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Teleconsultation by a Team of Physicians: The Intricacy of Hierarchy

Short Paper

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Abstract

Teleconsultations delivered by a team of physicians can yield various benefits over individual-based teleconsultations, such as rapid response, diverse expertise, workload distribution, and a learning environment for junior physicians. However, formal hierarchical barriers may inhibit junior physicians from actively participating in consultations in the presence of their senior counterparts. Drawing upon the lens of hierarchy, this study investigates strategies for mitigating formal hierarchical obstacles by examining the influence of medical rank-based formal hierarchy on physician participation and exploring the moderating effects of three informal hierarchical factors: gender stereotypes, platform-given informal hierarchy, and reputation-given informal hierarchy. We analyzed data from a prominent Chinese teleconsultation platform to derive our findings. This research aims to contribute to the literature on hierarchy, online health IT, and gender stereotypes while providing practical insights for effectively motivating and managing physicians in team-based teleconsultation services.

Keywords: Team-based teleconsultation; formal hierarchy; gender stereotypes; platform-given informal hierarchy; reputation-given informal hierarchy

Introduction

Teleconsultation has garnered increasing attention in healthcare organizations and platforms to provide digital services to dispersed patients, alleviating the in-person consultation strain on hospitals. Individual physicians can offer teleconsultation services (Guo et al., 2017), or a team of physicians can (Li and Tong 2021). The latter, in particular, is characterized by collaboration among physicians from diverse medical ranks, collectively providing online patient care (Li and Tong 2021). Team-based teleconsultation service has several merits relative to teleconsultation services offered by individual physicians. They include the capacity to distribute the workload and tap into the different expertise and experience of the physicians in a team (Xiang 2020). It also affords a fertile training ground for junior physicians to learn from the seniors.

While team-based teleconsultation services seem to be a rosy approach, it has drawbacks. For example, it is reported that team-based teleconsultation faces the challenge of an unclear division of labor and junior physicians' inactivity (Xiang 2020). In addition, Liu et al., (2023) reported that the participation of junior physicians in online teams is much lower than that of higher-ranked physicians. This silencing of junior members may be due to their acquiescence with the authority of senior physicians entrenched in a formal

hierarchy (Brooks et al., 2020). This observation is unsurprising as healthcare professions are typically characterized by a deeply ingrained formal hierarchy, with senior staff possessing more power and authority than their junior counterparts (Walton 2006). The leading question is how such a formal hierarchical impediment can be moderated.

With the challenges induced by hierarchy, prior works in offline hospital settings have alluded to implementing institutional rules and governance to establish transparent workflows, individual roles, and responsibilities (Brooks et al., 2020; Perversi et al., 2018). However, in online healthcare team scenarios, establishing predefined workflows and roles complicates the need for clear institutional rules and governance and the ad-hoc nature of patients' requests (Li and Tong 2021). In the worst case, this can result in a more pronounced negative inhibitory effect of formal hierarchy on junior staff members, increasing the likelihood of junior physicians stay silence during consultations in the presence of higher-ranking physicians. Indeed, previous research has indicated that formal hierarchy is detrimental to non-routine tasks because it is challenging to ensure that every participating unit will collaborate (Adler 2001). Notably, while there exists a spectrum of qualitative assessments, surveys, and case studies insinuating the potential of hierarchy to curtail the articulation of views by junior physicians in offline settings (Brooks et al., 2020; Perversi et al., 2018; Sarkar et al., 2020), in-depth scrutiny grounded in authentic team interactions remains conspicuously missing. Addressing this gap, this study, anchored in credible empirical evidence of team dynamics, indicates strategies to navigate and mitigate the potential adverse ramifications of formal hierarchy within teleconsultation platforms.

