DISCHARGED PATIENTS' ADHERENCE TO MEDICATION INTERVENTIONS IN ONLINE HEALTHCARE PLATFORMS: EXPLORING THE COMPLEX ONLINE-OFFLINE DILEMMAS

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ABSTRACT

Adherence to medication interventions is a critical factor in achieving desired health outcomes and reducing healthcare costs, particularly among discharged patients. However, discharged patients usually exhibit high non-adherence rates. Motivated by exploring the potential unintended consequences of online health platforms, when patients distrust their attending doctors, this study aims to identify and formulate the factors influencing discharged patients' medication adherence. We conducted a sequential analysis. Phase I involved an exploratory investigation through in-depth semi-structured interviews with ten discharged patients. Inspired by Phase I findings, Phase II empirically validate a theoretical model using an online survey with 309 participants. Results showed that patients' distrust in doctors' competence emerged as crucial in harming medication adherence. Meanwhile, the study uncovered the potential pitfalls of online health platforms with professionals' assistance in patients' medication behaviors. The study also revealed the complex online-offline dilemmas from hospitalization to self-management phases faced by discharged patients. This study contributes to the existing literature by uncovering potential challenges in online

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platforms when the complex online-offline dilemma exists. Practically, this study can benefit related stakeholders to pay attention to the potential conflicts and explore opportunities to integrate online medical services and traditional clinical systems.

Keywords: Medication adherence; Distrust in attending doctors; Online structural support; Discharged patients; Online-offline dilemmas

1. Introduction

Adherence to medication interventions refers to the condition in which patients follow the treatment recommendations prescribed by their attending doctors (Hugtenburg et al., 2013; Robinson et al., 2024). Existed research showed evidence that adherence to medication interventions is a critical factor in achieving desired health outcomes and reducing healthcare costs (Gow et al., 2024; Xie et al., 2022), particularly among discharged patients who often exhibit high non-adherence rates (Kosobucka et al., 2020). This may be attributed to the significant shift in medication management responsibilities from medical service providers to patients themselves (Vanwesemael et al., 2020). Upon discharge, hospital-based care teams and primary care physicians (e.g., those at community hospitals) may be geographically separated and exist within different healthcare systems, making synchronization of medical interventions difficult. Additionally, discharged patients often have limited access to primary care, resulting in reduced medical support during critical moments of their post-discharge recovery. Therefore, enhancing adherence is crucial to minimizing the safety risks faced by discharged patients.

Distrust in attending doctors, has been identified as a key factor influencing patients' adherence to treatment plans (Hall et al., 2001; Luo et al., 2023). However, this issue has been overlooked for discharged patients who experience unique challenges of transition in care significantly different from offline medical resources and have to mostly rely on themselves to prevent disease relapse and progression (Nugent et al., 2021). When discharged patients distrust in their attending doctors, they may experience heightened uncertainty regarding their medication interventions, prompting them to seek coping strategies from alternative sources, such as online assistance (Zhao et al., 2020). The rise of online health-related platforms, such as online health consultation platforms, patients' peer groups, disease forums, and so on, has transformed the healthcare landscape(Xia, 2023), with patients now having access to a wealth of medical resources (Jiang et al., 2021; Smailhodzic et al., 2016).

However, it is crucial to acknowledge that online context also expose patients to complex alternative medical resources with advices diverging from their medication recommendations. The resulting effect is similar to the adverse effects of drug exposure in advertisements on medication adherence (DeFrank et al., 2020), that is reliance on online platforms may potentially hinder discharged patients' medication adherence behaviors. Motivated by the need to explore the potential negative aspects of online platforms, this study aims to investigate the impact of exposure to additional medical-related resources online on the medication adherence behaviors of discharged patients. Specifically, guiding by a complex online-offline dilemma experienced by patients during their transition from hospitalization to self-management, this study aims to explore the relationships between distrust in attending physicians, the frequency with which patients seek online social support, and medication adherence behaviors among discharged patients.

To achieve these objectives, we conducted a sequential analysis (Venkatesh et al., 2016). Phase I involved an exploratory investigation through in-depth semi-structured interviews with ten discharged patients. Building on the potential relationships identified in Phase I and using theories including Uncertainty in Illness Theory (UIIT) (Mishel, 1988), distrust literature and Social Network Theory (SNT) (Scott, 2012), we developed a research model. Subsequently, an online survey was conducted with 309 discharged patients to provide quantitative results to test the research model. This study contributes to the existing literature by uncovering potential challenges in online platform when the complex online-offline dilemma exists. Practically, this study can benefit related stakeholders to pay attention to the potential conflicts and explore opportunities to integrate online medical services and traditional clinical systems.

Motivated by exploring the potential complex implications of online platforms when patients distrust their attending doctors, this study aims to identify and formulate the factors influencing discharged patients' adherence to medication interventions. To achieve this objective, we adopted a sequential analysis, including an in-depth semi-structured interview and an online survey following the theoretical foundation of UIIT, distrust literature and SNT.

2. Related Literature and Theoretical Foundation

This section reviews relevant literature and establishes the theoretical foundations of the study. We begin by examining prior research on UIIT and medication adherence, with particular attention to the role of distrust. According to UIIT, when patients distrust their attending doctors during hospitalization, they experience heightened illness

uncertainty, which serves as a key mechanism driving their search for additional health-related resources after discharge, including through online platforms. Building on this theoretical logic, we next review studies investigating how online platforms provide uncertainty-reducing resources and the extent to which such resources can either support or hinder medication adherence. Finally, we introduce SNT and the concept of structural social support, which highlight the importance of network-based resource access—commonly facilitated through online health communities and digital platforms. Guided by SNT and contemporary practices in online health ecosystems, this study investigates how obtaining medical resources through online social interactions influences discharged patients' adherence to prescribed medication regimens.

2.1. Uncertainty in Illness Theory and Adherence to Medication Interventions from a Distrust Perspective

UIIT guides our examination of how distrust contributes to illness uncertainty and motivates patients to seek coping strategies online. Accordingly, we draw on UIIT to justify the antecedents and behavioral pathways in our model, rather than to replicate the full set of UIIT constructs.

After discharge, patients often find themselves distanced from offline clinical resources and experience discontinuity of care (Vanwesemael et al., 2020). This transition can heighten illness-related ambiguity and make it more difficult for patients to interpret clinical information or evaluate treatment recommendations. Prior research suggests that distrust in attending doctors is a key defining attribute of illness uncertainty (Cho et al., 2023). Specifically, patients who hold distrusting beliefs toward their physicians often report limited insight into their condition and greater difficulty managing their illness (Cho et al., 2023). Consistent with UIIT, such distrusting beliefs should not be viewed as a separate causal antecedent that produces uncertainty, but rather as a manifestation of patients' illness-related uncertainty. When illness situations are perceived as ambiguous or unpredictable, patients may be unable to confidently assess physicians' competence or integrity, and this uncertainty is reflected in distrusting beliefs toward attending doctors. This conceptualization aligns with UIIT's core premise that illness uncertainty arises when individuals cannot assign clear meaning to illness-related events or their implications (Hong & You, 2016).

Uncertainty in illness refers to the issues that arise when a patient or a healthy individual encounters a situation in which uncertainty exists regarding the illness and its potential for recurrence (Smith et al., 2023). Mishel delves into patients' illness-related uncertainty and proposed the UIIT, which highlights the inability to determine the meaning of the illness-related events and the consequences of such events due to uncertainty (Mishel, 1988). According to the UIIT, patients are unable to make effective illness-related decisions under uncertainty in illness (Mishel, 1988).

Although most doctors believe discharged patients' non-adherence behaviors are primarily due to lack of access or forgetfulness, factors related to clinical service providers, such as the effectiveness of patient-doctor communication (Lai et al., 2023), are key sources of discharged patients' uncertainty in illness. Furthermore, if patients distrust their attending doctors during hospitalization, patients' uncertainty in illness will be enhanced after discharge (Hong & You, 2016). Although clinical service providers play a significant role in medication adherence, there is a lack of empirical research connecting distrust with medication adherence among discharged patients.

