Journal of Asian Health

ORIGINAL RESEARCH ARTICLE

Mitigating Burnout? The Impact of Using Social Media on Patient Engagement, and Career Satisfaction of Health Care Providers in China

Nan Yu[1], Jian Rui[2], Sixiao Liu[3] and Juan Chen[2]

Introduction: The well-being of health care providers is closely linked to the quality of patient care they deliver. This study examined how social media was used for work among health care providers and its impact on burnout, career satisfaction, and patient engagement.

Methods: A cross-sectional online survey was conducted. A total of 374 Chinese health care providers, including physicians, nurses, and medical staff completed the study.

Results: Our study reveals that health care providers in China predominantly utilized social media to communicate with their colleagues. Moreover, using social media to connect with patients beyond regular working hours was significantly associated with an increased sense of personal accomplishment and career satisfaction, alongside a reduced likelihood of experiencing depersonalization. Additionally, communicating with other health care providers was positively associated with a sense of personal accomplishment and negatively associated with depersonalization.

Conclusions: Our study uncovered substantial benefits to incorporating social media into the health care practices. Using social media increased physicians' likelihood of treating patients with a human-centric approach, valuing their work, and fostering job satisfaction. The study underscored the importance of social media for professional networking, knowledge sharing, and patient engagement in the health care context.

Key Words: social media ▪ burnout ▪ career satisfaction ▪ health care providers

In an era where health care systems are overburdened and the global community confronts unprecedented public health crises, the mental well-being of health care providers has emerged as a critical public health concern.[1,2] Scholars have documented a global epidemic of burnout among physicians given one third of this workforce have heightened stress, and emotional exhaustion, which jeopardizes their mental stability.[3,4] Research has linked physician burnout to impaired clinical judgment, diminished quality of patient care, and declining physical and mental health.[4–7] Beyond the immediate patient-facing pressures of their roles, health care providers also face a continuous demand to stay abreast with rapid advances in medical science, technology, and treatments, which further compounds their mental well-being challenges.[8,9]

Understanding factors that could mitigate these mental health challenges is important since physician well-being is directly linked to the quality of care they deliver and patient satisfaction.[5,8] The widespread adoption of social media in the workplace has introduced both benefits and detriments to health care providers.[10–12] While patients may feel empowered by greater

Correspondence to: Nan Yu, Nicholson School of Communication and Media, University of Central Florida, 12405 Aquarius Agora Dr, Orlando, FL 32816, USA. Email: nan.yu@ucf.edu

For Sources of Funding, see page 10.

Journal of Asian Health is available at https://journalofasianhealth.org

POPULAR SCIENTIFIC SUMMARY

- The well-being of health care providers directly impacts the care patients receive.
- Our study found that using social media to facilitate work might help reduce burnout, improve job satisfaction, and encourage more patient-centered care.
- It shows that social media can make health care more human and fulfilling for both doctors and patients.

accessibility to health care through social media, physicians consistently face challenges related to privacy protection, unmonitored professionalism, and increased working hours.[11–13] This study explores the role of social media in health care and investigates whether its application exacerbates or alleviates the challenges faced by health care providers.

SOCIAL MEDIA AND HEALTH CARE

Social media platforms have been an emerging channel for medical professional dialogue over the past several decades.[11,12] For example, it has been reported that over 75,000 health care professionals around the world use Twitter to share information and discuss treatments.[12] In China, Wechat has been widely used by physicians to connect with patients, stay current with latest medical research, and internally report cases of urgent illness.[14]

A growing body of research demonstrates multifaceted benefits of social media in health care. Benefits range from improved clinical service delivery and streamlined referrals to the creation of inclusive virtual professional communities that facilitate information sharing, networking, and collaboration across medical specialties and career stages.[14–16] The use of social media in health care has great potential to empower health providers, thus enhancing the overall quality of the health care system.[15,16]

However, there have also been concerns about the drawbacks of social media use, including compromised patient confidentiality,[16] prolonged work time,[17] and misleading medical advice.[18] Beyond these issues, health care providers have expressed concerns about data protection and liability, fearing that conversations on social media could be considered medical records.[12,17] Some also worried about the blurred boundaries between their professional and personal lives due to social media use.[19] Consequently, the aforementioned drawbacks of social media use in health care may exacerbate feelings of burnout, stress, and dissatisfaction among health care providers. Given these conflicting perspectives, there is an urgent need to better understand the nuanced role of social media in influencing health care professionals' well-being.