Given the emerging organizational literature that posits the influence of formal structures may be contingent upon the presence or absence of informal hierarchies (Meske et al., 2020; Shantz et al., 2020), we do so by formulating two sequential research questions. First, we seek to answer the fundamental question: in a team-based teleconsultation, is a physician more or less likely to share opinions after another physician at a higher level has spoken (i.e., the prevalence of formal hierarchy)? Second, if it does, can informal hierarchical elements, namely gender stereotypes, platform-given informal hierarchy, and reputation-given informal hierarchy, moderate the formal hierarchical impediment? Gender, as a prominent social attribute, carries established norms and values that mold interactions in hierarchical setups. For instance, male subordinates might undervalue female leaders due to entrenched biases, evident in settings like hospitals (Reuvers et al., 2008). Simultaneously, digital platforms introduce unique markers, including prestigious titles, badges, and ranking systems, to classify users, thereby establishing a platform-given informal hierarchy (Goes et al., 2016). Furthermore, the variance in reputation, accrued through interactions, evaluations, and feedback among platform users, naturally cultivates an informal hierarchical differentiation, referred to as reputation-given informal hierarchy. When junior physicians hold a relative advantage in platform-given and/or reputation-given informal hierarchies, this comparative edge might assist them in countering potential suppressions from formal authority.

We collected and analyzed a data set from a leading Chinese teleconsultation platform to answer the above two research questions. Our empirical results confirm the prior conjecture that formal hierarchical impediment does occur in team-based teleconsultation. We also found empirical support indicating that gender stereotypes and reputation-given informal hierarchy significantly moderate the influence of formal hierarchy. However, the platform-given informal hierarchy does not exert a significant moderating effect. This research aims to contribute to the healthcare literature by taking a solution-seeking approach to consider three potential informal hierarchical levers as moderators to contain the formal hierarchical impediment. By doing so, we also contribute to gender-based stereotype literature by demonstrating the role of gender on physicians' collaborative participation in an online working environment. Finally, our research offers valuable insights to help teleconsultation platform operators and team leaders better motivate and manage physicians.

Hierarchy as the Theoretical Foundation

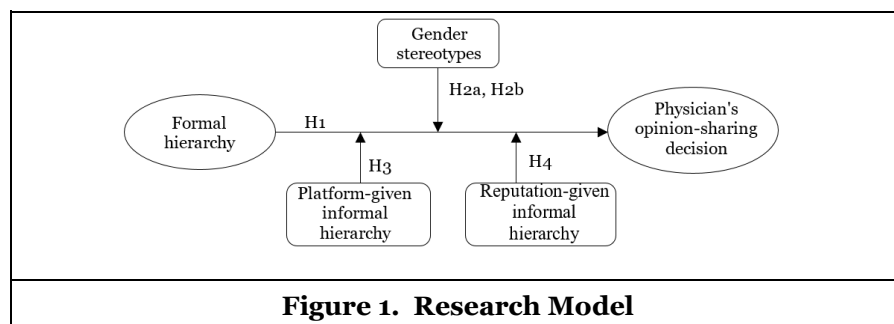
In organizational studies, hierarchy denotes the “vertical formal integration of official positions within one explicit organizational structure whereby each position or office is under the control and supervision of a higher one” (Diefenbach and Sillince 2011, p. 1517). Characterized by predefined top-down command and control relationships, higher positions in a formal hierarchy system are associated with increased status and power for individuals (Magee and Galinsky 2008). For instance, a senior physician can control more valued resources within a hospital and earn respect from resident physicians or medical students (Walton

2006). Such disparities in power and status can influence team participation behavior and interpersonal interaction activity. It is generally acknowledged that low-ranking individuals, influenced by formal hierarchy, exhibit primary “inhibit” responses in their cognition and behavior, such as avoiding communication and expressing opinions when confronting higher-ranking individuals (Magee and Galinsky 2008). Possible reasons for this behavior include juniors' fear of adverse personal outcomes resulting from speaking up.

