

RESEARCH LETTER

## Exploring the Combined Effects of Social Media Use and Medical Skepticism Tendency on Recourse to Complementary and Alternative Medicine

Ben Bulmash, PhD,<sup>1,i</sup> Moty Amar, PhD,<sup>2</sup> Ofir Ben-Assuli, PhD,<sup>2</sup> and Opher Caspi, MD, PhD<sup>3</sup>

### Introduction

MEDICAL SKEPTICISM IS DEFINED AS “global doubts regarding the ability of [conventional] medical care to alter health status appreciably.”<sup>1</sup> Research has shown that medical skepticism is independently associated with lower health care utilization, fewer health-related preventive measures, a higher percentage of unhealthy behaviors, as well as younger age and less education.<sup>1</sup> Participation in social media is widely recognized as a powerful influence on people’s beliefs regarding all matters of life. We hypothesized that frequency of use of social media may serve as a barometer as to how different individuals form opinions with respect to the effectiveness and safety of health-related behaviors and medical interventions. Interestingly, very few studies to date have focused on the potential impact of both tendencies toward medical skepticism and the extent to which patients engage in social media on the frequency of traditional, complementary, alternative, and integrative medicine (TCAIM) services utilized by patients with chronic illnesses. This study was designed to fill this gap by exploring these associations using real-world data.

### Methods

We used data from MIDUS, a national longitudinal study of health and well-being.<sup>2</sup> The database includes multidisciplinary variables such as psychological factors (e.g., personality traits), demographic variables (e.g., socioeconomic standing), as well as a wide range of self-reported health-related indices. This study drew on MIDUS III (data from 2013 to 2014), and was composed of 3294 people. Using the database, tendency toward

medical skepticism was measured using the following item: “When I am sick, getting better is in the doctor’s hands.” We operationalized “medical skepticism” in such a way that we considered any response indicating disagreement on this item as a self-reported tendency toward medical skepticism (disagree a little, disagree somewhat, disagree strongly), otherwise, coded 0. Notably, while the item chosen logically taps into the medical skepticism construct, defined as doubts about the ability of conventional medical care to appreciably alter health status,<sup>1</sup> alternative interpretations may be considered as well, as discussed later in this article.

Regarding social media usage, the MIDUS III study asked participants to indicate how often they use social media, including Facebook, Twitter, Skype, text messages, and chat rooms. As a dependent variable, we used the MIDUS III participants’ self-reported frequency of TCAIM visits in the previous 12 months for acupuncture, energy healing, herbal medicine, homeopathy, spiritual healing, chiropractic, massage, meditation and imagery techniques, hypnosis, special diet, megavitamins, and biofeedback.

In addition to self-reported demographic information as well as subjective physical and mental health indices, other available psychological measures were also included in all the regression analyses as covariates, based on the literature, although they are not reported here.

We used a multivariate linear regression in stepwise mode using two steps. In the first step, we added the theory variables social media use and medical skepticism tendency and in the second step we added the interaction between our two theory variables.

<sup>1</sup>Faculty of Industrial Engineering and Technology Management, Holon Institute of Technology (HIT), Holon, Israel.

<sup>2</sup>Faculty of Business Administration, Ono Academic College, Kiryat Ono, Israel.

<sup>3</sup>Rabin Medical Center, Davidoff Cancer Center, Petah-Tikva, Israel.

<sup>i</sup>ORCID ID (<https://orcid.org/0000-0002-0480-9304>).

TABLE 1. FREQUENCY OF TRADITIONAL, COMPLEMENTARY, ALTERNATIVE, AND INTEGRATIVE MEDICINE VISITS FOR THE THREE MEDICAL CONDITIONS

	<i>Medical condition</i>					
	<i>Musculoskeletal</i>		<i>Respiratory</i>		<i>Gastrointestinal</i>	
	B	SE	B	SE	B	SE
Independent variables						
Step 1						
Social media use	0.008+	0.005	0.017*	0.008	0.009	0.006
Medical skepticism tendency	0.073**	0.024	0.044	0.039	0.068*	0.029
	$R^2=0.210$		$R^2=0.388$		$R^2=0.235$	
Step 2						
Social media use	-0.002	0.007	-0.004	0.010	-0.004	0.008
Medical skepticism tendency	0.070**	0.024	0.042	0.038	0.061*	0.029
Social media use × medical skepticism tendency	0.021*	0.009	0.043**	0.014	0.026*	0.011
	$R^2=0.218 (\Delta R^2=0.007^*)$		$R^2=0.420 (\Delta R^2=0.032^{**})$		$R^2=0.245 (\Delta R^2=0.010^*)$	

N=665–666 for musculoskeletal; N=224 for respiratory; N=486 for gastrointestinal. + $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ . Background variables are included but not presented.

**Results**

Variance explained by the three regression models ranges from 21.8% to 42%. Results (Table 1) show that for both musculoskeletal and gastrointestinal disorders, people with a tendency toward medical skepticism used TCAIM more frequently than nonskeptics. Second, the interaction effect for social media use and tendency toward medical skepticism was consistent across the three medical conditions, indicating that social media use was associated with increased TCAIM frequency but only for people with skeptic tendency.

**Discussion**

Using real-world data from over 3000 adults (based on the MIDUS III data set), we explored the impact of engagement in social media and tendency toward medical skepticism on individuals' frequency of recourse to TCAIM across three chronic medical categories. The findings suggest that social media activity could be positively linked to TCAIM use only for people with medical skepticism tendencies. This result is consistent with and adds insight to previous research.<sup>3,4</sup>

It should be emphasized that although a secondary analysis of survey data such as MIDUS may help scholars to gain new insights,<sup>5–8</sup> relying on single-item self-report measures increases the potential for error and impedes discovering an alternative explanation for the effect. Specifically, the skepticism item may be interpreted as health locus of control, which assesses respondents' perceptions of the importance of factors governing their own health or illness. Alternative interpretations of the item provided by our data set may indeed cause a degree of construct ambiguity. Future research should rule out such alternative explanations. Furthermore, this method of research does not provide researchers with the opportunity to include all relevant factors, such as the location of the patient and the availability of TCAIM in this

area, the specific type and nature of the social media communication used, or other motivations for using TCAIM.

**Authors' Contributions**

Dr. B.B. carried out data analysis, writing, and editing. Dr. O.C. performed literature review, writing, and editing. Dr. O.B.-A. carried out literature review, writing, and editing. Dr. M.A. carried out literature review and writing. All authors contributed to conceptualizing and strategizing the research design.

**Authorship Confirmation Statement**

All the coauthors have reviewed and approved the article before submission.

**Author Disclosure Statement**

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Address correspondence to:

*Ben Bulmash, PhD*  
*Faculty of Industrial Engineering*  
*and Technology Management*  
*Holon Institute of Technology (HIT)*  
*52 Golomb Street*  
*Holon 58102*  
*Israel*

*E-mail: benbu@hit.ac.il*