HEALTH CARE WORKERS' SOCIAL MEDIA USAGE IN CHINA

While social media's influence on health care providers has been well-documented on a global scale, the Chinese context in specific has not been well explored. In China, the extensive integration of social media and other smartphone applications into health care process is especially noteworthy,[14] leading scholars to examine its direct impact on health care quality, professional development, and job turnover.[20–22] Studies indicate that nearly half of Chinese physicians rely on social media to stay informed about medical advancements and to engage in professional discussions with their peers.[22] In fact, some Chinese health care providers have become social influencers, having amassed 20+ million followers on Weibo, a microblogging site.[23] WeChat, the most popular social media platform in China (6th globally),[24] has become instrumental in patient-physician communication. At least one-third of patients in China request to connect with their doctors via social media, a practice rarely seen in other health care systems around the world.[25] For example, Dr. Yang Liu, a Chinese surgeon, disclosed in an interview that he has friended 2,000+ patients on WeChat to address medical inquiries and disseminate health information.[25]

While such practices may facilitate health care delivery, they also invade the personal space of Chinese health care providers and demand extra commitment outside of normal work hours. Consequently, it could exacerbate burnout among health care providers in China, presenting them with unique mental challenges.[26] A recent study revealed that 60.6% of Chinese physicians experienced a mild degree of burnout, while 5.9% faced severe burnout.[27] The widespread use of social media in the Chinese health care ecosystem offers rich ground for exploring its complex impact on health care providers' mental well-being, offering critical insights for optimizing health care delivery in the digital era.

As we explore the relationship between social media use and the mental well-being of health care providers, it is crucial to pinpoint measurable indicators that reflect their psychological state. Burnout and career satisfaction are two such influential indicators.

BURNOUT AND CAREER SATISFACTION

Work-related burnout among health care professionals has been widely studied due to its adverse impact on patients, health care quality, and physicians' own care and safety.[2,7] Symptoms of burnout include fatigue,

depression, inability to concentrate, anxiety, reduced interest in work and life, and/or increased use of drugs and alcohol.[2,8] The Maslach Burnout Inventory (MBI), a widely accepted assessment tool for health provider burnout, conceptualizes burnout into three dimensions: emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment.[28] *Emotional exhaustion* describes the state in which health care providers feel emotionally drained and overwhelmed by their work, leaving them feeling like they have limited emotional capacity for their patients and other work-related demands. *Depersonalization* denotes a tendency of health care providers to view patients impersonally, leading to detached or callous treatment. It can also extend to a broader emotional disengagement from patients or the job. *A sense of reduced personal accomplishment* reflects health care providers' feelings when they perceive their work as lacking worth or value. This dimension also captures their sentiments of inefficacy in assisting patients, leading providers to potentially question their own self-worth in their role.[28]

On the other hand, career satisfaction offers a broader perspective on health care providers' sense of fulfillment. Linked negatively to burnout, the satisfaction health care providers derive from their careers can be influenced by myriad factors, including gratification received from patient care, opportunities for advancement and success, influence in organizational and administrative decision-making, and financial gains.[8,9,29] A diminished sense of career satisfaction can adversely impact patient–physician communication and may even deter prospective candidates from venturing into the medical profession.[29]

RESEARCH GOALS

When social media platforms became essential communication tools for health care professionals in China, the dynamics surrounding burnout and career satisfaction became even more complex.[22,26] The always-on nature of social media platforms means that health care providers may feel compelled to work beyond regular working hours. A reduction in face-to-face interactions may elevate feelings of depersonalization. At the same time, the immediacy of feedback on social media platforms may influence both a health care provider's sense of accomplishment and overall career satisfaction. The intertwining of professional and personal interactions online further may intensify these dynamics, presenting unique challenges for health care providers in China as they navigate their roles in this digital age.

Despite its undeniable significance and urgency, the topic of social media's influence on health care providers in China remains underexplored. This study aimed to bridge this gap by first establishing a foundational understanding of how health care providers in China utilize social media platforms for their work (RQ1). We further delved into the intricate relationship between social media use for work and the dimensions of health care providers' burnout: (1) emotional exhaustion, (2) depersonalization, and (3) a sense of reduced personal accomplishment (RQ2). In addition, we sought to understand how social media use in health care impacts Chinese health care providers' overall career satisfaction (RQ3).

METHODS

Design and sampling

This study was approved by the ethical review board of South China University of Technology in 2019. Upon approval, data were collected in June 2020 using a cross-sectional, online survey. The survey questionnaire was designed by two scholars collaboratively ensuring the key measures were validated by previous literature in the field. The questionnaire was designed in English and subsequently translated into Mandarin by two researchers who are fluent in both Mandarin and English. The two translators then compared, discussed, and resolved differences in their questionnaire translations. Then, the Chinese survey questionnaire was reviewed by two Chinese physicians independently to evaluate whether all questions items were written in a way that local health care providers would understand. The survey was created in Qualtrics.

Data collection lasted for 2 weeks. We recruited physicians, nurses, or other medical staff currently working in hospitals or clinics in China using a snowball-sampling strategy on WeChat. As the most popular social media platform in China,[30] WeChat aggregates the major functions of Facebook, WhatsApp, Pinterest, Google News, Tinder, Amazon, Expedia, and more into one. Besides the various functions provided by WeChat, this platform was also recognized as the most popular channel for professional connectedness and communications.[30]

The survey link of this study was initially sent to a few WeChat groups consisting of medical providers. Participants received a small amount of money by clicking on a Red Packet icon on WeChat before they joined the survey. Individuals who completed the study were asked to pass along the survey information to their colleagues.