We add to this set of understandings by advocating that informal hierarchy, which refers to the implicit rank order of individuals based on a valued social dimension (Magee and Galinsky 2008), can be an alternative intervention. This is inspired by the subjective inferences and judgments of others' capabilities based on observation, social interaction, and/or stereotype-based social culture (Magee and Galinsky 2008), which may stretch across formal hierarchical order and sometimes even contradict it (Diefenbach and Sillince 2011). Drawing on the notion of hierarchy as reviewed above, we first conceptualize types of influence derived from formal and informal hierarchies (depicted as formal and informal influences) within a pair of physicians in team-based teleconsultation. Two types of influence are derived from off-platform contexts. We define team physicians' official *medical rank-based hierarchy* as one form generating off-platform formal influence and physicians' *gender stereotypes* as one form generating off-platform informal influence. We focus on gender because it is a socially distinguishing characteristic, and its status value has been well-recognized in prior literature (Ridgeway 1991).

We further conceptualize two informal hierarchical levers derived from the on-platform informal hierarchy. On-platform informal hierarchies refer to implicit hierarchical status differentiation among online users based on subjective judgments of others' competence or reputation. We propose that informal hierarchy can emerge from two forms in online contexts. First, platforms and communities often deliberately design incentive titles, badges, or scoring systems to differentiate users and motivate their contributions and efforts (Anderson et al., 2013; Deodh et al., 2022; Goes et al., 2016), termed *platform-given informal hierarchy*. This form of hierarchy is often rooted in platform's overarching standards, goals, or specific incentive mechanisms. Second, users may consciously invest time and effort to improve their online reputation and popularity (Guo et al., 2017; Yang et al., 2015) to attain higher status. Physicians on the focal platform, amplify their stature through patient-driven incentives, such as thank-you letters and virtual gifts. This ever-evolving, feedback-informed structure is what we term the *reputation-given informal hierarchy*. It is a real-time gauge of a user's performance and service quality, constantly refreshing to mirror their current standing within the community. Given the immediacy and transparency of this feedback mechanism, it's reasonable to infer that physicians perceive these markers as salient indicators of their performance. Such accolades from patients not only boost the confidence of the receiving physician but also signal other professionals about their esteemed standing within the community.

Research indicates that formal hierarchies, defined by clear cues, offer more stability than informal ones with subtler distinctions (Wellman et al., 2020). Institutions recognize these formal structures as measurable and carry inherent legitimacy (Riemer et al., 2015; Tarakci et al., 2016). They generally overshadow informal hierarchies in shaping persistent interactions. Recent organizational literature suggests their influence can be modulated by the presence or intricacy of informal hierarchies (Meske et al., 2020; Shantz et al., 2020). Building on these body of works, our study delves into the primary impact of formal hierarchy on junior physicians' engagement and explores how informal hierarchies might moderate this relationship.



Hypothesis Development

Formal hierarchy is deeply ingrained in healthcare, with hospitals generally organized into hierarchical structures involving increasing power and authority (Walton 2006). Senior physicians possess greater power and status than junior physicians, influencing teamwork in medical teams. In online medical teams, the strict formal hierarchical system persists (Li and Tong 2021). Physicians with higher ranks often assume leadership roles, commanding authority and respect from junior physicians. Career concerns may inhibit physicians from expressing their opinions, mainly after seniors have already provided suggestions. They may worry that offering an imperfect answer or one that contradicts their supervisors' opinions will be perceived as inappropriate or inaccurate. Therefore, we propose that physicians may exhibit caution and conservatism during team-based teleconsultations, hesitating to express their opinions after senior physicians have spoken (i.e., the presence of a formal hierarchy).

H1: A physician is less likely to share opinions in team-based teleconsultations after a higher-rank physician has spoken.

As a form of informal hierarchy, gender stereotypes can create predetermined working patterns for women and men. For example, in organizations, men are often stereotyped to exhibit greater competence and occupy positions involving formal authority, resource control, and leadership (Brands and Kilduff 2014). On the other hand, women are stereotyped to assume subordinate positions and adhere to prescribed roles. Influenced by traditional cultural and societal expectations, the male leader-female subordinate pair is taken for granted, whereas other pairs (e.g., female leader-male subordinate) may be stigmatized. For instance, the devaluation of female leaders is more likely to occur when women hold more masculine-stereotyped roles, such as leadership (Ayman et al., 2009). Thus, we argue that the formal influence of supervisors on subordinates may vary depending on their gender-based pair patterns. Therefore, we propose that for pairs conforming to traditional gender stereotypes (i.e., male leader-female subordinate), the effect of formal hierarchy on team physicians' teleconsultation participation may be the strongest, while for pairs that contradict traditional gender stereotypes (i.e., female leader-male subordinate), the influence of formal hierarchy may be the weakest.

