcomes in relation to pandemic factors, including COVID-19 infection and vaccination (ASPIRE).[4] A total of 3018 participants from all 50 US states completed online questionnaires. The research team was based in San Francisco, California. At the end of the third trimester, participants were asked about the sources of medical information used during pregnancy, categorized as healthcare provider, friends and family, social media, and other pregnancy websites. Individuals were asked to indicate all sources and their primary resource.

To evaluate associations between the baseline characteristics and social media use as a source of medical information, bootstrapped (1000 reps) linear regression models and multinomial logistic regression models were used. A logistic regression was used to test for the association between social media use and vaccination with adjustment for other sources of medical information and covariates selected a priori, including age, race, ethnicity, education, household income, recruitment cohort, and healthcare worker status. Statistical analyses were performed in STATA v17.0 (StataCorp, College Station, TX).

RESULTS: The most common sources of medical information were healthcare provider (86%) and pregnancy websites (85%). A total of 52% of participants used social media and 54% reported friends or family as sources. Most participants reported multiple information sources. Of the 3018 participants, 2664 (88%) received COVID-19 vaccines (2121 during pregnancy).

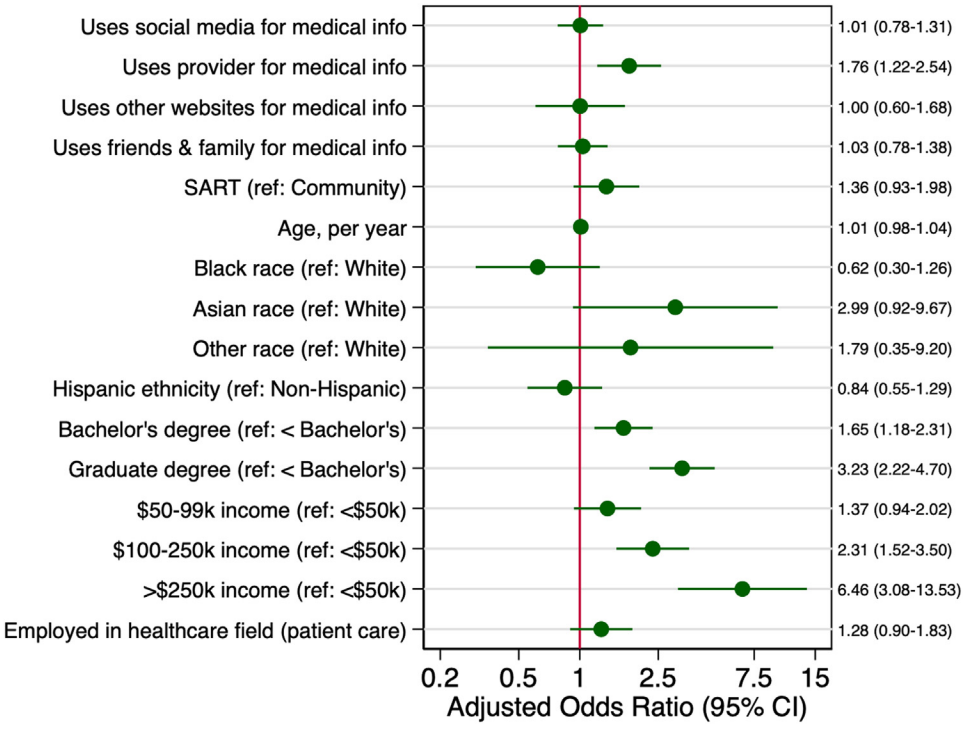
Social media use was more common among Hispanic individuals, individuals who were employed full time, and who did not work in a healthcare field ($P<.05$) (Table).

In fully adjusted models, social media use for medical information was not associated with the likelihood of COVID-19 vaccination (adjusted odds ratio [aOR], 1.01; 95% confidence interval [CI], 0.78−1.31). However, use of healthcare provider was associated with the likelihood of receiving a COVID-19 vaccination (aOR, 1.76; 95% CI, 1.22−2.54) (Figure).

In a sensitivity analysis in which the primary source of medical information was examined, 5% of participants cited social media, 52% cited other websites, 37% cited provider, and 3% cited friends or family. Substituting primary source as the predictor, we again did not observe a relationship between social media use and the odds of receiving a COVID-19 vaccination (aOR, 1.00; 95% CI, 0.55−1.82; $P=.99$).