Sample size was calculated through power analysis using statistical software G*Power (version 3.1).[31] With the regression effect size (R^2) of 0.15, 95% power, and a total number of 15 predictors, the power analysis indicated a sample size of 107 would be required for the test. Our final sample included 374 health care providers.

Dependent variables

Career satisfaction was measured on a 5-point scale (1 = very dissatisfied to 5 = very satisfied). A total of 11 items were adopted from Keeton et al.[8] and Linn et al.[10] We measured the three dimensions of burnout (i.e. emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment) using an adaptive version of the Maslach Burnout Inventory.[30] Measurement items, reliability indices, means, and standard deviations of the dependent measures are presented in Table 1.

Independent variables

Participants were asked to report how frequently they engaged in five types of actions on social media (1 = never to 5 = always) for work purposes. These five types of usage for work include: (1) communicating with patients during their working hours, (2) communicating with patients after working hours, (3) communicating with patients they never met, (4) using social media to communicate with colleagues or other health care providers, (5) sharing medical knowledge on social media.

Besides social media usage, participants also reported how often they engaged with patients using cellphones (direct calls or text) and emails. Demographics and working status variables were measured at the end of the questionnaire.

Statistical analysis strategies

Data were analyzed using statistical software SPSS (IBM Corp, version 25). Repeated-measures ANOVA was conducted to answer RQ1. RQ2a–c and RQ3 were addressed by using hierarchical linear regression. A series of three-stage hierarchical multiple regression was used to explore significant factors related to health care providers' burnout and career satisfaction. Demographic factors such as biological sex, age, income, number of children at home, position as physician or nurse, years in practice, and weekly working hours were included in Model 1 as controlled variables. Model 2 added the variables of frequency of using a cellphone (direct call or text) or emails to connect with patients. Lastly, five predictors of social media usage were added to Model 3: frequency of using social media to communicate with

Table 1. Means, Standard Deviations, and Reliability for Dependent Variables.

Dependent variables	*M*	SD	Reliability
Emotional exhaustion 1 'strongly disagree to 5' 'strongly agree'	3.73	0.76	0.85
I feel emotionally drained from my work	3.90	0.82	
I feel used up at the end of the workday	3.92	0.79	
I feel fatigued when I get up in the morning and have to face another day on the job	3.38	0.99	
Depersonalization (1 = strongly disagree, 5 = strongly agree)	2.57	0.94	0.86
I feel I treat some patients as if they were impersonal objects	2.23	1.03	
I've become more callous toward patients since I took this job	2.73	1.05	
I worry that this job is hardening me emotionally	2.78	1.11	
Personal accomplishment (1 = strongly disagree, 5 = strongly agree)	3.77	0.55	0.78
I have accomplished many worthwhile things in this job	3.84	0.70	
I deal very effectively with the problems of my patients	3.72	0.63	
I feel I'm positively influencing patients' lives through my work	3.78	0.65	
Career satisfaction	3.19	0.55	0.87
On a scale of 1 (very dissatisfied) to 5 (very satisfied), please indicate how satisfied you feel about your work…			
My contact with other physicians	3.83	0.69	
My relationships with non-physician health professionals	3.87	0.63	
Manpower resources available to you	3.26	0.85	
Patient volume	3.07	0.86	
My ability to derive personal gratification from patient care	3.22	0.90	
Salary	2.34	0.94	
Opportunities for promotion and/or increasing success in the future	2.65	0.94	
My ability to remain knowledgeable and current	3.32	0.88	
My ability to meet the needs and demands of patients	3.51	0.73	
My role in making organizational and administrative decisions	3.07	0.84	
Degree of status and prestige associated with your work	2.90	0.85	

Abbreviations: M = mean, SD = standard deviation.

patients during working hours, frequency of using social media to communicate with patients after hours, communicating with patients they never met, frequency of using social media to communicate with co-workers or colleagues, and frequency of using social media to share medical knowledge. Emotional exhaustion, depersonalization, personal accomplishment, and career satisfaction were added as the dependent variables in each test, respectively.

Assumptions, including normality, homoscedasticity, and multicollinearity were checked before regression tests were performed. All assumptions were met. For the multicollinearity check, variance inflation factor values ranged between 1 and 8 and were below 10.

RESULTS

Participant demographics and working status

Our sample (N = 374) consisted of 301 physicians, 55 nurses, and 18 medical staff. They came from 14 different medical departments (Table 2). On average, they had worked in their profession for 13.45 years (SD = 8.39). Their average weekly workload was 52.22 hours (SD = 16.52).

Among all participants, 62% identified as female (n = 232), with about 38% as male (n = 142). Participants were 23–61 years old (M = 38.45; SD = 7.36). Regarding income, 54.9% (n = 206) of participants reported a yearly income in Chinese currency under RMB 100,000 (USD$14,400), followed by 32.8% (n = 123) reporting a yearly income in the range of RMB 100,001–200,000 RMB (USD$14,401–USD$28,800), and 12.1% (n = 45) reporting earning over 200,001 RMB (more than USD$28,800) a year. The variable income was recoded as a dichotomous variable using a median split (0 = below RMB 100,000, 1 = above RMB 100,001). About 46.7% (n = 175) of participants had at least one child under 18 at home (M = 0.89, SD = 0.72).