As discharged patients commonly experience distrust toward their attending doctors during hospitalization, they must navigate self-management amidst uncertainty about their health conditions and future disease-related possibilities (Rains & Tukachinsky, 2015). Priors study in UIIT theory has emphasized that this distrust can lead patients to seek additional coping strategies to address uncertainty-related challenges (Mishel & Clayton, 2008). A recent literature review on coping strategies for illness uncertainty found that patients increasingly turn to alternative sources outside their familiar social networks—including online resources—to manage uncertainty (Langmuir et al., 2023).

To provide a comprehensive understanding of patients' distrust in doctors, this study employs the concept of distrusting beliefs, which pertain to the beliefs about how the trustor cannot derive benefits from the trustee (Yang et al., 2023). It emphasizes the trustor's sentiments or expectations regarding the trustee in social exchanges (Yang et al., 2023). Specifically, two dimensions of distrusting beliefs are relevant for discharged patients and are utilized in this investigation: distrust in competence and integrity. Competence dimension reflects patients' confidence in the capability of attending doctors to fulfill treatment requirements and address patient needs, while distrust in integrity concerns patients' confidence in doctors' adherence to moral principles and clinical standards, especially the honesty with which the trustee acts in the trustor's best interests (Chau et al., 2013).

We excluded the benevolence dimension of distrust, which is defined as "the trustor's belief that the trustee does not care about, and is not motivated to act in, the trustor's interests" (van der Werff et al., 2023). Although benevolence and other dimensions are conceptually distinct in the distrust literature, prior research shows that these dimensions often correlate strongly and may not be meaningfully differentiated in applied settings. In our clinical context, discharged patients have already undergone the full spectrum of interpersonal and professional interactions with their physicians. As a result, their perceptions of benevolence, integrity, and competence often overlap substantially. For example, Geyskens et al. (1998) found that although benevolence and honesty (a core element of integrity) are

conceptually distinct, they tend to be closely intertwined empirically. In the Chinese healthcare context, Dong and Bao (2012) similarly reported that physicians' interpersonal competence incorporates elements of benevolence, such as expressing concern for patients, suggesting that patients may not clearly differentiate these constructs.

This pattern aligns with emerging evidence from cognitive neuroscience. Liu et al. (2021) showed that different types of interpersonal distrust do not always generate clearly distinguishable cognitive processes (Liu et al., 2021). Their neuroimaging results indicated that integrity violations elicited the strongest activation in the default mode network, whereas benevolence violations produced neural responses more similar to those triggered by ability violations (Liu et al., 2021). These findings suggest that benevolence may not consistently operate as a uniquely identifiable dimension of distrust. More recently, Verhoest et al. (2024) found that integrity and competence are strongly associated with distrust, whereas benevolence contributes only moderately, indicating reduced discriminant value in certain real-world contexts. Taken together, this convergence of theoretical, empirical, and neuroscientific evidence supports our focus on two dimensions—integrity distrust and ability distrust—as a comprehensive yet parsimonious conceptualization appropriate for our research context.

2.2. Online Platforms for Medication Adherence

To enhance adherence to medication interventions among discharged patients, healthcare providers and researchers undertake a variety of actions, covering both offline transitional care (Daliri et al., 2021; González-Bueno et al., 2022) and online targeted medical interventions (Habib et al., 2021; Ni et al., 2022). Additionally, online platforms that enable many-to-many interactions for healthcare purposes can potentially be used for managing health-related uncertain conditions (Sias & Bartoo, 2007). As such, these platforms have become crucial for discharged patients to manage their health and make informed decisions.

Evidence also indicates that online platforms with social exchange functions have the potential to empower patients for self-care (Sharma & Khadka, 2019). Furthermore, these empowered patients may improve their medication adherence behaviors (Hernandez-Tejada et al., 2012). However, little empirical evidence has confirmed the impact of online platforms on medication adherence in general. At the same time, related studies have been descriptive (Mersha et al., 2023; Willis, 2016) and focused on medical-related factors (Mersha et al., 2023), neglecting network-related factors. Although insightful, the influence of online platforms on discharged patients' adherence to medication interventions has been overlooked in the literature.

2.3. Social Network Theory and Structural Social Support

Prior literature has demonstrated that, among the various functional types of social support, informational and emotional support are particularly relevant for patients (Sun et al., 2024), influencing outcomes such as satisfaction with online services (Tan et al., 2023) and self-management behaviors (Song & Xu, 2023). These findings suggest that support from online platforms can serve as alternative medical resources for discharged patients and may potentially shape their medication adherence behaviors. However, functional support alone does not capture the broader structural conditions that determine whether, how, and to what extent such support is accessible. In contrast to prior studies that focus on what types of support patients receive, we shift attention to how the configuration of an individual's social network shapes the availability and flow of resources. Thus, we adopt a structural view of social support grounded in SNT.

SNT posits that individuals' behaviors are strongly influenced by the structural configurations of their social networks, which determine the types, quantity, and quality of resources they can access (Berkman et al., 2000). From this perspective, social support embedded within these networks is critical in shaping health-related behaviors, such as illness self-management, and overall well-being (Cloyes et al., 2025). Guided by this theoretical lens, we focus on structural social support, which refers to the assistance and resource availability derived from the presence, composition, and connectivity of individuals within one's social network (Broadhead et al., 1989). Accordingly, this study examines how the structural characteristics of patients' online networks shape their post-discharge medication adherence.

Individuals often rely on weak ties to gain novel information and make informed decisions (Rajkumar et al., 2022). Online platforms create new opportunities for discharged patients to engage with diverse network members—medical professionals and peers with similar experiences—thus facilitating access to useful advice, treatment knowledge, and experiential insights. Following SNT's emphasis on the influence of structural social networks, this study incorporates structural social support—specifically online professional support and online peer support—to examine how online social interactions shape discharged patients' medication adherence behaviors.

Accordingly, this study incorporates two structural forms of online support—peer support and professional support—to capture how network-based resources help discharged patients reduce uncertainty and enhance medication adherence. As limited medical resources exist post-discharge, regarding online professional support, existing literature has mainly focused on demonstrating the positive effects of this support (Song & Xu, 2023; Tan et

al., 2023) and neglected the potential challenges. For peer support, prior literature has demonstrated that offline peer support is positively related to self-management (Azmiardi et al., 2021). Consistent with offline research, studies have shown that online peer support can positively influence patients' improvement in medical knowledge, enhancement of health literacy and empowerment (Kauw et al., 2015; Maclachlan et al., 2020). Additionally, online peer support may positively impact self-reported health outcomes through emotional support from peer patients (Fortuna et al., 2020). However, the role of online peer support in medication adherence has produced mixed results (Boardman et al., 2014) with small sample sizes (less than 100 participants) (Alexander et al., 2015). Further research with larger sample sizes and rigorous methodologies may be needed.

3. Research Design

The mixed-methods design is essential because existing theories of medication adherence and distrust have not been extensively examined in the context of discharged patients navigating uncertainty in healthcare system. The qualitative phase allowed us to (1) identify context-specific nuances not captured in prior research, (2) refine key constructs such as integrity-based distrust, and (3) verify the relevance of proposed mechanisms within real-world patient experiences. Building on these insights, the quantitative phase then empirically tested the relationships suggested by both the literature and the qualitative findings. To further clarify the role of online platforms in patients' post-discharge medication adherence, we adopted a sequential exploratory design that integrated qualitative and quantitative evidence. This approach enabled a comprehensive understanding of the research problem by first exploring the phenomenon through qualitative inquiry and then confirming and generalizing the emerging insights through quantitative analysis (Venkatesh et al., 2016).

3.1. Phase I - Exploratory Investigation

Phase I was designed as an exploratory component to deepen our understanding of discharged patients' medication adherence and to uncover contextual mechanisms that are insufficiently theorized in existing literature. Although our analysis was guided by predefined themes derived from prior research, the qualitative phase was not intended to test these themes. Instead, it served to refine, contextualize, and extend them. The interview data enabled us to identify how offline distrust-related perceptions toward attending doctors and trust in online platforms shape real-world patient experiences, thereby enriching our theoretical framing and informing the development of hypotheses and measurement decisions in Phase II. Accordingly, Phase I is positioned as a theory-informed exploratory stage rather than a purely inductive investigation.

