Laypeople's Illness Perceptions and Their Impact on the Doctor-Patient Relationship

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Abstract

Lay illness perspectives constitute the collection of laypeople's cognitions, explanations, and attitudes toward a particular disease. Compared with professional medical personnel, laypeople pay greater attention to the pathogenic roles of psychological, familial, and social factors rather than biological factors; their healthcare-seeking choices are diverse and do not follow standardized medical consultation patterns; and they are more inclined to constructively understand illness experiences as unique problems of personal life. The inconsistency between lay illness perspectives and scientific medical perspectives may reduce patients' satisfaction with medical care, trust in physicians, and adherence to medical advice, thereby affecting treatment outcomes. Grounded in the medical culture and healthcare system of Chinese society, studying Chinese people's lay illness perspectives and exploring their impact on doctor-patient relationships and the underlying social-psychological mechanisms can provide valuable recommendations for ameliorating the current tense state of doctor-patient relationships in China.

Full Text

Lay Theories of Illness and Their Influence on Doctor-Patient Relationships

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Abstract: Lay theories of illness represent a collection of laypeople' s knowledge, explanations, and attitudes toward particular diseases. Compared with medical professionals, laypeople tend to focus more on psychological, familial, and social factors than biological ones in understanding disease causation. Their healthcare-seeking choices are diverse rather than following standardized medical models, and they are more inclined to constructively interpret illness experiences as unique personal life events. Discrepancies between lay theories of illness and scientific medical perspectives may reduce patient satisfaction with care, trust in physicians, and adherence to medical advice, thereby affecting treatment outcomes. Grounded in China' s medical culture and healthcare system, research examining Chinese lay theories of illness and their social-psychological mechanisms of influence on doctor-patient relationships can provide valuable recommendations for alleviating current tensions in Chinese medical practice.

Keywords: lay theories; lay theories of illness; doctor-patient relationships; doctor-patient communication **Classification:** B849: C91

Tensions in doctor-patient relationships arise from numerous socio-psychological factors, among which a crucial yet often overlooked aspect is the divergent perspectives that both parties hold regarding the same disease during clinical communication. Although disease diagnosis and treatment typically involve specialized modern medical knowledge, patients frequently base their decisions about seeking care, trusting diagnoses, and following medical advice on various naive beliefs that differ from the modern medical knowledge represented by healthcare providers. While doctor-patient communication is, to some extent, an expert-novice relationship, patients' subjective cognitions and attitudes toward disease, health, medical services, and treatment expectations substantially influence communication quality. The gap—and often conflict—between professional medical knowledge and everyday health beliefs can trigger communication breakdowns. The concept of "lay theories of illness" (also translated as lay beliefs about illness) and related research can enrich our understanding of these perspective discrepancies and offer constructive social-psychological recommendations for building harmonious doctor-patient relationships.

1.1 Laypeople, Lay Theories, and Lay Theories of Illness

In daily life, people consistently rely on their existing beliefs about phenomena to guide their behavior, even when such behavior may inherently require specialized knowledge and experience unavailable without professional training. The term "layperson" refers to ordinary, non-specialist individuals—common people without expertise in a particular domain. Of course, the distinction between professional and lay is relative: a neurosurgery specialist may well be a layperson in computer science. Laypeople possess their own non-scientific, implicit, and informal explanatory frameworks for understanding the nature of the world, how social phenomena operate, and everyday trivial matters—these are so-called lay theories. Kelly (1991) defined lay theories as "ordinary people's beliefs about how things work." Like filters, these theories influence people' s cognition and attitudes toward various everyday issues and guide their corresponding behaviors.

The concept of lay theories encompasses two dimensions: broadly, it refers to people' s overall belief systems about human, emotional, and material phenomena in the world, which can be regarded as ordinary people' s naive philosophy of life; narrowly, it refers to people' s explanations and views on specific issues, representing relatively concrete personal constructions concerning particular aspects. Lay theories cover different disciplines and domains, further subdividable into lay theories of education (Savani, Rattan, & Dweck, 2017), lay economic theories (Leiser & Krill, 2017), lay theories of happiness (Agbo & Ome, 2016), lay theories of illness (Cameron & Leventhal, 2014; Knettel, 2017), and so forth.