H2a: In team-based teleconsultations, the negative impact of formal hierarchy is stronger when a female physician decides whether to share opinions after a male higher-rank physician, compared to a female higher-rank physician.

H2b: In team-based teleconsultations, the negative impact of formal hierarchy is weaker when a male physician decides whether to share opinions after a female higher-rank physician, compared to a male higher-rank physician.

Platforms increasingly introduce incentive systems to measure and motivate users' online contributions, including various badges, titles, ranks, and points (Deodh et al., 2022; Goes et al., 2016). These incentives not only function as a credentialing system, signaling users' hierarchical levels of capabilities and achievements on the platform, but also act as an informal status system that reflects users' status on the platform and commands others' respect and admiration (Goes et al., 2016). A physician who ranks higher in the platform-given informal hierarchy (e.g., obtaining an incentive title) will likely achieve higher status on the teleconsultation platform. The increased respect, deference, and social influence accompanying this higher status can help counter the formal influence of medical hierarchy and authority. Consequently, physicians who rank higher in a platform-given informal hierarchy may have less fear of sharing opinions with higher-ranking colleagues and are more likely to engage in teleconsultations actively.

H3: In team-based teleconsultations, the negative impact of formal hierarchy is weaker when a physician who ranks higher (versus the same or lower) in a platform-given informal hierarchy decides whether to share opinions after a higher-rank physician has spoken.

Online consultation platforms and health communities allow physicians to establish an online reputation and fame (Guo et al., 2017). Physicians can gain popularity and improve their reputation by sharing knowledge and responding responsibly to patient inquiries. A higher online reputation, such as receiving higher ratings or obtaining more thank-you letters and gifts from patients (Yang et al., 2015), can enhance physicians' confidence and help them achieve a higher status and influence on the platform. Similarly, this more substantial informal influence and status on the platform can also help mitigate the constraints imposed by a formal hierarchy based on formal power and status. Therefore, physicians with a higher online

reputation may have less fear about incurring the displeasure of higher-ranking individuals and be less likely to adhere to formal authority.

H4: In team-based teleconsultations, the negative impact of formal hierarchy is weaker when a physician who ranks higher (versus the same or lower) in an informal hierarchy decides whether to share opinions after a higher-rank physician has spoken.

Research Method

Context and Data

The data for this study were collected from a leading teleconsultation platform in China. By 2022, the platform had served over 81 million patients. Each registered physician undergoes a rigorous verification process requiring submission of their certificate of practice, which shows medical rank and affiliated hospital. China's national healthcare system adheres to a formal hierarchical structure primarily based on physicians' professional abilities. The platform maintains a personal homepage for each physician, displaying their picture, basic information (e.g., name, medical rank, affiliated hospital/department), service information (e.g., number of patients), and reputation information (e.g., number of thank-you letters and gifts received from patients). Furthermore, to encourage contributions, the platform annually evaluates and selects approximately 400 outstanding physicians to award the incentive title of "Good Doctor of the Year." This title is displayed on the physician's homepage beneath their picture, along with the number of titles received (e.g., "Rewarded Good Doctor of the Year for seven years"). This title is influenced not only by patient feedback but also by a combination of other considerations, such as service duration and volume, the density of physicians within a specialty, and growth of the species. Due to its multifaceted evaluation criteria, such a title is inherently viewed as a significant achievement. Consequently, physicians are likely to recognize and respect peers honored with such titles, as they signify both quality of service and commitment to the platform's ethos.