3.1.1. Data Collection of Qualitative Study

In July 2022, we conducted semi-structured telephone interviews with ten patients who had been discharged from hospital in 2021. With permission from the hospital, we accessed the patient database from the Department of Neurology at the Second Affiliated Hospital of Harbin Medical University in China. By focusing on a single department, we reduced the complexity associated with various disease types while maintaining sufficient variability in disease severity. We shortlisted patients with a hospitalization duration of four days or more and then requested doctors to help identify approximately 40 patients with diverse levels of severity, age, gender, and types of diseases. Additionally, we included an extra selection criterion to determine whether the interviewees had experience with online platforms with health purposes at the beginning of the telephone interviews to achieve the desired range of variability. After conducting the interviews, we analyzed the data to determine whether new insights (e.g., new themes and/or relationships) emerged, whether the interview questions needed revision to probe further, and whether a different demographic segment should be targeted.

Although these hospitalizations occurred during a period affected by COVID-19, the interview discussions primarily focused on interpersonal dynamics between physicians and patients, such as perceived integrity, treatment quality, and professional ethics. These aspects of doctor-patient interaction are fundamental and remain relevant across both pandemic and non-pandemic contexts. Notably, respondents did not highlight COVID-19-specific disruptions (e.g., isolation policies or resource shortages) as influencing their perceptions of distrust. Instead, they emphasized general aspects of medical interaction that extend beyond the pandemic setting. Thus, while the interviews took place during the COVID-19 period, the themes identified reflect broader, enduring patterns rather than pandemic-specific effects.

The final sample size was determined through data analysis until theoretical saturation was reached, meaning no new insights were gained. During iterative coding and theme refinement, we found that interviews conducted within the same hospital department produced consistent patterns, and no new concepts emerged in the final interviews. Given that the qualitative component was conducted in a relatively homogeneous clinical context, reaching theoretical saturation within this setting is reasonable and aligns with prior methodological guidance. Although context-specific, the saturated themes still provide meaningful insights that complement and enrich our quantitative findings. This reflects the logic of our mixed-methods design, where qualitative and quantitative components are intended to inform

and strengthen each other. This approach ensured that the sample size was adequate to capture all relevant themes and variations. Table 1 presents the demographic information of the interviewees.

Table 1. Phase I demographic information of interviewees.

	Number of interviewees		Number of interviewees
Gender		Diseases types or pathogenesis sites	
Male	5	Vertigo	1
Female	5	Spinal nerves	1
Age		Vestibular nerves	1
25-34	2	Multiple sclerosis	2
35-44	7	Demyelination	2
Over 45	1	Facial neuritis	1
Length of last hospitalization stay		Encephalitis	1
4-10	8	Optic nerve	1
Over 11	2	Number of hospitalizations	
Side effects of drugs		1	7
Yes	6	2-5	2
No	4	Over 6	1

The interview questions were grounded in the theoretical frameworks of UIIT, distrust literature and SNT. Minor adjustments to probing questions were made based on sequential data analysis findings. Detailed interview questions can be found in Appendix A.

The interview questions were intentionally open-ended to effectively elicit and validate the complex online-offline disease dilemmas of discharged patients. Each interviewee was engaged for approximately 15-30 minutes. Prior to each interview, we provided a comprehensive explanation of the interview objectives and outlined the process for obtaining the interviewee's telephone number to alleviate any stress related to their disease conditions. Furthermore, we assured interviewees that their responses would remain confidential and would not be shared with doctors, addressing any concerns they might have. All interviews were recorded and subsequently transcribed into text format for data analysis.

3.1.2. Data Analysis of Qualitative Study

In examining the complex practice of discharged patients' medication adherence behaviors, we employed directed qualitative content analysis to interpret the interview data (Mayring, 2015; Meier & Peters, 2023). This approach aligns with our goal of extending existing theory while remaining open to new, context-specific insights (Assarroudi et al., 2018). Following Hsieh and Shannon (Hsieh & Shannon, 2005), we established predefined categories based on prior research, applied systematic coding to the interview data, and iteratively refined these categories where necessary. Thematic coding procedures described by Braun and Clarke (Braun & Clarke, 2006) were used as practical steps within the directed content analysis framework to identify subthemes and illustrative patterns within the predefined categories. This unified approach ensures a structured yet flexible interpretation of the data, allowing the qualitative findings to both refine theoretical constructs and uncover context-specific nuances. Table 2 presents the predefined main themes along with their definitions.

Table 2. Phase I pre-set main themes and definitions.

Themes	Definitions
Distrust in doctors	
Competence dimension	Distrust in attending doctors' competence to fulfill the clinical treatment
Integrity dimension	Distrust in attending doctors' adherence to a set of moral principles and clinical standards
Structural social support	
Online professional support	Acquire online social support from medical experts other than attending doctors
Online peer support	Acquire online social support from similar peer patients
Adherence to medication interventions	
	Adherence behaviors to medication interventions prescribed by attending doctors

3.1.3. Results of Qualitative Study

We anchored the data according to the coding rules defined by the themes (refer to Table 2). The coding procedure was independently carried out by the first two authors. Table 3 presents the coding rules and examples for anchoring samples of the main themes. The first author independently conducted the coding process and provided the analyzing

resources (such as the examples of anchoring samples in Table 3). The second author then reviewed the work completed by the first author. Any discrepancies in coding were resolved through initial discussion of the coding decisions and rationale to identify potential misunderstandings. Subsequently, the coding scheme was reviewed to ensure clarity and consistency. Through these measures, all discrepancies were successfully resolved.

Table 3. Phase I coding rules and examples for anchoring samples for main themes

Themes	Coding rules	Examples of anchoring samples
Distrust in doctors		
Competence dimension	Expressing distrust in attending doctors' competence during hospitalization	P-10 (low in distrust): The attending doctor conducted a thorough disease analysis, and the treatment provided was effective. I believe my attending doctor demonstrates a high level of professional proficiency. Prior to consulting my attending doctor, I sought opinions from multiple doctors when my symptoms initially manifested. However, none of them were able to provide a clear diagnosis. In contrast, I found my attending doctor's approach to be exceptional in addressing my medical needs.
Integrity dimension	Expressing distrust in attending doctors' integrity during hospitalization	P-1 (high in distrust): The hospitalization incurred a cost of over 7,000 RMB for me. During my stay, my attending doctors ordered numerous unnecessary medical tests and prescribed medications for unrelated conditions.
Online structural social support after discharge		
Online professional support	Expressing online social exchanges with medical experts other than attending doctors	P-8: I previously consulted with a renowned doctor specializing in treating the disease I contracted. I sought advice from this doctor regarding Chinese traditional medicine.
Online peer support	Expressing online social exchanges with similar patients	P-7: I have reached out to several peer patients in the WeChat group. Our discussions typically revolved around the medications prescribed by our attending doctors and the effectiveness of the treatment.
Adhering to medication interventions		
	Expressing adherence/non-adherence behaviors following the medication prescribed by attending doctors	P-1: I followed the attending doctors' instructions and took the prescribed drugs for an extended period until the symptoms disappeared. P-7: Since the medication prescribed by attending doctors was not eligible for reimbursement, I resorted to self-diagnosis and changed the drugs accordingly.

Finally, we analyze the potential relationships in patients' medication adherence behaviors under uncertainty, triggered by distrust in attending doctors. Initially, interviewees confirmed that distrust in attending doctors' competence during hospitalization negatively influenced their medication adherence behaviors.

P-4: I did not place distrust in her expertise and diligently followed her instructions and medical knowledge dissemination. Following discharge, I strictly adhered to the medication regimen prescribed by the doctor.

P-8: Having been hospitalized four times and consulted the same doctor on each occasion, I have developed confidence in his professionalism. Consequently, I consistently adhere to the medication instructions provided by my attending doctors.

The relationship between distrust in attending doctors' integrity during hospitalization and patients' medication adherence behaviors after discharge was identified. Patients typically distrust attending doctors' integrity when they question doctors' professional moral traits and believe in the motivations behind medication prescriptions, resulting in non-adherence to doctors' medication interventions.