Lay theories are termed "theories" because they share certain similarities with scientific theories: their content is inspired by scientific theories (Jayaratne et al., 2006); their structure comprises belief systems, rules, and concepts with some internal organization (Furnham, 1988); and functionally, they support people' s understanding of the world, enabling prediction and control, thereby reducing cognitive uncertainty (Plaks, Grant, & Dweck, 2005). However, lay theories are not scientific theories held by ordinary people. Their assumptions and axioms are typically implicit and ambiguous; they tend to confirm their explanations of phenomena through inductive logic while showing little concern for falsification; they frequently misinterpret correlations between two variables as causal relationships; and they usually derive concrete explanations for particular phenomena through observation without abstracting these into general principles that can explain different phenomena within the same category (Furnham, 1988). Therefore, lay theories belong to "weak theories" (Furnham, 1988) and represent phenomenological constructions through which ordinary people comprehend everyday life (Levy, Chiu, & Hong, 2012).

In medical contexts, laypeople typically refer to patients without relevant medical backgrounds, including the patients themselves and their relatives or agents. Lay theories of illness constitute the collection of cognitions, explanations, and attitudes that patients hold regarding the etiology, treatment, disease progression, and significance of a particular disease. This represents the specific application and manifestation of lay theories in the domain of disease and health (Furnham & Kirkcaldy, 2015). Their counterpart is the scientific medical perspective held by professionally trained healthcare providers—namely, the current biomedical model. Essentially, lay theories of illness are explanatory models that ordinary people develop by integrating knowledge obtained through empirical observation, personal experience, and media reports about disease-related phenomena. This does not mean that patients' lay perspectives are absolutely inconsistent with scientific medical concepts, nor that all beliefs held by medical staff necessarily align with scientific medical principles. Overall, however, there exists an asymmetry in medical knowledge between doctors and patients, often amounting to a knowledge gap, and the disease explanations and healthcare-seeking strategies they typically employ differ. Emphasizing the "lay" nature of lay theories of illness highlights ordinary people' s naive understanding of medical phenomena without modern medical training. Just as using the terms "doctor side" and "patient side" to describe the two groups does not imply that the "doctor side" can never become the "patient side" —physicians may become patients when ill, yet they are obviously different from ordinary patients—this distinction serves to highlight key points in theoretical exposition and academic communication.

Like all other domain-specific lay theories, lay theories of illness are typically non-specific, not based on systematic observation, lack explicit quantitative rules, have poorly defined research objects, and cannot make direct and precise predictions about disease development. Functionally, however, lay theories of illness support individuals in understanding their conditions, predicting and controlling disease progression, thereby reducing cognitive uncertainty. They directly influence fundamental elements affecting doctor-patient relationships, including patients' disease concepts, healthcare-seeking behavior, doctor-patient communication, and adherence to medical advice.

1.2 The Research History of Lay Theories of Illness

Western research on lay theories of illness has a history of approximately 50 years. In 1972, Antonovsky measured Israeli urban Jewish populations' lay beliefs about cancer, heart disease, mental illness, and cholera across four dimensions: seriousness, controllability, salience, and susceptibility, finding high consistency in beliefs about these four diseases across groups with different ages, genders, and educational backgrounds. This study revealed that lay theories of illness significantly impact both public health management and individual health behaviors.