In June 2017, the platform launched team-based teleconsultation services, enabling physicians to form teams for patient care. A typical online medical team is assembled under the guidance of a senior physician, who takes on the role of team leader and is often a specialist in a specific field. Other team members, who usually come from various hierarchical levels within the same department or specialty, are recruited by the leader directly. Physicians are not restricted to participating in just one team. Some physicians are members of multiple teams simultaneously. Furthermore, teams have the autonomy to disband at any time, and the composition of team members can change, with members potentially being added or removed. The platform maintains a homepage for each online medical team, containing detailed information about the team, its physicians, and a list of patient consultation records. For each team, we collected the team name, service volume, service price, profiles of the team leader and members, and a list of prior patient teleconsultation records. In addition, for each consultation, we obtained the patient's gender, age, chief complaints¹, and the entire text-based consultation process. The consultation process did not display sensitive information, such as names and test reports, to ensure patient data anonymity. We also obtained additional information about team physicians from their homepages, including their incentive titles and reputation information.

Following the data collection process described above, we conducted two rounds of data collection at the end of October 2020 and February 2022, respectively. Consequently, we obtained information about teams and physicians at two time points and all available team-based teleconsultations up to February 2022. We excluded teams without consultations and teams where all consultations were answered by a single physician.

Pair Sample Construction

We adopted a potential-pairs approach (Pu et al., 2022) to investigate the impact of medical rank-based hierarchy on team physicians' participation in consultations to create a pairwise dataset for our primary analysis. In this study, we focused on the first and the (potential) second physician in each consultation to examine how the hierarchical relationship between the two parties influenced whether the second physician shared opinions after the first physician had spoken. We concentrated on the second physician's sharing

¹ "Chief complaint" refers to the primary symptom, problem, or condition described by the patient that prompted the patient to seek medical care.

decision because later responding physicians are influenced not only by comparison with the first physician's rank but also with other preceding physicians, such as the second physician's rank. There are two possible scenarios. First, if only one physician (i.e., the first physician) participated in the consultation, any team member participating in at least one other could be a potential second physician (excluding the first physician). Therefore, we constructed a pair for each potential second physician with the first physician, resulting in multiple pairs. In this case, all the potential second physicians decided to *refrain from sharing* opinions in the consultation as there was no second responding physician. In the second scenario, where a second responding physician exists during the consultation, we constructed only one pair for the second physician with the first physician. In this scenario, the second physician shares opinions in the teleconsultation. Following the above process, we constructed a dataset at the first physician-second physician-consultation level. Physicians may be promoted during our observation period. Therefore, to ensure accuracy when comparing the medical rank of the first and second physicians, we only included pairs constructed from consultations between November 2020 and February 2022. We also ensured that both physicians in pairs were not promoted.

Variables and Model Specification

Dependent Variable: The second physician's sharing decision in a consultation ($Share_{ijk}$). $Share_{ijk}$ equals one if the second physician j shares opinions in consultation k after the first physician i has spoken, and zero otherwise.

Independent Variable: The medical rank-based hierarchical relationship between first physician i and second physician j ($MedHier_{ij}$). $MedHier_{ij}$ equals one if the medical rank of first physician i is higher than that of second physician j , and zero otherwise.

Moderators: We construct two dummy variables ($MaleFemale_{ij}$ and $FemaleMale_{ij}$) to represent the gender composition pattern within a pair. $MaleFemale_{ij}$ equals one if the first physician i is a male physician, the second physician j is a female physician, and zero otherwise. Similar logic applies for $FemaleMale_{ij}$. To measure the platform-given hierarchical relationship between first physician i and second physician j ($PlatHier_{ij}$), we calculate the difference between the number of incentive titles received by two physicians by subtracting the number of incentive titles received by first physician i from the number of incentive titles received by second physician j . To operationalize the reputation-given hierarchical relationship between first physician i and second physician j ($LetterHier_{ij}$), we calculate the difference between the number of thank-you letters received by two physicians by subtracting the number of thank-you letters received by physician i from the number of thank-you letters received by physician j . We further standardized the $PlatHier_{ij}$ and $LetterHier_{ij}$.