P-5: Despite not being in frequent contact with my attending doctor, their integrity is evident, which has positively influenced my medication adherence.

P-9: My attending doctor showed genuine concern for my emotional well-being, akin to that of a relative. As a result, I am satisfied with the treatment provided and faithfully adhere to the prescribed medication interventions.

When patients harbor distrust in doctors' competence, they may consult online doctors for additional suggestions or even seek a second diagnosis. Simultaneously, if patients lack confidence in attending doctors' , they may also seek assistance from online professionals to acquire basic medical knowledge to confirm the accuracy of clinical treatment and mitigate uncertainty surrounding the illness.

P-2: I harbored doubts regarding the diagnosis provided by my attending doctor and questioned their competence. Following discharge, I sought the opinion of another doctor online to obtain a second diagnosis.

P-6: I have difficulty understanding the treatment for my illness, and I cannot confidently say that I trusted my attending doctor. To alleviate uncertainty about my disease condition, I sought additional support online to gather more information about the disease.

Interviewees also identified potential relationships between distrust in attending doctors' integrity and the acquisition of online structural social support. Distrust in the integrity of attending doctors may prompt patients to seek professional support after discharge, as they may harbor doubts about the clinical treatment and even the medication interventions prescribed by attending doctors. Additionally, when discharged patients distrust their attending doctors, they may have opportunities to communicate with similar patients, allowing them to compare medication solutions and treatment outcomes with their peers.

P-2: My attending doctors conducted numerous examinations on my body, covering nearly all inspection items, which led me to believe they were solely focused on generating revenue. Consequently, I harbored doubts regarding the diagnosis provided. Following discharge, I sought advice from an online doctor specializing in traditional Chinese medicine.

P-7: The medication prescribed by my attending doctor is not covered by medical insurance. Due to distrust in my attending doctor's rationale for prescribing medication, I engaged in discussions with multiple peer patients in a WeChat group, seeking insights into their treatment plans.

Interviewees provided evidence that online structural social support may contribute to non-adherence behaviors towards medication interventions. The deep communication approach offered by online professional support, particularly concerning traditional Chinese medication, may persuade discharged patients to follow online prescriptions instead of adhering to the interventions recommended by untrusted attending doctors. Moreover, successful health outcomes experienced by peer patients with medication interventions may instill a slight sense of uncertainty in discharged patients, prompting them to follow their peers' medication experiences rather than the interventions prescribed by attending doctors.

P-2: The medications prescribed by my attending doctor resulted in adverse effects, making me feel unwell. Another online doctor prescribed traditional Chinese medication for me. As a result, I opted not to adhere to the prescribed medication interventions.

P-6: Observing the successful outcomes of medication solutions shared by online peer patients, I decided to discontinue the drugs prescribed by my attending doctor and instead followed the medication regimens recommended by my peers.

3.2. Phase II – Quantitative Study

Inspired by Phase I findings, Phase II aims to develop and empirically validate a theoretical model to understand discharged patients' adherence to medication interventions from the perceptions of distrust.

3.2.2. Hypotheses Development and Research Model

Upon discharge, patients who harbor doubts about their doctors' competence are more likely to question the accuracy and appropriateness of the prescribed medication regimen (Thom et al., 1999), which in turn undermines their adherence to medication interventions.

Additionally, as analyzed in Phase I, when patients perceive that the treatments provided by their attending doctors during hospitalization lead to excessive expenses, they may begin to question the doctors' integrity and underlying motives in prescribing medications. Consistent with our interview findings, patients who distrust the integrity of their attending doctors are more likely to believe that clinical decisions are not made in their best interest (Kim et al., 2018).

Based on these considerations, the following hypotheses are proposed:

H1a: Distrust in attending doctors' competence during hospitalization negatively influences discharged patients' medication adherence.

H1b: Distrust in attending doctors' integrity during hospitalization negatively influences discharged patients' medication adherence.

When patients hold distrusting beliefs toward their attending doctors, they may have difficulty confidently evaluating treatment decisions and medication recommendations, particularly after discharge when direct access to offline clinical support is reduced (Rains & Tukachinsky, 2015). Consistent with UIIT, such distrusting beliefs reflect patients' challenges in assigning clear meaning to illness-related information and treatment outcomes, rather than serving as a causal antecedent that generates uncertainty. In this context, distrust in attending doctors can directly shape patients' post-discharge coping-oriented behaviors (Mishel & Clayton, 2008).

Evidence from Phase I suggests that distrust in attending doctors during hospitalization is associated with patients' increased engagement in compensatory coping strategies after discharge. SNT further posits that individuals facing health-related challenges often seek support from weak ties that provide access to alternative information and perspectives (Granovetter, 2018). Online platforms facilitate such connections by lowering barriers to accessing additional medical expertise and experiential knowledge beyond the immediate offline clinical encounter (Hao &

Zhang, 2016). Accordingly, discharged patients who harbor distrusting beliefs toward their attending doctors may turn to online social support from professionals as a means of supplementing perceived gaps in guidance and reassurance. Online professional support enables patients to communicate with alternative experts at relatively low cost and with greater convenience, offering additional interpretations of treatment plans or medication use (Liu et al., 2022).

Similarly, patients may seek online peer support by engaging with others who share similar illnesses and treatment experiences. Such peer interactions provide experiential knowledge and comparative insights regarding medication outcomes (Smit et al., 2021), which may be particularly appealing to patients who lack confidence in their physicians' clinical competence.

Taken together, distrust in attending doctors' competence during hospitalization may increase the frequency with which discharged patients engage in both online professional and online peer support. Accordingly, we propose the following hypotheses:

H2a: Distrust in attending doctors' competence during hospitalization positively affects discharged patients' frequency of seeking online professional support from other doctors.

H2b: Distrust in attending doctors' competence during hospitalization positively affects discharged patients' frequency of seeking online peer support from other patients.

When patients distrust the integrity of their attending doctors, such as losing confidence that the doctor is acting in accordance with moral or clinical standards, they may question whether prescribed treatments genuinely serve their best interests (Shaughnessy et al., 2023). Our qualitative findings from Phase I reinforce this pattern. Several interviewees explicitly expressed concerns that their attending doctors' recommendations were "not necessarily in the patients' best interest" or were "influenced by financial considerations." These statements illustrate how integrity-based distrust reflects patients' difficulty in confidently evaluating the appropriateness and legitimacy of prescribed medication interventions.

Rather than conceptualizing uncertainty as a separate causal mechanism, we argue that integrity-based distrust directly shapes patients' post-discharge information-seeking behaviors. Consistent with SNT, when patients perceive limitations in the trustworthiness of guidance obtained from offline medical encounters, they are more likely to turn to online networks to supplement or validate treatment-related information (Hillen et al., 2011). Our interviews provide further support for this behavioral pattern: patients who doubted their doctors' integrity reported actively searching for alternative professional opinions or consulting peers with similar conditions. For example, one participant noted that they "went online to ask other doctors to see whether my medication was really necessary," while another sought out peer patients to "compare how others were treated for the same illness."

This qualitative evidence aligns with and extends prior research showing that physician distrust is associated with increased online consultation with medical professionals (Rupert et al., 2014) as well as greater engagement in peer-based treatment comparisons (Zhang et al., 2017). Accordingly, distrust in attending doctors' integrity during hospitalization may directly increase discharged patients' engagement with both online professional and online peer support. Then, we propose the following hypotheses:

H2c: Distrust in attending doctors' integrity during hospitalization positively affects discharged patients' frequency of seeking online professional support from other doctors.

H2d: Distrust in attending doctors' integrity during hospitalization positively affects discharged patients' frequency of seeking online peer support from other patients.

Following SNT, the online environment may offer enhanced communication opportunities (Mirzaei & Esmaeilzadeh, 2021), which are valuable for discharged patients navigating illness uncertainty (Zhang et al., 2017). These opportunities allow patients to access a broader range of information and experiences, potentially leading to the discovery of alternative treatment options (Willis & Royne, 2017).