Table 2. Medical Departments of Participants.

Medical departments	Number of participants
Internal medicine	124
General surgery	84
Emergency	20
Obstetrics and gynecology	13
Neurology	11
B Ultrasonic room	9
Pediatrics	6
Radiology	6
Traditional Chinese medicine	5
Ophthalmology	5
Dermatology	2
Stomatology	2
Otolaryngology	1
Psychology	1
Physiotherapy	1
Others	84
Total	374

Social media usage for work (RQ1)

Descriptive analysis showed that 71.6% (n = 268) of health providers 'often' or 'always' used social media to communicate with their co-workers. This percentage is higher than sharing medical knowledge (45.2%, n = 169), communicating with patients after working hours (30.8%, n = 115), communicating with patients during working hours (22.2%, n = 83), and communicating with patients they never met (8.5%, n = 32).

We conducted a repeated-measure one-way ANOVA to analyze which type of usage happened the most frequently. We found the frequency of using social media for the five different work purposes differed significantly (Wilks' Λ = 0.37, F [4, 370] = 161.59, P < 0.001).

Social media was most frequently used to communicate with other health care providers (M = 3.70, SD = 0.82). The second most frequent usage of social media was to share medical knowledge (M = 3.26, SD = 0.88). These two types of usages were more often reported than using social media to communicate with patients (P < 0.001).

When comparing the frequency of communicating with patients during working hours (M = 2.60, SD = 1.06), after work (M = 2.87, SD = 1.00), or communicating with patients they never met (M = 2.21, SD = 0.96), the analysis showed that social media was more often used to communicate with patients after working hours, and least often used to communicate with patients they never met (P < 0.001, Fig. 1).

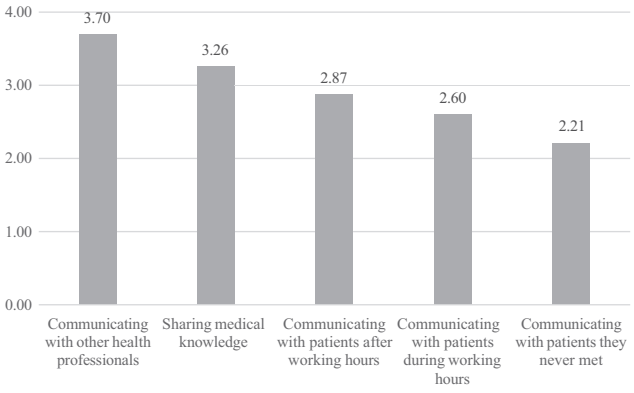

Figure 1. Means for frequency of using social media for work. Note: Wilks' Λ = 0.37, F (4, 370) = 161.59, P < 0.001. Frequency was measured with 1 = never to 5 = always. All mean pair-wise comparison significantly differs at P < 0.001 with a Bonferroni adjustment.

Factors associated with emotional exhaustion (RQ2a)

Hierarchical regression analyses testing factors related to emotional exhaustion showed insignificant models (R^2 = 0.048, F [15, 352] = 1.18, P = 0.29) (Table 3). The only factor that was positively associated with emotional exhaustion was weekly working hours (β = 0.15, P = 0.01).

Factors associated with depersonalization (RQ2b)

The hierarchical regression analysis resulted in three significant models for depersonalization (Table 4). In Model 1, 9.5% of the variance in depersonalization was accounted for (R^2 = 0.095, F [8, 359] = 4.71, P < 0.001). Being a physician (β = −0.22, P = 0.02) or nurse (β = −0.23, P = 0.026) reduced the likelihood of experiencing depersonalization. In Model 2, an additional factor, the number of children at home, was positively associated with depersonalization (β = 0.11, P = 0.036). Model 3, with all factors added in, suggested that 15.9% of the variance in depersonalization was accounted for in total (R^2 = 0.159, F [15, 352] = 4.44, P < 0.001]. In Model 3, communicating with patients using social media after working hours (β = −0.17, P = 0.03) was negatively associated with depersonalization. This showed that the more health care providers used social media to communicate with patients after their working hours, the less likely they would experience depersonalization in their work. Similarly, the result revealed an association between connectedness with colleagues and other health care providers and level of depersonalization, suggesting that the more health care providers used social media to connect with other health care providers, the less likely they would experience depersonalization (β = −0.14, P = 0.015).

Factors associated with personal accomplishment (RQ2c)

The analysis showed three significant regression models for personal accomplishment. In Model 3 (Table 5), a total of 14.9% of the variance in personal accomplishment was accounted for with all factors included (R^2 = 0.149, F [15, 352] = 4.10, P < 0.001]. The number of children at home was negatively associated with personal accomplishment (β = −0.11, P = 0.037). Using social media to communicate with patients after working hours

Table 3. Hierarchical Regression Analysis for Variables Related to Emotional Exhaustion.