Control Variables: We also include a set of control variables, including physician-related, patient-related, and consultation-related factors. For physician-related variables, we control for previous interaction experience between the second physician j and the patient who initiates consultation k ($PriorPatientInter_k$). The $PriorPatientInter_k$ is set to one if second physician j has been involved in a previous consultation initiated by the same patient before consultation k and zero otherwise. We also control for the consultation experience of the second physician ($ConsultExp_{jk}$), operationalized as the number of consultations that physician j had participated in before consultation k . For patient-related characteristics, we control for the patient's gender and age. For consultation-related factors, we control for the length ($ChiefComLen_k$) and sentiment ($ChiefComSen_k$) of the patient's chief complaints that he/she provided at the beginning of the consultation k . We also control for the length of the first physician's response ($FirstLen_k$) in consultation k . A log transformation is performed on variables with skewness issues.

Logistic regression tests our hypotheses as the dependent variable is binary. We use the following model to test the effect of formal hierarchy and moderating effects of three types of informal hierarchy:

$$Share_{ijk} = \beta_0 + \beta_1 * MedHier_{ij} + \beta_2 * MaleFemale_{ij} + \beta_3 * FemaleMale_{ij} + \beta_4 * PlatHier_{ij} + \beta_5 * LetterHier_{ij} + \beta_6 * MaleFemale_{ij} * MedHier_{ij} + \beta_7 * FemaleMale_{ij} * MedHier_{ij} + \beta_8 * PlatHier_{ij} * MedHier_{ij} + \beta_9 * LetterHier_{ij} * MedHier_{ij} + Control_{ijk} + TeamFE + \delta_j + \theta_t + \varepsilon_{ijk}, \quad (1)$$

where $Share_{ijk}$ equals one if the second physician j chooses to share opinions and zero otherwise. We also include a series of fixed effects in the model. The δ_j captures the second physician's fixed effect. We also include θ_t , a Year-Month pair dummies to control possible impacts of the time trend.

Results

This research is currently in progress. Our preliminary results are presented in Table 1. In column (1), we include only MedHier and controls. In column (2), we add four moderating variables. Columns (3)-(5) each add different interaction terms, while column (6) includes all interaction terms. We observe that medical rank-based hierarchy consistently negatively impacts physicians' sharing decisions, supporting H1. In columns (3) and (6), we find negative and significant coefficients for the interaction term MedHier \times MaleFemale. This suggests that female physicians voice their opinions less when confronting a male higher-ranking physician than when confronting a female higher-ranking physician. Conversely, the positive and significant coefficients in columns (4) and (6) for the interaction term MedHier \times FemaleMale suggest that male physicians are more forthcoming with their opinions when confronting a female higher-ranking physician than when confronting a male higher-ranking physician. Thus, H2a and H2b are supported. There are no significant interactions for MedHier and PlatHier in columns (4) and (6), leading to H3 not being supported. In column (6), we find positive and significant coefficient for the interaction term MedHier \times LetterHier, suggesting that if physicians gain a better reputation from their patients on the platform, the constraints of the formal hierarchy on their voice behaviors will be eased (H4 is supported). We anticipate that we can conduct more robust checks and additional analyses by December 2023.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
MedHier (H1)	-0.801**(0.246)	-0.701**(0.221)	-0.588*(0.242)	-0.660**(0.225)	-0.753***(0.227)	-0.490*(0.232)
MaleFemale		-0.300(0.420)	0.199(0.386)	-0.301(0.422)	-0.315(0.418)	0.209(0.389)
FemaleMale		0.624**(0.239)	0.182(0.261)	0.621**(0.240)	0.597*(0.233)	0.137(0.255)
PlatHier		0.138(0.242)	0.140(0.242)	0.209(0.239)	0.126(0.239)	0.443(0.262)
LetterHier		0.184(0.178)	0.145(0.181)	0.180(0.175)	0.103(0.189)	-0.041(0.179)
MedHier \times MaleFemale (H2a)			-1.262**(0.441)			-1.344**(0.432)
MedHier \times FemaleMale (H2b)			1.018**(0.376)			0.953*(0.371)
MedHier \times PlatHier (H3)				-0.137(0.248)		-0.614(0.350)
MedHier \times LetterHier (H4)					0.206(0.143)	0.408*(0.193)
Controls	Estimated but not shown					
YearMonthFE	Yes	Yes	Yes	Yes	Yes	Yes
PhysicianFE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	32059	32055	32055	32055	32055	32055
adj. R ²	0.505	0.507	0.508	0.507	0.507	0.508