Health services from online platforms differ from services in traditional hospitals, and online professionals are primarily motivated by financial returns (Guo et al., 2017). This may lead to competitive relationships between online professionals and attending doctors in serving patient consultors (Hao & Zhang, 2016). Additionally, since the offline medication treatment prescribed by attending doctors is based on a set of physiological measures of patients during hospitalizations and doctors' personal medical experiences (Woit et al., 2020), the online medication solutions often depend on the self-reported illness information provided by discharged patients. This may result in inconsistencies between offline medication interventions and online medication options (Rupert et al., 2014). The qualitative findings reinforce and extend these insights. Several participants described how online professionals, particularly those providing traditional Chinese medicine, engaged in more detailed and frequent communication than attending doctors. Such deep communication sometimes increased patients' trust in online professionals relative to their attending doctors, especially when they had already developed doubts about the latter's integrity. These qualitative insights underscore how online professional support can persuade discharged patients to adopt alternative prescriptions, thereby reducing adherence to the interventions originally prescribed.

Similarly, the interviews provide nuance to the role of online peer support in shaping medication decisions. Since medication interventions are individualized and linked to clinical treatments during hospitalization (Taheri Moghadam et al., 2021), online peer support contains diverse medication information compared to that offered by the attending doctors. Phase I results suggested that such exposure may generate uncertainty about the necessity of the prescribed regimen. This dynamic was echoed in the interviews. Another noted that browsing many peer recommendations increased the temptation to self-diagnose. These qualitative accounts illustrate how peer-generated information can prompt discharged patients to diverge from medical advice, contributing to non-adherence.

Based on the above analysis, the following research hypotheses are proposed:

H3a: Discharged patients' frequency of seeking online professional support negatively affects their adherence to medication interventions prescribed by attending doctors.

H3b: Discharged patients' frequency of seeking online peer support negatively affects their adherence to medication interventions prescribed by attending doctors.

According to UIIT (Mishel, 1988), when uncertainty exists, patients may act unpredictably. The impact of online professional support on medication adherence behaviors may vary as the uncertainty associated with online professional support increases. Meanwhile, the source characteristics of online professional support are of utmost importance for discharged patients. Existing literature emphasizes that the characteristics of sources can significantly influence the acceptance and adoption of information conveyed through social support (Sussman & Siegal, 2003). Among these characteristics, source credibility emerges as the most significant factor influencing the persuasion of online support, particularly when the support is provided by experts (Luo et al., 2015). These characteristics are highly salient in professional medical advice. Based on UIIT (Mishel, 1988), when online professional support has low source credibility, the uncertainty surrounding this support may increase, reducing its impact on medication adherence.

Moreover, highly credible sources are often associated with greater expertise and trustworthiness, which can lead to increased confidence in the information provided (Fogg et al., 2001). This heightened confidence may prompt discharged patients to consider alternative treatment options more seriously, potentially amplifying the negative impact of online professional support on medication adherence.

Thus, we hypothesize as follows:

H4: Source credibility of online professional support negatively moderates the relationship between discharged patients' frequency of seeking online professional support and their adherence to medication interventions prescribed by attending doctors.

All hypotheses are summarized in Table 4.

Table 4. Hypothesis summary table.

Hypothesis	Independent Variable	Dependent Variable	Direction
H1a	Distrust in attending doctors' competence during hospitalization	Medication adherence after discharge	−
H1b	Distrust in attending doctors' integrity during hospitalization	Medication adherence after discharge	−
H2a	Distrust in attending doctors' competence during hospitalization	Frequency of seeking online professional support	+
H2b	Distrust in attending doctors' competence during hospitalization	Frequency of seeking online peer support	+
H2c	Distrust in attending doctors' integrity during hospitalization	Frequency of seeking online professional support	+
H2d	Distrust in attending doctors' integrity during hospitalization	Frequency of seeking online peer support	+
H3a	Frequency of seeking online professional support	Medication adherence after discharge	−
H3b	Frequency of seeking online peer support	Medication adherence after discharge	−
H4	Frequency of seeking online professional support × Source credibility	Medication adherence after discharge	− (Moderation)

Figure 1 summarizes the hypotheses and illustrates the proposed research model with the complex online-offline dilemma. Initially, patients may encounter an offline dilemma during hospitalization due to distrust in their attending physicians. This may create a high level of uncertainty for patients and cause them to question their prescribed medication interventions (Hall & Heath, 2021). After discharge, patients often face additional costs related to time, travel, and expenses if they seek further clinical consultations again. Patients can easily connect with online resources through online platforms, presenting an online dilemma related to the influx of information and potentially conflict

between this information with medication information. This may create new offline dilemmas related to medication adherence.

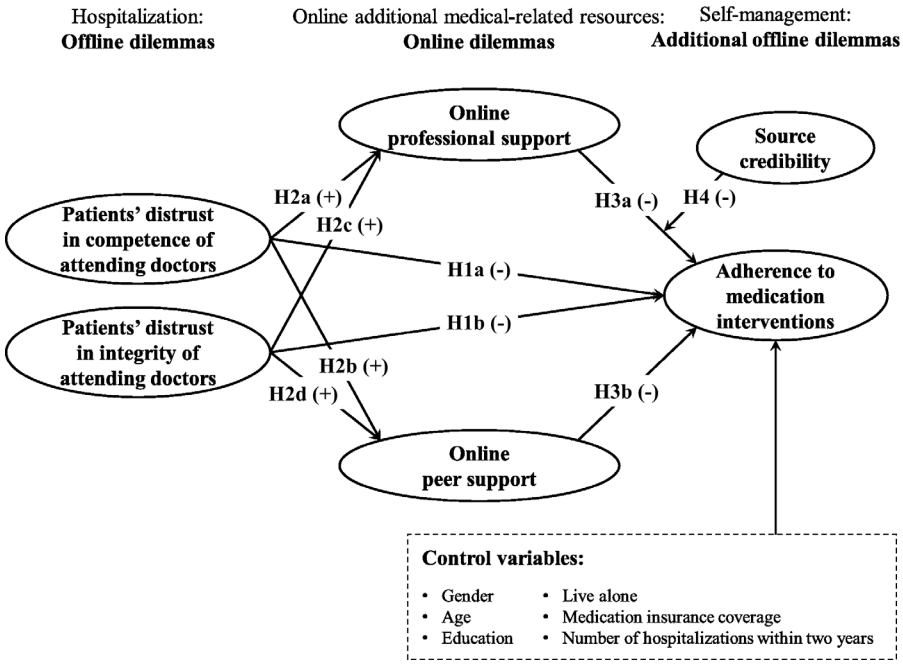

Figure 1. Research Model

3.2.3. Data Collection

To examine the research model quantitatively, an online survey instrument was developed for patients with hospitalization experiences within two years. Data collection was conducted via "wjx.cn," one of the most popular platforms specializing in online survey data collection in China, to reach the target population. Patients who completed the interviews received ¥10 as compensation. A total of 358 questionnaires were collected on the website. The authors excluded 49 questionnaires to remove participants who did not demonstrate careful attitudes (defined as more than eight successive answers with the same values) (Curran, 2016). Finally, a total of 309 participants were engaged in the study.

This study followed the existing literature to measure the dimensions of competence and integrity in distrusting beliefs (Yang et al., 2023) using a 7-point Likert scale, where 7 indicates a higher level of patients' distrust in attending doctors during hospitalization. The measurement of patients' distrust in the integrity of attending physicians consists of only two items. Prior methodological literature (e.g., Legate et al., 2023) has demonstrated that two-item constructs are acceptable when they exhibit strong internal consistency and convergent validity (e.g., high factor loadings, AVE > 0.50, and satisfactory composite reliability, see Section 3.2.4). In our study, both retained items met all recommended reliability and validity criteria, indicating that they function as adequate indicators of the construct.

Additionally, the Availability of Social Integration (Eklund et al., 2007) was utilized and developed to measure structural social support. Four items were adopted to measure the intensity of acquiring each online structural social support, with response options ranging from 1 ("not at all") to 6 ("more than 15") (Eklund et al., 2007) to provide meaningful differentiation across network sizes, preventing the substantial information loss that would occur with dichotomous or narrower scales.