Dependent Variables	Model 1		Model 2		Model 3		R^2 change	F change
	β[a]	P	β	P	β	P		
Step 1: Demographic variables							0.038	1.78
Sex	-0.04	0.52	-0.03	0.65	-0.02	0.67		
Age	.006	0.66	-0.07	0.62	-0.07	0.62		
Income	-0.06	0.27	-0.06	0.29	-0.06	0.28		
Number of children at home	0.09	0.09	0.08	0.13	0.08	0.15		
Physician	-0.06	0.51	-0.10	0.33	-0.10	0.34		
Nurse	0.03	0.81	0.02	0.87	0.02	0.96		
Weekly working hours	0.15	0.006	0.15	0.009	0.15	0.01		
Years in practice	0.13	0.32	0.14	0.30	0.14	0.30		
R^2 = 0.038, $F_{8, 359}$ = 1.78, P = 0.08								
Step 2: Cellphone and email usage							0.006	1.21
Communicating with patients using a cell phone	_		0.05	0.39	0.05	0.46		
Communicating with patients using emails	_		-0.08	0.14	-0.08	0.19		
R^2 = 0.045, $F_{10, 357}$ = 1.67, P = 0.09								
Step 3: Professional social media usage							0.003	0.226
Communicating with patients during working hours	_		_		0.04	0.61		
Communicating with patients after working hours	_		_		0.005	0.95		
Communicating with patients they never met	_		_		-0.01	0.84		
Communicating with other health professionals	_		_		0.03	0.61		
Share medical knowledge	_		_		-0.05	0.40		
R^2 = 0.048, $F_{15, 352}$ = 1.18, P = 0.29								

[a]All beta coefficients are standardized regression coefficients.

Table 4. **Hierarchical Regression Analysis for Variables Related to Depersonalization.**

Dependent Variables	Model 1		Model 2		Model 3		R^2 change	*F* change
	β[a]	*P*	β[a]	*P*	β[a]	*P*		
Step 1: Demographic variables							0.095	4.71
Sex	0.10	0.06	0.10	0.08	0.08	0.13		
Age	-0.06	0.67	-0.01	0.93	-0.01	0.96		
Income	-0.06	0.28	-0.07	0.19	-0.05	0.37		
Number of children at home	0.09	0.07	0.11	0.036	0.11	0.025		
Physician	-0.22	0.02	-0.19	0.043	-0.15	0.11		
Nurse	-0.23	0.026	-0.23	0.022	-0.21	0.033		
Weekly working hours	-0.07	0.22	-0.06	0.27	-0.03	0.62		
years in practice	-0.20	0.116	0.23	0.08	-0.22	0.08		
$R^2 = 0.095, F_{8, 359} = 4.71, P < 0.001$								
Step 2: Cellphone and email usage							0.01	1.93
Communicating with patients using a cell phone	_		-0.11	0.051	-0.03	0.64		
Communicating with patients using emails	_		0.04	0.51	0.06	0.33		
$R^2 = 0.105, F_{10, 357} = 4.17, P < 0.001$								
Step 3: Professional social media usage							0.055	4.57
Communicating with patients during working hours	_		_		0.12	0.08		
Communicating with patients after working hours	_		_		-0.17	0.03		
Communicating with patients they never met	_		_		0.03	0.70		
Communicating with other health professionals	_		_		-0.14	0.015		
Share medical knowledge	_		_		-0.11	0.07		
$R^2 = 0.159, F_{15, 352} = 4.44, P < 0.001$								

[a]All beta coefficients are standardized regression coefficients.

(β = 0.27, *P* = 0.001) and to communicate with other health care providers (β = 0.12, *P* = 0.036) were positively associated with personal accomplishment. Because a reduced sense of personal accomplishment was an indication of burnout,[22,23] our analysis demonstrates a positive role that social media usage may play in lowering burnout. Specifically, using social media to connect with patients after work and communicate with other health care providers are associated with lessened burnout by increasing the sense of personal accomplishment.

Factors associated with career satisfaction (RQ3)

The hierarchical regression analysis resulted in three significant models for career satisfaction (Table 6). In Model 1, 7.6% of the variance in career satisfaction was accounted for (R^2 = 0.076, *F* [8, 359] = 3.68, *P* < 0.001). Specially, age (β = 0.30, *P* = 0.026) and income (β = 0.18, *P* < 0.001) were positively associated with career satisfaction.

In Model 2, by adding the usage of cell phone for text or direct calls and emails to communicate with patients, an additional 6.5% of the variance in career satisfaction was accounted for (R^2 = 0.140, *F* [10, 357] = 5.83, *P* < 0.001). Connecting patients using text messages (β = 0.15, *P* = 0.009) and direct calls, as well as emails (β = 0.19, *P* < 0.001), were positively associated with career satisfaction. Higher income (β = 0.21, *P* < 0.001) increased career satisfaction significantly.

Model 3 explained a total of 16.0% of the variance in career satisfaction (R^2 = 0.160, *F* [15,352] = 4.46, *P* < 0.001). In addition to income (β = 0.20, *P* < 0.001) and communicating with patients using emails (β = 0.15, *P* = 0.008), using social media to communicate with patients after hours was positively associated with career satisfaction (β = 0.14, *P* = 0.047).