CONCLUSION: Contrary to our hypothesis, the use of social media as a source of medical information during pregnancy was not associated with COVID-19 vaccine acceptance in pregnancy. It is possible that algorithms driving feed content reinforce preconceived healthcare-related attitudes and behaviors ("echo chamber" concept)[5] instead of challenge them.

FIGURE
Adjusted odds ratios (95% CI) of vaccination among study population



Odds ratios are adjusted for other sources of medical information, recruitment cohort (SART vs community), maternal age, race, ethnicity, education, household income, healthcare worker status (yes/no).

CI, confidence interval; *SART*, Society for Assisted Reproductive Technology

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TABLE
Sociodemographic characteristics by social media use for medical information

Characteristic or group	No social media use Mean (SD) or n (row %)	Social media use Mean (SD) or n (row %)	*P* value[a]
Sample			
Community	1080 (48.2)	1161 (51.8)	.746
SART	363 (48.4)	387 (51.6)	
Maternal age (y)	33.46 (4.29)	33.10 (4.18)	.068
Gestational age at enrollment (wk)	7.09 (1.39)	7.00 (1.43)	.125
Race			
White	1267 (48.1)	1366 (51.9)	.978
Black	36 (53.7)	31 (46.3)	
Asian	59 (44.4)	74 (55.6)	
Native American	7 (53.9)	6 (46.2)	
Mixed or other	48 (45.7)	57 (54.3)	
Ethnicity			
Not Hispanic	1294 (48.5)	1374 (51.5)	.010
Hispanic	106 (41.1)	152 (58.9)	

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TABLE
Sociodemographic characteristics by social media use for medical information *(continued)*

Characteristic or group	No social media use Mean (SD) or n (row %)	Social media use Mean (SD) or n (row %)	*P* value[a]
Education			
Less than bachelor's degree	200 (50.8)	194 (49.2)	.197
Bachelor's degree	479 (46.6)	548 (53.4)	
Graduate degree	759 (48.2)	815 (51.8)	
Household income			
<$50,000	125 (49.6)	127 (50.4)	.901
$50,000–$99,000	366 (48.7)	385 (51.3)	
$100,000–$250,000	750 (48.2)	807 (51.8)	
>$250,000	198 (45.5)	237 (54.5)	
Work status			
Unemployed	60 (50.9)	58 (49.1)	.034
Full-time homemaker	169 (51.2)	161 (48.8)	
Part-time employment	176 (52.5)	159 (47.5)	
Full-time employment	1033 (46.7)	1177 (53.3)	
Works in healthcare field (patient care)			
No	1103 (46.0)	1295 (54.0)	<.001
Yes	335 (56.3)	260 (43.7)	
Region of residence			
Midwest	346 (48.4)	369 (51.6)	.766
Northeast	259 (46.7)	296 (53.3)	
South	378 (49.0)	394 (51.0)	
West	433 (47.5)	479 (52.5)	
Lives in a metropolitan area			
No	519 (50.3)	513 (49.7)	.060
Yes	899 (46.7)	1025 (53.3)	
Dominant SARS-CoV-2 strain[b]			
Alpha	340 (46.0)	399 (54.0)	.389
Delta	1011 (49.0)	1054 (51.0)	
Omicron	101 (47.2)	113 (52.8)	
Vaccination timing			
Unvaccinated	170 (48.0)	184 (52.0)	.376
Vaccinated >12 wk before pregnancy	0 (0)	0 (0)	
Vaccinated within 12 wk of pregnancy	108 (58.7)	76 (41.3)	
Vaccinated during pregnancy	1017 (48.0)	1104 (52.0)	
Vaccinated within 12 wk of delivery	142 (43.6)	184 (56.4)	
Vaccinated >12 wk after delivery	15 (45.4)	18 (54.6)	

The results for n=3018 participants are presented.

SART, Society for Assisted Reproductive Technology.

[a]*P* value was for the use of social media for medical information, adjusted for use of other websites, provider, or friends and family. Bootstrapped (1000 reps) linear regression was used for continuous characteristics and a multinomial logistic regression was used for categorical characteristics.

[b]Alpha: before July 2021; Delta: July–November 2021; Omicron: December 2021 or later. Timing based upon completion of health information questionnaire at end of third trimester of pregnancy.

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