Subsequently, social psychologists conducted extensive research in this field, accumulating substantial achievements in content, methodology, and measurement tools. Influenced by Antonovsky' s (1972) work, early research primarily focused on general lay theories of illness, establishing universal theoretical models. Ben-Sira (1977) similarly studied Israeli housewives' perceptions of preventability, salience, and susceptibility regarding four diseases (heart disease, obesity, respiratory disease, and intestinal disease), finding that lay groups with different demographic characteristics held similar disease beliefs: when laypeople perceived higher susceptibility to a disease, they also perceived higher salience, making them more willing to actively learn about the disease and gain more knowledge about its preventability and preventive measures. While this study partially revealed laypeople' s beliefs about different disease aspects and their interrelationships, it could not explain the psychological process through which laypeople perceive, judge, and cope with diseases. Leventhal, Meyer, and Nerenz (1980) attempted to address this issue by proposing the common-sense model of self-regulation. This model, grounded in danger control principles, posits that laypeople first identify disease risks, form illness representations, then take coping actions to reduce risks, evaluate the effectiveness of these actions, and subsequently adjust future behaviors. Laypeople' s illness representations include five dimensions: identity, timeline, causes, consequences, and control. The identity dimension refers to laypeople' s judgment or recognition of disease symptoms or signs. Timeline refers to laypeople' s beliefs about disease onset time, duration, and recurrence. Causes refer to laypeople' s judgments about what triggers disease. Consequences refer to laypeople' s beliefs about what impacts or results the disease will produce. Control refers to whether laypeople believe the disease is curable or whether they have the capacity to cope with it. Laypeople' s representations across these five dimensions influence their disease-coping strategies. For instance, if laypeople experience certain symptoms that they believe will last long and have serious consequences, they are more likely to seek medical consultation (Leventhal, Phillips, & Burns, 2016). As research progressed, Leventhal et al. (2016) revised this model, proposing that after laypeople form illness representations across these five dimensions, their choice of coping strategies also depends on their treatment representations—that is, based on past experiences, observations, or acquired knowledge, laypeople form prototypes of different treatments. When illness representations are formed, relevant treatment prototypes are activated, and the best-matching coping strategy is selected.

During roughly the same period, Kleinman (1980) proposed another general model of lay theories of illness—the explanatory model of illness—attempting to reveal laypeople' s beliefs about a disease and its treatment. According to this model, laypeople' s understanding of any disease includes: (1) What causes the disease? (2) Why did I get sick at this particular time? (3) How will this disease progress in my body? (4) What impacts will this disease have? (5) How should I cope with this disease? When experiencing physical discomfort, laypeople use knowledge imparted by their cultural or social environment to understand disease from these five aspects.

Although the self-regulation model and the explanatory model of illness differ slightly in specific content dimensions, both essentially structure the content of lay theories of illness, exhibiting structuralist characteristics. While they can partially reveal lay theories of illness, their attempt to explain rich and complex psychological content through simple rules and models has the drawback of forcing complex phenomena into rigid frameworks. In fact, Kleinman himself later expressed "discomfort" with the term "model," considering it overly formalistic—a "residue" from symbolic and formalist works (Kleinman, 1995)—and his own research shifted toward narrative studies of laypeople' s experiences with specific diseases. On the other hand, theoretical and empirical research on the self-regulation model has largely been conducted by Leventhal and colleagues (Cameron & Leventhal, 2014; Leventhal et al., 2016), with other scholars primarily applying this model to study lay theories of specific diseases (Garg, Meraya, Murray, & Kelly, 2017; Shiloh, Heruti, & Leichtentritt, 2016), which indirectly demonstrates the limitations of general lay theories of illness research.

Researchers discovered that lay beliefs about different diseases cannot be generalized, prompting an increasing focus on lay theories of specific diseases or disease categories. Early specific lay theories research concentrated on mental illnesses before expanding to physical diseases. Furnham and Lowick (1984) studied lay theories of alcoholism through interviews and questionnaires, after which researchers conducted numerous studies on lay theories of mental illnesses such as anorexia (Gulliksen, Nordbø, Espeset, Skårderud, & Holte, 2017), autism (Qi, Zaroff, & Bernardo, 2015), schizophrenia (Park, Lee, Furnham, Jeon, & Ko, 2017), and depression (Markova & Sandal, 2016). As research on mental illness lay theories progressed, social psychologists began examining lay theories of physical diseases such as diabetes (Gibson, 2017), Parkinson’ s disease (Werner & Korczyn, 2010), cancer (Wang, Lam, Wu, & Fielding, 2014), AIDS (Nyundu & Smuts, 2016), obesity (Mcferran & Mukhopadhyay, 2013), tuberculosis (Asiimwe, Cross, & Haberer, 2015), rheumatoid arthritis (Williams, 2009), and hypertension (Buckley, Labonville, & Barr, 2016). Such research has primarily focused on chronic diseases, with fewer studies on short-duration and acute illnesses.