DISCUSSION

This study discovered both benefits and challenges of social media usage among health care professionals in China. We found that social media was widely used for peer-to-peer communication among health care providers, which is consistent with previous findings.[13,17,22] This indicates that social media usage is associated with enhanced professional development of health care providers by offering additional avenues for peer-to-peer knowledge exchange. It is noteworthy that social media has become a popular channel for some health care providers to

Table 5. Hierarchical Regression Analysis for Variables Related to Sense of Personal Accomplishment.

Dependent Variables	Model 1		Model 2		Model 3		R^2 change	F change
	β[a]	*P*	β	*P*	β	*P*		
Step 1: Demographic variables							0.089	4.36
Sex	0.006	0.91	0.002	0.98	0.007	0.90		
Age	0.24	0.07	0.20	0.14	0.19	0.15		
Income	0.06	0.23	0.07	0.16	0.06	0.28		
Number of children at home	-0.09	0.08	-0.10	0.058	-0.11	0.037		
Physician	0.11	0.23	0.12	0.21	0.08	0.42		
Nurse	0.12	0.25	0.13	0.20	0.13	0.19		
Weekly working hours	0.11	0.054	0.11	0.052	0.07	0.18		
Years in practice	0.02	0.85	0.05	0.72	0.03	0.82		
$R^2 = 0.089$, $F_{8, 359} = 4.36$, $P < 0.001$								
Step 2: Cellphone and email usage							0.008	1.55
Communicating with patients using a cell phone	_		0.07	0.25	-0.04	0.52		
Communicating with patients using emails	_		0.05	0.34	0.03	0.64		
$R^2 = 0.096$, $F_{10, 357} = 3.81$, $P < 0.001$								
Step 3: Professional social media usage							0.052	4.32
Communicating with patients during working hours	_		_		-0.05	0.44		
Communicating with patients after working hours	_		_		0.27	0.001		
Communicating with patients they never met	_		_		-0.01	0.83		
Communicating with other health professionals	_		_		0.12	0.036		
Share medical knowledge	_		_		-0.04	0.54		
$R^2 = 0.149$, $F_{15, 352} = 4.10$, $P < 0.001$								

[a]All beta coefficients are standardized regression coefficients.

provide and share medical knowledge with the public, as nearly half of survey respondents reported sharing medical knowledge on social media.

Patients now have additional opportunities to interact with health care providers as over one-third of providers reported that they often connected with their patients even after working hours. This is good news for patients, but it may pose challenges for health care providers' work-life balance, as over half of the physicians and nurses in the study stated that social media usage invaded their personal time and space and took away their family time.

Our findings further extended the scope of the benefits of social media usage found in previous studies.[13,17] Our results revealed that certain uses of social media (e.g. connecting with patients after working hours or networking with other health care providers) are associated with decreased levels of depersonalization and increased levels of personal accomplishment at work. This result is significant because reducing depersonalization would enable health care providers to adopt a more humanistic approach in treating patients, focusing on their individuality and well-being. Increased personal accomplishment can lead to an enhanced feeling of career value and worthiness.[2] Utilizing social media for patient communication after hours and connecting with patients via email were found to have a positive influence on career satisfaction. These findings indicate that internet-based platforms play a significant role in enhancing job satisfaction for health care providers.

Limitations and future studies

The study has certain limitations. The online sampling method may restrict the generalizability of the results to the entire health care workforce. In addition, data collection took place over a 2-week period during the

Table 6. Hierarchical Regression Analysis for Variables Related to Career Satisfaction.

Dependent Variables	Model 1		Model 2		Model 3			
	β[a]	*P*	β	*P*	β	*P*	R^2 change	*F* change
Step 1: Demographic variables							0.076	3.68
Sex	0.000	0.99	-0.02	0.72	-0.02	0.70		
Age	0.30	0.026	0.20	0.13	0.19	0.15		
Income	0.18	0.001	0.21	0.001	0.20	0.001		
Number of children at home	-0.04	0.39	-0.06	0.23	-0.06	0.21		
Physician	0.10	0.27	0.15	0.11	0.12	0.22		
Nurse	0.05	0.64	0.09	0.35	0.09	0.35		
Weekly working hours	-0.09	0.11	-0.08	0.13	-0.10	0.058		
Years in practice	-0.21	0.11	-0.15	0.23	-0.16	0.21		
$R^2 = 0.076, F_{8, 359} = 3.68, P < 0.001$								
Step 2: Cellphone and email usage							0.065	13.40
Communicating with patients using a cell phone	_		0.15	0.009	0.07	0.26		
Communicating with patients using emails	_		0.19	0.001	0.15	0.008		
$R^2 = 0.140, F_{10, 357} = 5.83, P < 0.001$								
Step 3: Professional social media usage							0.019	1.62
Communicating with patients during working hours	_		_		-0.05	0.45		
Communicating with patients after working hours	_		_		0.14	0.047		
Communicating with patients they never met	_		_		0.05	0.40		
Communicating with other health professionals	_		_		0.04	0.51		
Share medical knowledge	_		_		0.05	0.43		
$R^2 = 0.160, F_{15, 352} = 4.46, P < 0.001$								

[a]All beta coefficients are standardized regression coefficients.