Furthermore, the Medication Adherence Report Scale (Eklund et al., 2007) was used to assess adherence to medication interventions through ten yes-or-no questions. The dependent variable is modeled as a summed composite adherence index, which is common practice in medical adherence research (Thompson et al., 2000). Once summed, the dependent variable becomes a quasi-continuous measure, which is appropriate for PLS-SEM analysis (Ungless et al., 2025).

Items on source credibility were adopted based on Luo et al., using a 7-point Likert scale where 7 represents "strongly agree" (Luo et al., 2013). All measurements from Phase II are listed in Table B.1 in Appendix B. For readability, this study engaged two Ph.D. candidates and three master's students to read, discuss, and revise all measured items.

In this study, six control variables were selected. First, demographic factors may influence adherence to health interventions (Ickovics et al., 2007), prompting us to include age, gender, and education as relevant control variables. Second, social factors have been identified as potential barriers to adherence (Birnbaum et al., 2017), leading us to include living arrangements (i.e., living alone or with others) as a control variable. Third, health-related factors are known to significantly impact adherence to medication interventions (Thom et al., 2013); thus, the number of hospitalizations within two years was also incorporated as a control variable. Lastly, an essential economic factor, namely coverage of medication insurance conditions, can influence patients' adherence behaviors. Therefore, we controlled for this factor as well.

Among all the respondents, the majority were female (183/309, 59.22%), and the most common age group was between 31-40 years (170/309, 55.02%). Additionally, most respondents had attained a university education (251/309, 81.23%). Furthermore, nearly all respondents did not live alone (289/309, 93.53%). As the study focused on medication adherence issues, coverage of medication insurance was also tested. Results showed that the majority of respondents had a 51-75% coverage of drug payment in their medication insurance (137/309, 44.34%). The study also investigated the number of hospitalizations within the past two years, revealing that most patients were hospitalized only once during this period (202/309, 65.37%). Detailed demographic information is presented in Table 5.

Table 5. Phase II demographic information.

	Number of participants		Number of participants
Gender		Live alone	
Male	126	Yes	20
Female	183	No	289
Age		Medication insurance coverage	
18-25	23	0	1
26-30	78	1-25%	40
31-40	170	26-50%	83
41-50	27	51-75%	137
51-60	10	76-100%	46
Above 60	1	Number of hospitalizations within two years	
Education		None	0
Senior high school and below	9	Once	202
College	18	Twice	89
University	251	Three times and more	18
Graduate School or above	31		

3.2.4. Measurement Model

To test our theoretical research model, we employed partial least squares (PLS) techniques using Smart PLS (v. 3.3.3). Smart PLS follows the recommended two-step procedure (Gefen et al., 2000), effectively handling the evaluation of the outer measurement model and the inner structural model. Bootstrapping was conducted with 5,000 resamples. We tested the validity and reliability of dimensions of distrust in doctors, online professional support, online peer support, and source credibility. Table 6 shows the item loading and values for Cronbach's alpha, composite reliability, and average variance extracted; Table 7 shows the cross loadings. As demonstrated in Table 6 and Table 7, the results showed reasonable reliability (item loading over 0.7), convergent validity (Cronbach's alpha and CR over 0.7 and AVE over 0.5), as recommended by Kline (2023). Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT). As shown in Table 8, all HTMT values were below the recommended threshold of 0.85 (Henseler et al., 2015).

Table 6. Phase II reliability and convergent validity.

Constructs	Items	Item loading	Cronbach's α	Composite reliability	Average variance extracted
Patients' distrust in competence of attending doctors	DIC1 DIC2 DIC3	0.833 0.846 0.845	0.794	0.879	0.708
Patients' distrust in integrity of attending doctors	DII1 DII2	0.919 0.869	0.753	0.889	0.800
Online professional support	OPRS1 OPRS2 OPRS3 OPRS4	0.836 0.816 0.714 0.700	0.771	0.852	0.591
Online peer support	OPES1 OPES2 OPES3 OPES4	0.908 0.910 0.897 0.895	0.925	0.946	0.814
Adherence to medication interventions	AMI	1.000	1.000	1.000	1.000
Source credibility	SC1 SC2 SC3 SC4	0.804 0.773 0.717 0.761	0.763	0.849	0.584

Table 7. Phase II cross loading.

	(1) Patients' distrust in competence of attending doctors	(2) Patients' distrust in integrity of attending doctors	(3) Online professional support	(4) Online peer support	(5) Adherence to medication interventions	(6) Source credibility
DIC1	0.833	-0.305	0.084	0.018	-0.277	-0.411
DIC2	0.846	-0.220	0.061	0.081	-0.266	-0.326
DIC3	0.845	-0.187	0.155	0.097	-0.232	-0.393
DII1	-0.243	0.919	0.145	0.085	0.064	0.290
DII2	-0.255	0.869	0.085	0.122	0.003	0.286
OPRS1	0.130	0.137	0.836	0.409	-0.208	-0.006
OPRS2	0.109	0.095	0.816	0.419	-0.226	-0.012
OPRS3	0.072	0.050	0.714	0.377	-0.199	0.056
OPRS4	0.039	0.119	0.700	0.351	-0.140	0.014
OPES1	0.076	0.137	0.468	0.908	-0.273	-0.045
OPES2	0.085	0.110	0.483	0.910	-0.200	0.009
OPES3	0.072	0.099	0.458	0.897	-0.217	-0.035
OPES4	0.041	0.125	0.409	0.895	-0.149	0.036
AMI	-0.288	0.041	-0.255	-0.239	1.000	0.311
SC1	-0.356	0.286	0.065	-0.028	0.269	0.804
SC2	-0.298	0.212	-0.025	-0.014	0.242	0.773
SC3	-0.358	0.238	-0.017	0.006	0.229	0.717
SC4	-0.356	0.242	0.006	-0.003	0.225	0.761

Table 8. Phase II Heterotrait – Monotrait Ratio.

	DIC	DII	OPRS	OPES	AMI
DIC					
DII	0.366				
OPRS	0.143	0.166			
OPES	0.089	0.141	0.596		
AMI	0.323	0.044	0.286	0.241	

3.2.5. Structural Model

Figure 2 presents the results of the structural model with an R-squared value of 0.251. The analysis yields the following results.

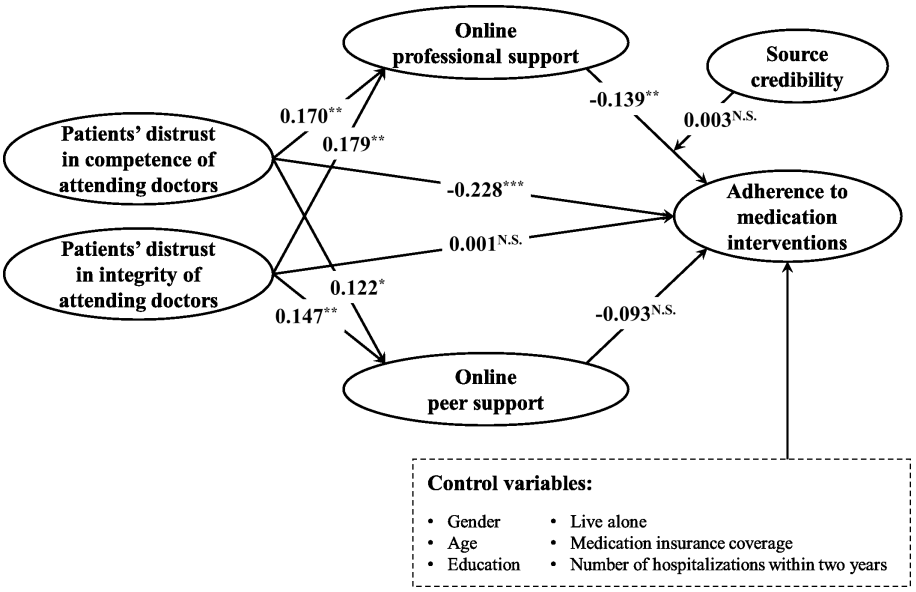

Figure 2. Results of structural model.
Not significant N.S., p ⩽ 0.1 *, p ⩽ 0.05 **, p ⩽ 0.01 ***.

First, patients' distrust in the competence of attending doctors negatively influenced adherence to medication interventions (β =-0.228, t=3.917, p<0.01), supporting H1a. However, patients' distrust in the integrity of attending doctors did not show a significant effect on medication intervention adherence (β =-0.001, t=0.016, p>0.1), rejecting H1b.