Currently, research on specific lay theories of various disease types continues to grow. Researchers have found that despite some consistency between lay theories of illness and mainstream biomedical concepts—due to factors such as education 普及, media 宣传, and active learning (Furnham & Buck, 2003; Mitchell & Locke, 2015), with modern medical education permeating society in different ways and becoming part of laypeople’ s knowledge and beliefs—differences between the two perspectives remain widespread and have not disappeared entirely with the 普及 of medical education. Analyzing these differences helps further recognize the limitations of medical education and prompts reflection on modern biomedical treatment models.

2.1 Characteristics of Lay Theories of Illness

The characteristics of lay theories are typically discussed in comparison with expert knowledge in a particular professional field. For lay theories of illness, the natural benchmark is the mainstream biomedical perspective. After proposing the lay explanatory model of illness, Kleinman (1980) synthesized its content structure with that of the biomedical explanatory model, developing a general comparative model that includes five aspects for both: etiology, course of illness, pathophysiology, symptoms, and treatment. Although this comparative model retains structuralist characteristics, it provides basic dimensions for comparing lay and biomedical perspectives. Theoretically, therefore, differences between lay theories of illness and biomedical theories should manifest in these five aspects. However, reviewing existing research reveals that disparities primarily appear in three areas: disease attribution patterns, treatment method selection, and disease symptom perception and meaning construction. Research on lay theories regarding the course of illness and pathophysiology remains underdeveloped.

Lay attribution of disease refers to how laypeople explain disease causes and identify risk factors that may contribute to disease. Compared with professional medical theories that emphasize biological and genetic explanations, researchers have found that laypeople pay greater attention to psychological, social, and family factors when attributing disease causation (Harvey et al., 2013; Wang et al., 2014). For example, Harvey et al. (2013) studied lay theories of insomnia and found that laypeople' s causal judgments about both their own and others' insomnia focused on emotional states and thinking patterns. Their research also identified 27 categories of factors believed to cause insomnia, including stress, emotions, sleep habits, environment, diet, physical exercise, and genetics. In contrast, Ahn, Proctor, and Flanagan (2009) found that healthcare professionals tended to explain insomnia onset from biological perspectives. Another study by Mitchell and Locke (2015) on lay theories of autism similarly revealed that, in addition to the biomedically confirmed primary cause of genetic or neurological deficits, a considerable proportion of laypeople believed environmental factors, psychological issues, side effects of certain vaccines, nutritional deficiencies during pregnancy, poor daily nutrition, family influences, parenting styles, and drug abuse could be causative factors. Additionally, research on lay theories of physical diseases such as hypertension, diabetes, and cancer has found that laypeople' s causal judgments differ from scientific biomedical explanations (Akinlua, Meakin, Fadahunsi, & Freemantle, 2016; Mwaka, Okello, Kiguli, & Rutebemberwa, 2014).

Treatment method selection refers to which therapeutic approaches laypeople prefer for a disease and which they consider more effective. Some studies have found that laypeople' s choices for treating mental or psychological diseases differ from biomedical treatment plans: laypeople generally prefer psychotherapy for mental or psychological disorders (Furnham & Kirkcaldy, 2015), whereas psychiatry generally considers medication the most effective treatment method (Furnham & Bower, 1992). Moreover, research has shown that laypeople' s causal explanations for disease directly influence their treatment choices. Furnham and Haraldsen (1998) studied the relationship between lay attributions for four paraphilic disorders and treatment choices, finding strong correlations between causal judgments and treatment preferences. Furnham and Buck' s (2003) comparative study of lay theories of autism and obsessive-compulsive disorder confirmed this finding. Due to the diverse lay attributions of disease causes mentioned earlier, if laypeople attribute disease to biomedical factors, they tend to choose pharmacotherapy; if they attribute it to psychological or social factors, they are more likely to believe in other therapies such as psychological counseling or self-management (Furnham & Kirkcaldy, 2015); some even advocate fatalism and seek help from so-called “supernatural” forces when selecting treatments. This diverges from the standardized medical models and consultation pathways typically employed in biomedical theory.