COVID-19 pandemic, during which other factors may have contributed to stress and impacted coping strategies. Furthermore, the results are difficult to generalize to other countries, as privacy policies regarding patient-provider communication may differ from those in China. For example, in the U.S., social media interactions between patients and providers are rarely observed.[17] Our investigation exclusively concentrated on social media usage for work purposes. Exploring non-work uses of social media among health providers, such as for entertainment or social connectedness, warrants further investigation.

Additionally, the regression models accounted for only a subset of factors that may influence burnout levels. For example, these factors explained 4.8% of the variance in emotional exhaustion, 9.5% in depersonalization, and 14.9% in personal accomplishment, were explained by these factors. These associations cannot establish a causal relationship between social media use, burnout, and career satisfaction. Future research could explore additional variables. For example, health care providers who are more social may experience higher job satisfaction and may also be more inclined to use social media.

Furthermore, future research could examine the influence of medical providers' specialties on their well-being. Examining the duration and content of after-hours communications could also provide valuable insights about patient-provider interactions on social media.

CONCLUSIONS

Our study uncovered potential advantages of incorporating social media into health care. Utilizing social media to engage with patients beyond working hours and to connect with other health care providers emerged as valuable strategies to mitigate burnout. This dual usage is associated with increased likelihood of treating patients with a human-centric approach, valuing their work, and fostering job satisfaction but also established social media as a prominent tool for

connecting with other health care providers. Despite the limitations of our study, the results highlight the importance of social media for professional networking, knowledge sharing, and patient engagement in the health care context.

Practical implications

The current findings offer important implications for health care administrators, health care providers, and patients in China. Firstly, social media usage creates additional avenues for patients to engage with their health care providers beyond regular working hours, providing additional channels for patients to communicate with their doctors. Secondly, our findings align with contemporary trends in the medical field, where major medical associations leverage social media to foster collaboration and share knowledge. For instance, the Chinese Medical Association's Weibo account[32] and the American Medical Association's Facebook page[33] boast a substantial following, actively sharing the latest trends and developments in the medical field. These observations indicate that social media can serve as a valuable tool for establishing networks and disseminating information about new treatments and health care technologies. This, in turn, has the potential to enhance the quality of health care provided to patients. Lastly, social media have the capacity to allow health care providers to become public health educators and take more social responsibilities by sharing trustworthy health information on social media, which benefits people beyond the patients they treat.

ARTICLE INFORMATION

Received April 3, 2024; revised September 16, 2024; accepted December 20, 2024

Affiliations

[1]Nicholson School of Communication and Media, University of Central Florida, USA; [2]South China University of Technology, China; [3]University of Central Florida, USA

Acknowledgments

None.

Conflict of interest and funding

There are no known conflicts of interest associated with this publication.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