Second, patients' distrust in attending doctors, either competence or integrity, significantly positively affect patients' access to professional support online (β =0.170, t=2.172, p<0.05; β =0.179, t=2.572, p<0.05), supporting H2a and H2c. Regarding online peer support, patients' distrust in attending doctors' competence or integrity significantly positively affect patients' access to peer support online (β =0.122, t=1.839, p<0.1; β =0.147, t=2.407, p<0.05), supporting H2b and H2d.

Third, online professional support was found to have a negative effect on medication intervention adherence (β =-0.139, t=2.158, p<0.05), supporting H3a. Additionally, online peer support did not significantly influence medication intervention adherence (β =-0.093, t=1.519, p>0.1), rejecting H3b.

Finally, source credibility of online professional support did not significantly moderate the relationship between online professional support and adherence to medication interventions (β =0.003, t=0.057, p>0.1), rejecting H4.

Multicollinearity in the structural model was assessed using VIF values. All predictor constructs exhibited VIF values ranging from 1.069 to 1.449, which are below the recommended threshold (VIF<3) (Hair, 2014). Thus, multicollinearity does not pose a threat to the structural model.

4. Discussion and Contribution

4.1. Main Findings

As medication interventions are prescribed by attending doctors, discharged patients are simultaneously exposed to healthcare information from online platforms as additional inputs into their treatment decision-making. This study therefore asks when patients turn to alternative information sources and how engagement with these sources relates to adherence to medication interventions prescribed during hospitalization. While online healthcare platforms are widely promoted as beneficial extensions of healthcare delivery, our findings suggest the importance of viewing them as integral components of a broader healthcare ecosystem in which multiple medical systems coexist and interact.

First, our results underscore the central role of the distrust relationship between patients and attending doctors in shaping post-discharge medication behaviors. Distrust in doctors' competence was found to be significantly associated with reduced adherence to prescribed medication interventions (H1a), whereas distrust in doctors' integrity did not show a significant effect (H1b). This pattern suggests that, in the context of high-risk medication decisions, patients place greater weight on physicians' perceived clinical expertise, such as diagnostic accuracy and treatment rationale, than on integrity-related judgments, which may be less directly observable in clinical encounters (Eftekhari et al., 2023). Qualitative findings further indicate that integrity-related distrust often manifests as dissatisfaction with

hospitalization costs or institutional practices, rather than as a direct determinant of medication adherence. Moreover, professional and regulatory safeguards within hospital settings may constrain unethical prescribing behaviors (Coppola et al., 2020), thereby limiting the extent to which integrity-based distrust translates into observable differences in adherence outcomes.

Second, our findings indicate that distrust in attending doctors is associated with increased engagement in online professional and peer support after discharge (H2a-H2d). Rather than conceptualizing this behavior as inherently problematic, we interpret it as a coping-oriented response (Mishel & Clayton, 2008) in which patients seek additional perspectives and reassurance when navigating treatment decisions beyond the hospital setting. Online platforms provide accessible channels through which patients can consult alternative professionals or learn from others with similar experiences, thereby supplementing offline medical encounters.

Third, we find that greater reliance on online professional support is associated with non-adherence to medication interventions prescribed by attending doctors (H3a). Importantly, this effect should be interpreted as a divergence from offline medical advice rather than as an indicator of poorer health outcomes. Online professional support may introduce alternative interpretations of treatment necessity, dosage, or risk, leading patients to recalibrate their medication behaviors based on multiple sources of medical input. From this perspective, reduced adherence reflects the complexity of decision-making in a multi-source healthcare environment rather than a simple failure to comply. The non-significant moderating role of source credibility (H4) suggests that platform-based verification mechanisms may not substantially alter how online professional advice influences patients' adherence decisions. This may be due to standardized credentialing practices that limit variability in perceived credibility, or to patients' limited ability to differentiate among professional sources once minimum credibility thresholds are met.

Additionally, we did not observe a significant relationship between online peer support and medication adherence (H3b). This may be attributable to heterogeneity in patients' health literacy and digital skills (Peterson et al., 2019), as well as the availability of strong offline support networks such as family and friends (Hesselink et al., 2012), which may reduce reliance on online peer communities. In addition, as patients accumulate treatment experience over time, they may become more selective in how they interpret and apply information from both professional and peer sources, further attenuating the impact of online support on adherence behaviors.

4.2. Theoretical Contributions

This study makes several important theoretical contributions to the literature.

First, this study extends the understanding of UIIT by demonstrating that distrust in attending doctors functions as a critical antecedent of illness uncertainty in the post-discharge context. While UIIT does not originally include a distrust construct, recent evidence shows that distrust is a defining attribute of illness uncertainty and is associated with diminished insight and difficulty managing illness (Cho et al., 2023). By linking distrust, heightened uncertainty and post-discharge coping behavior, our study clarifies an understudied mechanism consistent with UIIT's core premise that uncertainty arises when illness-related cues are ambiguous or unpredictable. From the perceptions of trust, previous research has primarily focused on the positive aspects of trust in healthcare provider-patient relationships (e.g., Birkhäuer et al., 2017), our findings highlight the critical role of distrust in shaping patients' uncertainty and subsequent health-related behaviors. In doing so, we extend UIIT into a new boundary condition—the discharge phase where discontinuity of care and online health seeking intensify uncertainty—and show how UIIT remains theoretically relevant in contemporary digital healthcare environments.

Second, this study advances theory by integrating UIIT with SNT to explain how uncertainty-driven online coping behaviors translate into medication adherence outcomes. Prior research often treats UIIT (focused on psychological mechanisms) and SNT (focused on network structures) as separate explanatory lenses. By synthesizing these two theoretical traditions, we offer a novel integrative framework in which UIIT explains why uncertain patients seek additional resources online, while SNT explains how the structural characteristics of online networks shape the nature and impact of the resources obtained. This cross-theoretical integration surfaces a previously overlooked mechanism linking psychological uncertainty with network-driven resource accessibility and health behaviors.

Third, this study contributes to the literature on online health platforms by elucidating the structural pathways through which online support reshapes patients' medication decision-making, rather than uniformly reinforcing adherence to offline medical advice. Prior research has predominantly emphasized the benefits of functional online support, such as informational and emotional assistance provided through online platforms (e.g., Yan & Tan, 2014). By contrast, we adopt a structural social support perspective that focuses on the presence, composition, and connectivity of online professional and peer networks. Our findings show that engagement with online support networks can alter patients' alignment with medication interventions prescribed by attending physicians, particularly when online advice introduces alternative interpretations of treatment necessity or risk. This structural perspective highlights coordination challenges that arise when multiple medical systems coexist and advance a more nuanced understanding of how online health communities influence adherence-related behaviors.

Finally, this study introduces a new theoretical perspective on online social support by shifting attention from the types of support patients receive to the network structures that enable (or distort) access to health-related resources. Whereas existing models emphasize functional support (e.g., Wang et al., 2017) (Wang et al., 2017), our structural approach, grounded in SNT, highlights how the configuration of online networks influences patient decision-making. This shift broadens the theoretical landscape by showing that who provides support and how patients are connected can be as consequential as what kind of support they receive. This insight opens up new avenues for examining how digital social structures shape health behaviors, especially in high-stakes clinical transitions such as hospital discharge.

4.3. Practical Implications

This study also provides several important practical implications for healthcare providers, online platform designers, and policymakers, particularly regarding how digital platform mechanisms influence discharged patients' medication adherence behaviors.

First, our findings offer valuable implications for healthcare providers and hospital administrators. The results underscore the importance of strengthening physician-patient communication and reducing distrust during hospitalization to reduce patients' excessive reliance on online platforms after discharge. Hospitals may develop structured discharge protocols that integrate digital follow-up tools, such as app-based check-ins, medication reminders, and teleconsultation services, to maintain continuity of care and mitigate patients' dependence on unverified online resources. Such initiatives reflect a lifecycle management approach, enabling hospitals to proactively address the substitutive influence of online platforms and support patients throughout the post-discharge period.