Table 1. Regression Results for Testing Hypotheses

Note. Standard errors (in parentheses) are clustered at second physician level. There are some missing observations in the regression sample in columns 2-6 due to the missing values in the number of thank you letters from some physicians.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Expected Contributions and Future Work

This research offers several potential theoretical contributions. First, we are potentially one of the first to provide an econometric insight into the effects of hierarchy on junior physician's activity based on detailed evidence of actual team interactions. Although prior works have elucidated the influence of hierarchy on junior medical staff in offline settings through qualitative assessments, surveys, and case studies (Brooks et al., 2020; Perversi et al., 2018; Sarkar et al., 2020), our research uniquely embarks on an empirical exploration of the role hierarchy plays in shaping team dynamics, based on actual interactional data. Further, we enrich the hierarchy literature by examining the role of formal hierarchy in online healthcare, revealing its significant negative influence on physicians' online behavior. We also pioneer in assessing the interplay between formal hierarchy and the nuances of informal hierarchical elements. Second, we contribute to the growing literature on physicians' participation in teleconsultation (Guo et al., 2017; Yang

et al., 2015) by examining the role of different influences (formal/informal; off-platform/on-platform) on physician participation in a team-based setting. Third, this study also contributes to the gender-based stereotype literature. We extend from prior gender studies in hospital settings (Reuvers et al., 2008; Soklaridis et al., 2017) to online settings by demonstrating that varying patterns of gender composition within a supervisor-subordinate pair can affect the influence of formal authority in a team-based teleconsultation context.

This research also holds several potential practical implications. Our results can aid platform operators in tailoring their strategies to motivate junior physicians effectively. One critical insight is the positive role played by patient-related reputation metrics difference, like thank-you letters. When junior physicians achieve a reputational advantage relative to senior counterparts, they are more inclined to challenge authority and share their views. According to this, platforms can refine their feedback systems, allowing for richer, more outpatient feedback. This helps physicians gain constructive feedback and provides junior physicians with more avenues to build their reputational edge. Additionally, the subtle gender biases observed in team interactions (e.g., male junior physicians are more likely to choose to remain silent after a response by a male leader than a female leader) necessitate redress. Platforms should initiate gender sensitivity training for all physicians and implement anonymous feedback mechanisms to report biases. It's also vital to periodically assess team dynamics to ensure no gender or rank is marginalized and to launch initiatives emphasizing the value of diversity within the team, ensuring all voices, regardless of gender or seniority, are equally encouraged to share opinions.

Our study also has some limitations. First, allocating a team's income is typically at the team leader's discretion and could significantly influence members' participation in consultations. However, due to data constraints, we could not capture actual compensation distribution structures across teams. Future research would benefit from accessing a more granular dataset to elucidate this aspect. Second, while this study explored the moderating role of gender stereotypes on formal hierarchy's impact, we recognize that additional critical areas demand bias in this domain. One particularly promising avenue is to investigate the implications of gender bias on team dynamics and outcomes (e.g., team efficiency, collaboration patterns, and patient satisfaction). As teleconsultations become an increasingly integral part of healthcare delivery, it's essential to discern any potential pitfalls arising from inherent biases and design interventions accordingly. Third, it is inherently challenging to determine whether the second physician's silence is due to genuine agreement with the first physician or out of respect for the hierarchy. This ambiguity remains an area for further exploration, especially for future researchers with more detailed data.

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