1. De Kock JH, Latham HA, Leslie SJ, Grindle M, Munoz S-A, Ellis L, Polson R, O'Malley CM. A rapid review of the impact of COVID-19 on the mental health of healthcare workers: implications for supporting psychological well-being. *BMC Public Health*. 2021;21:4. doi: 10.1186/s12889-020-10070-3
2. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516–29. doi: 10.1111/joim.12752
3. Drummond D. Physician burnout: its origin, symptoms, and five main causes. *Fam Pract Manag*. 2015;22(5):42–7.
4. Dewa CS, Loong D, Bonato S, Thanh NX, Jacobs P. How does burnout affect physician productivity? A systematic literature review. *BMC Health Serv Res*. 2014;14(1):325. doi: 10.1186/1472-6963-14-325
5. Klein J, Grosse Frie K, Blum K, Von Dem Knesebeck O. Burnout and perceived quality of care among German clinicians in surgery. *Int J Qual Health Care*. 2010;22(6):525–30. doi: 10.1093/intqhc/mzq056
6. Shanafelt TD, Balch CM, Bechamps GJ, Russell T, Dyrbye L, Satele D, Collicott P, Novotny PJ, Sloan J, Freischlag JA. Burnout and career satisfaction among American surgeons. *Ann Surg*. 2009;250(3):463–71. doi: 10.1097/SLA.0b013e3181ac4dfd
7. McCray LW, Cronholm PF, Bogner HR, Gallo JJ, Neill RA. Resident physician burnout: is there hope? *Fam Med*. 2008;40(9):626–32.
8. Keeton K, Fenner DE, Johnson TR, Hayward RA. Predictors of physician career satisfaction, work-life balance, and burnout. *Obstet Gynecol*. 2007;109(4):949–55. doi: 10.1097/01.AOG.0000258299.45979.37
9. Linn LS, Yager J, Cope D, Leake B. Health status, job satisfaction, job stress, and life satisfaction among academic and clinical faculty. *J Am Med Assoc*. 1985;254(19):2775–82. doi: 10.1001/jama.1985.03360190081029
10. Arnold A. How social media usage affects doctor-patient relationships. *Forbes*. 2018. Available from: https://www.forbes.com/sites/andrewarnold/2018/11/07/how-social-media-usage-affects-doctor-to-patient-relationships/#2e0891965d3c [cited 3 January 2020].
11. Mishra S. When patients connect with physicians on Facebook: physician perspectives on benefits, challenges, and strategies for managing interaction. *Health Technol*. 2019;9(4):505–15. doi: 10.1007/s12553-018-0273-z
12. Alpert JM, Womble FE. Just what the doctor tweeted: physicians' challenges and rewards of using Twitter. *Health Commun*. 2016;31(7):824–32. doi: 10.1080/10410236.2015.1007551
13. Panahi S, Watson J, Partridge H. Social media and physicians: exploring the benefits and challenges. *Health Inform J*. 2016;22(2):99–112. doi: 10.1177/1460458214540907
14. Tso LS. Use of social media for implementing diagnoses, consultation, training, and case reporting among medical professionals to improve patient care: case study of WeChat groups across health care settings. *JMIR Med Educ*. 2022;8(3):e26419. doi: 10.2196/26419
15. Rolls K, Hansen M, Jackson D, Elliott D. How health care professionals use social media to create virtual communities: an integrative review. *J Med Internet Res*. 2016;18(6):e166. doi: 10.2196/jmir.5312
16. Chan WS, Leung AY. Use of social network sites for communication among health providers: systematic review. *J Med Internet Res*. 2018;20(3):e117. doi: 10.2196/jmir.8382
17. Campbell L, Evans Y, Pumper M, Moreno MA. Social media use by physicians: a qualitative study of the new frontier of medicine. *BMC Med Inform Decis Mak*. 2016;16(1):91. doi: 10.1186/s12911-016-0327-y
18. Greysen SR, Kind T, Chretien KC. Online professionalism and the mirror of social media. *J Gen Intern Med*. 2010;25(11):1227–9. doi: 10.1007/s11606-010-1447-1
19. Maisonneuve H, Chambe J, Lorenzo M, Pelaccia T. How do general practice residents use social networking sites in asynchronous distance learning? *BMC Med Educ*. 2015;15:154. doi: 10.1186/s12909-015-0435-x
20. Lyu KX, Zhao J, Wang B, Xiong GX, Yang WQ, Liu QH, Zhu XL, Sun W, Jiang AY, Wen WP, et al. Smartphone application WeChat for clinical follow-up of discharged patients with head and neck tumors: a randomized controlled trial. *Chin Med J*. 2016;129(23):2816. doi: 10.4103/0366-6999.194635
21. Liu L, Wei K, Zhang X, Wen D, Gao L, Lei J. The current status and a new approach for Chinese doctors to obtain medical knowledge using social media: a study of WeChat. *Wirel Commun Mob Comput*. 2018;2018(1):2329876. doi: 10.1155/2018/2329876
22. Zhang X, Ma L, Xu B, Xu F. How social media usage affects employees' job satisfaction and turnover intention: an empirical study in China. *Inf Manag*. 2019;56(6):103136. doi: 10.1016/j.im.2018.12.004
23. Top ten health care accounts on Weibo in 2018. *China Sci Commun*. 2018. Available from: http://www.kepuchina.cn/notice/hjqk/201812/t20181224_856113.shtml [cited 3 January 2020].
24. Most popular social networks worldwide as of April 2024. *Statista*. Available from: https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/ [cited 16 September 2024].
25. Patient-provider group chat: a surgeon added over 2000 patients on WeChat. *Beijing Youth Daily*. 2018. Available from: http://www.xinhuanet.com/2018-08/19/c_1123291060.htm [cited 3 January 2020].

26. Luo A, Kong W, He H, Li Y, Xie W. Status and influencing factors of social media addiction in Chinese medical care professionals: a cross-sectional survey. *Front Psychol.* 2022;13:888714. doi: 10.3389/fpsyg.2022.888714
27. Wang Z, Xie Z, Dai J, Zhang L, Huang Y, Chen B. Physician burnout and its associated factors: a cross-sectional study in Shanghai. *J Occup Health.* 2014;56(1):73–83. doi: 10.1539/joh.13-0108-OA
28. Maslach C, Jackson SE, Leiter MP, Schaufeli WB, Schwab RL. Maslach burnout inventory. Palo Alto, CA: Consulting Psychologists Press; 1986.
29. Landon BE, Reschovsky J, Blumenthal D. Changes in career satisfaction among primary care and specialist physicians, 1997–2001. *J Am Med Assoc.* 2003;289(4):442–9. doi: 10.1001/jama.289.4.442
30. Kharpal A. Everything you need to know about WeChat – China's billion-user messaging app. *CNBC.* 2019. Available from: https://www.cnbc.com/2019/02/04/what-is-wechat-china-biggest-messaging-app.html [cited 3 January 2020].
31. Faul F, Erdfelder E, Buchner A, Lang A. Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. *Behav Res Methods.* 2009;41(4):1149–60. doi: 10.3758/BRM.41.4.1149
32. About CMA. Chinese Medical Association. Available from: http://en.cma.org.cn/ [cited 16 January 2022].
33. About AMA. American Medical Association. Available from: https://www.facebook.com/AmericanMedicalAssociation/ [cited 16 January 2022].