Second, the findings have significant implications for online health platform designers and operators. Because high engagement with online professional or peer networks may negatively influence adherence, platforms should consider designing recommender systems that prioritize evidence-based, clinically aligned content. Intelligent filtering mechanisms can down-rank contradictory or potentially harmful guidance. The insignificant moderating effect of source credibility suggests that existing verification badges (e.g., verified doctor, top contributor) may be insufficient. Platforms could adopt AI-driven verification systems to assess medical content quality, highlight clinically validated information, and flag inconsistencies with standard treatment protocols. Additionally, platforms may implement incentive mechanisms, such as badges, reputation boosts, or ranking rewards, for contributors who provide adherence-supportive and clinically consistent guidance, while penalizing content that encourages deviations from prescribed treatment. Simple interface nudges, including reminders to follow physician instructions, pop-up warnings when encountering conflicting advice, or links to hospital-verified information, can further help guide patients toward safe decision-making without compromising platform openness.

Third, our findings have important implications for policymakers. Beyond regulating the accuracy of health-related content, policies should also address the mechanisms through which platforms curate, recommend, and amplify medical information. Regulatory frameworks could establish standardized requirements for algorithmic transparency, certify health-related content quality, and create guidelines for how digital health platforms should interface with hospital information systems. Furthermore, investments in telemedicine and integrated online–offline care models can ensure that discharged patients receive consistent and reliable medical guidance, thereby reducing risks associated with exposure to conflicting or misleading online information.

5. Limitations and Future Research

Several limitations also exist in our study that warrant future research. First, because our quantitative data were drawn from the population actively using online platforms, older adults and patients living alone were not represented in the sample. Nevertheless, with the increasing accessibility of online health services, older patients remain key stakeholders. Additionally, for the qualitative study, all interviewees were recruited from a single hospital. Future research should aim to broaden the participant population to enhance generalizability. Second, this study fails to give a description of discharged patients' online behaviors under uncertainty in illness, and our interview data showed a general understanding of discharged patients' online-offline dilemmas. Future research will be located in a related area with quantitative evidence. Third, structural social support was operationalized using network size and contact frequency, which capture the extent and intensity of social connections but not the content, valence, or consistency of information exchanged. Relatedly, although participants were instructed to anchor their responses to their most recent hospitalization, the dependent variable items did not explicitly restate this reference period, which may introduce some recall variability. Future studies could incorporate additional structural attributes, such as information congruence or source alignment, to provide a more comprehensive understanding of network effects. Last, online professional support may also influence patients' distrust in attending doctors. However, because our study relies on cross-sectional data, we cannot establish causal relationships between these constructs. Future research should aim to address this limitation by employing longitudinal studies or experiments.

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Appendix A

Opening instruction to the interviewee:

Hello Mr./Miss XXX (the interviewee), I am contacting you on behalf of the scientific research cooperation project team from China University of Mining and Technology and the Second Affiliated Hospital of Harbin Medical University. We obtained your contact information through the Director of the Neurology Department at the hospital.

We would like to conduct an interview with you to gain insights into your adherence to medicine interventions after discharge. (We also checked that if they have the experience with online platforms for health purposes). This interview is expected to last approximately 15-20 minutes. Your participation in this interview is entirely voluntary, and you may withdraw at any time during the interview. We guarantee confidentiality and assure you that your responses will be anonymized in all reports or publications. Your interview responses will not be shared with your attending doctor or the hospital.

We value your contribution and hope to have your consent to participate in our interview. Will you agree to proceed?"

Interview Questions:

1. When did you last experience XXX disease? How did you feel, and what was your experience with the attending doctor during your hospitalization?
2. How many times have you had XXX disease? When did you first seek medical attention? Where did you receive medical care? Were all your visits to the same doctor at the same hospital (in the Second Affiliated Hospital of Harbin Medical University)?
3. Have you experienced any adverse reactions or complications from medication? If so, please describe them and their severity.
4. How did you feel after being discharged from the hospital? What do you think could be the reasons for these feelings?
5. Reflecting on your most recent hospitalization, how would you rate your experience with the attending doctor? Could you explain your rating?
6. How much trust/distrust do you place in your attending doctors, and what factors influence this trust/distrust? How does this trust/distrust affect you after your discharge from the hospital?
7. After your discharge, what specific self-management suggestions did the doctor give you, such as advice on exercise, diet, or sleep? Have you adhered to these recommendations? If so, what motivated you to follow them? If not, what were the reasons?
8. After your discharge, what instructions did the doctor provide regarding your medication and treatment plan? Have you adhered to these instructions? If yes, what encouraged you to comply? If no, what were the reasons for not following them?
9. Have you received any medical support from your family and friends since being discharged from the hospital? If so, how have they supported you?
10. Have you searched for health information online (e.g., on websites like haodaifu.com) using your mobile phone or computer since being discharged from the hospital? Where did you find this information, and what topics caught your attention? How has this health information influenced your approach to managing your condition?
11. Have you consulted other doctors online since being discharged from the hospital? Did this lead to any changes in your treatment plan? If so, how did these consultations impact your care?
12. Have you connected with other patients who have the same disease online since being discharged from the hospital? Did this interaction lead to any changes in your treatment approach? If yes, how did these interactions affect your management of the disease?

Appendix B

Participants were instructed to answer all questions based on their most recent hospitalization experience and their experiences following discharge. The measurement items used in this study are presented in Table B.1.

Table B1. Survey measurement.

Patients'distrust in competence of attending doctors		Adapted from Yang et al. (2023)
TAP1	You are skeptical whether your attending doctors were competent and effective in treating you.	
TAP2	You are worried whether your attending doctors have performed well in their role of treating patients.	
TAP3	Generally, you feel nervous about how knowledgeable your attending doctors are regarding the treatment service.	
Patients' distrust in integrity of attending doctors		Adapted from Yang et al. (2023)
TIP1	It is uncertain whether your attending doctors have honored their commitments.	
TIP2	You are not sure that your attending doctors (of the last hospitalization) are sincere and genuine.	
Online professional support		Adapted from Eklund et al. (2007)
OPRS1	How many online doctors do you know and have contacted with?	
OPRS2	How many online doctors that you have consulted?	
OPRS3	How many online doctors who can make you feel at home when you share your disease conditions?	
OPRS4	How many online doctors can you speak openly with about your disease conditions?	
Online peer support		Adapted from Eklund et al. (2007)
OPES1	How many online peer patients do you know and have contacted with?	
OPES2	How many online peer patients that you talk about your disease?	
OPES3	How many online peer patients do you know that make you feel at home when you share your disease conditions?	
OPES4	How many online peer patients can you speak openly with about your disease conditions?	
Adherence to medication interventions		Adapted from Thompson et al. (2000)
AMI1	Do you ever forget to take your medicine prescribed by your attending doctors? (Yes=0; No=1)	
AMI2	Are you careless at times about taking your medicine prescribed by your attending doctors? (Yes=0; No=1)	
AMI3	When you feel better, do you sometimes stop taking your medicine prescribed by your attending doctors? (Yes=0; No=1)	
AMI4	Sometimes if you feel worse when you take the medicine prescribed by your attending doctors, do you stop taking it? (Yes=0; No=1)	
AMI5	You take your medication prescribed by your attending doctors only when you are sick. (Yes=0; No=1)	
AMI6	It is unnatural for your mind and body to be controlled by medication prescribed by your attending doctors. (Yes=0; No=1)	
AMI7	Your thoughts are clearer on medication prescribed by your attending doctors. (Yes=1; No=0)	
AMI8	By staying on medication prescribed by your attending doctors, you can prevent getting sick. (Yes=1; No=0)	
AMI9	You feel weird, like a 'zombie', on medication prescribed by your attending doctors. (Yes=0; No=1)	
AMI10	Medication prescribed by your attending doctors makes you feel tired and sluggish. (Yes=0; No=1)	
Source credibility		Adapted from Luo et al. (2013)
SC1	Based on the online rating system, the doctors are reputable.	
SC2	Based on the online rating system, the doctors are highly rated by the community members.	
SC3	Based on the online rating system, the doctors are trustworthy.	
SC4	Based on the online rating system, the doctors are reliable.	