Furthermore, differences between lay theories of illness and biomedical perspectives also manifest in laypeople's symptom perception and meaning construction processes—that is, how laypeople, based on existing knowledge and experience, view the physical and psychological changes brought by disease and generate meaning and understanding throughout this process. First, unlike biomedical objective descriptions of disease symptoms, lay symptom perception typically integrates psychological, life, and social factors. Mahon, O' Brien, and O' Conor (2014) found that patients with different chronic diseases, beyond physical pain, commonly experienced feelings of "loss," "anger and frustration," "uncertainty and stress," and had to "adjust to a new life." A review study on pain experiences among soft tissue sarcoma patients also found that patients' symptom perceptions included impacts on their quality of life, such as effects on mental health, body image, childcare responsibilities, and work performance (Winnette, Hess, Nico, Tai, & Copley-Merriman, 2017).

Second, compared with the biomedical perspective, meaning construction following symptom perception constitutes unique content in lay theories of illness research and represents content that, to some extent, promotes the shift from biomedical to humanistic medicine. Laypeople' s attitudes toward disease and their understanding of its impact on themselves do not derive solely from simple physiological reactions or pain experiences but rather integrate individual self-awareness, macro-social factors such as political and economic history, and micro-social factors such as interpersonal interactions. Moreover, this meaning construction approach is independent of disease type and severity (Kirk, Cockbain, & Beazley, 2008). Bury (1982) found that laypeople' s perspectives on chronic disease were not simply considerations of physical pain but rather situated disease within a multidimensional framework of life development and self-awareness, viewing illness as a "biographical disruption" that disturbs their life trajectory—in other words, disease causes laypeople to rethink life and self-understanding. D' Houtaud and Field (1984) found that laypeople' s illness experiences were related not only to the disease itself but also to their socioeconomic status. Lower social classes tended to focus on disease impacts on work and life capacity, whereas higher social classes paid more attention to disease impacts on health itself. Bendelow (1993) found that societal role expectations and gender stereotypes caused men and women to develop different pain perceptions and tolerance levels. Jonker (2017) studied lay theories of illness among adolescents with Type 1 diabetes, finding they generally viewed disease as part of their lives and considered themselves different from others. Additionally, research has shown that laypeople' s illness experiences are influenced by micro-social factors such as marital relationships and interpersonal interactions (Colson, 2016). In contrast, traditional biomedicine objectifies and dehumanizes patients, treating them as biological organisms without selves and attempting to understand various symptoms from a purely scientific perspective (Lawton, 2003). Influenced by this perspective, medical education and practice for a long time excessively "focused on the reduction of organisms and organs while neglecting the richer psychological and spiritual reduction," and "ignored holistic attention to the person during disease diagnosis and treatment" (段志光, 2017). Lay theories of illness research emerged in the 1970s, the same period when the concept of medical humanities appeared (段志光, 2017). Whether the former prompted the latter remains to be investigated, but from the perspective of their research trajectories, studies on lay meaning construction of illness will help promote medical care that treats humans as living beings rather than mere biological organisms.

Kleinman' s proposed comparative explanatory model also includes the course of illness and pathophysiology, but research on these two aspects has not been fully developed. Lay understanding of disease course refers to how laypeople believe a disease will progress and what will happen without treatment. Almost all studies have simplified this aspect to laypeople' s judgments about whether a disease is chronic or acute. Some studies have found inconsistencies between lay judgments and scientific medicine regarding disease chronicity (Akinlua et al., 2016; Odusola et al., 2014), but many other studies have found consistency in this area. This high degree of inconsistency in research findings may stem from two causes: First, equating lay understanding of disease course with chronic/acute judgments oversimplifies research questions and possible answers, naturally polarizing respondents' answers into acute or chronic categories. In fact, understanding lay perspectives on disease course could involve different questions, such as speed of onset, duration, recurrence, and whether absence of symptoms means absence of disease. Halm, Mora, and Leventhal (2006) found that regarding asthma, laypeople could correctly identify it as a chronic disease, yet 53% of participants believed they only had asthma when experiencing symptoms and were healthy when asymptomatic—clearly inconsistent with simple chronic/acute judgments. Second, due to the 普及 of medical 常识, laypeople can basically provide scientific answers to such relatively simple and obvious judgment questions. Indeed, many studies finding the aforementioned inconsistencies were conducted among groups or regions with lower education levels and less economic development (Moorley, Cahill, & Corcoran, 2016; Mwaka et al., 2014), demonstrating the impact of medical 常识普及 education on lay judgments about chronic/acute diseases. Additionally, the pathophysiology aspect refers to how laypeople provide biomedical explanations for bodily changes caused by disease. Research on lay theories of illness regarding this aspect requires further development, possibly because the question itself is too specialized for laypeople to answer, resulting in fewer relevant studies. These two areas warrant attention in future research.

2.2 Research Methods for Lay Theories of Illness

Research data on lay theories of illness primarily rely on participants' self-reports, using self-designed questionnaires and interviews to elicit patients' beliefs about their diseases. For example, Furnham and Buck (2003) used a self-designed closed-ended questionnaire to measure lay theories of autism and obsessive-compulsive disorder, consisting mainly of etiology and treatment sections and related knowledge. Statistical analysis revealed that laypeople believed autism had biological causes while obsessive-compulsive disorder had psychological causes. Werner, Goldberg, Mandel, and Korczyn (2013) conducted a telephone survey study on gender differences in lay theories of Alzheimer' s disease, using six closed-ended questions to measure laypeople' s knowledge about Alzheimer' s disease, susceptibility judgments, anxiety, fear, related knowledge, and familiarity. Moorley et al. (2016) used semi-structured in-depth interviews to study lay theories about stroke etiology and employed Interpretative Phenomenological Analysis to deconstruct the data, ultimately identifying two lay-perceived causes of stroke: lifestyle and supernatural factors.

As research on lay theories of illness has deepened, researchers have begun considering the construction of universal measurement tools. Compared with the volume of research on lay theories of illness, few scales have gained wide acceptance. The most typical universal measurement tool is the Illness Perception Questionnaire (IPQ). Based on Leventhal' s self-regulation theory of illness, Weinman, Petrie, Moss-morris, and Horne (1996) developed the first version, and Moss-morris et al. (2002) revised it to create the Illness Perception Questionnaire-Revised (IPQ-R). The revised questionnaire includes three parts with 70 items: Part one measures symptom identity, comprising 14 basic symptoms such as pain, nausea, and shortness of breath, with respondents selecting symptoms they believe are related to the disease under study, forming a cumulative symptom perception score where higher scores indicate more perceived symptoms. Part two contains 38 items across seven dimensions: timeline (acute/chronic), cyclical nature, consequences, personal control, treatment control, illness coherence, and emotional representations. Part three is the causes dimension, with 18 independent items not scored cumulatively. In 2006, Broadbent, Petriea, Maina, and Weinman simplified the questionnaire to create the Brief Illness Perception Questionnaire (BIPQ), comprising nine dimensions with one item each. The IPQ series essentially collects self-reports about illness beliefs through structured questionnaires, covering the main aspects of lay theories of illness research: how laypeople judge causes (causes dimension), how they choose treatments (personal control, treatment control dimensions), and how they construct illness meaning (consequences, emotional representation dimensions). The questionnaire incorporates not only biomedical factors but also, based on lay theories research findings, includes psychological, emotional, and social factors. For example, some consequence dimension items include "My illness has major consequences on my life" and "My illness strongly affects the way others see me"; emotional representation items include "I get anxious when I think about my illness" and "My illness makes me feel afraid"; and causes dimension items include "Stress or worry" and "Family problems." Furthermore, within this broad framework, the questionnaire allows researchers to adjust specific items according to different disease characteristics to form more targeted measures for various diseases. Since its publication, the IPQ series has been translated into French, German, Italian, Spanish, Chinese, and other languages, and widely used in studies of various acute and chronic diseases, demonstrating good reliability and validity (梅雅琪等, 2015; Keskin et al., 2017; Min, Chang, Lee, Choe, & An, 2017).

Of course, because people' s specific feelings and understandings of different disease types vary considerably, most research constructs disease-specific measurement tools for lay theories. For example, Lobban, Barrowclough, and Jones (2005) adapted items from the IPQ-R to develop the Illness Perception Questionnaire for Schizophrenia, specifically measuring lay theories about schizophrenia. This questionnaire has demonstrated good psychometric properties in subsequent studies (Shokrgozar et al., 2017). Harvey et al. developed the Causal

Attributions of My Insomnia Questionnaire to measure lay theories of insomnia, comprising six questions with 12 potential insomnia causes for each question, using a 7-point Likert scale to measure attributions for self and others' insomnia. This self-report questionnaire showed good reliability and validity, though this conclusion requires confirmation by other studies. Knettel (2017) developed the Mental Illness Attribution Questionnaire, measuring lay beliefs about mental illness causes across seven dimensions: supernatural forces, social stress, lifestyle, health, substance use, genetics, and personal weakness, demonstrating good reliability and validity.

Most of these disease-specific measurement tools for lay theories were developed in Western contexts, and their applicability to China or other non-Western cultures remains to be verified. As lay theories of illness are deeply influenced by local cultural values regarding illness, body concepts, and values, simply transplanting measurement tools from one culture often results in loss of reliability and validity or produces measurement variations. Therefore, developing culturally appropriate measurement tools with local fit remains a priority for future research.

3 The Impact of Lay Theories of Illness on Doctor-Patient Relationships

Lay theories of illness influence doctor-patient relationships primarily through their effects on doctor-patient communication quality and medical treatment outcomes. Doctor-patient communication can be understood in both narrow and broad senses. In the narrow sense, it refers to communication between medical practitioners and patients during routine diagnosis and treatment, primarily delivered through medical services. In the broad sense, it encompasses communication between medical practitioners and healthcare industry personnel with various societal sectors about healthcare laws and regulations, policy systems, ethics, service standards, and other content through non-clinical service means (王锦帆, 尹梅, 2013). Most current research on lay theories of illness examines their impact on doctor-patient communication at the narrow level. At this level, "lower satisfaction, reduced trust and respect for physicians, and negative emotional experiences during diagnosis and treatment can all serve as indicators of communication barriers" (王丹旸, 朱冬青, 2015). The series of naive beliefs that ordinary patients hold about disease affect treatment processes and outcomes through their adherence to medical advice, trust in healthcare providers, and satisfaction with medical services, thereby influencing communication quality and relationship harmony.

Due to inconsistencies between patients' lay theories of illness and scientific medical perspectives, these beliefs can easily affect satisfaction with doctor-patient communication and reduce patients' trust in healthcare providers. Bromme and Jucks (2018) argued that differences between professionals and laypeople in a particular knowledge domain extend beyond content and breadth; during professional education, experts undergo holistic reconstruction of their understanding of the field, forming highly integrated knowledge systems and thinking patterns that paradoxically become barriers to expert-lay communication. This conclusion has been supported by multiple studies on lay theories of illness. Donovan (1991) studied 54 rheumatology patients and found they typically sought disease causes in their living environments rather than explaining onset and severity from biomedical perspectives. Due to these differences, patients expressed various dissatisfactions with consultations: over half complained that visits were too rushed, that doctors did not patiently listen to patients' illness narratives, and worried that doctors did not truly understand their conditions, perceiving doctors as overly detached and objective; over one-third could not accept comprehensive physical examinations required during consultations because they believed arthritis was merely a joint problem without need for whole-body examination, viewing it as economic waste. Nápoles-Springer, Santoyo, Houston, Pérez-Stable, and Stewart (2005) studied US immigrants and found that patients generally felt doctors rudely rejected alternative treatments they trusted, making them feel "disrespected" and even suspecting doctors were "influenced by pharmaceutical companies to push antibiotics." Conversely, when doctors validated some alternative treatments that patients valued, patients often felt "refreshed." Additionally, Schlomann and Schmitke (2007) conducted a meta-analysis of 11 qualitative studies on hypertension lay theories published in the US between 2000-2005, finding particularly pronounced differences between doctors and patients regarding symptom perception and treatment selection for hypertension. These differences reduced patient adherence and consequently led to distrust. The study further found that if doctors attempted to simply indoctrinate patients with biomedical knowledge to correct their existing lay theories, this would exacerbate distrust. Another meta-analysis found that non-adherence to hypertension treatment was related to patients' own causal explanations for hypertension, which were often culturally grounded. Improving adherence requires understanding patients' illness beliefs, symptom experiences, and concerns about medication side effects, rather than merely providing communication based on biomedical perspectives (Marshall, Wolfe, & McKevitt, 2012).

Patients' understanding of medical advice and cognitive differences between doctors and patients regarding disease risks are also important factors affecting doctor-patient communication quality (Grigorescu et al., 2015). Individuals are not passive information recipients but active processors during communication (Jiang, 2017). Laypeople do not fully understand information conveyed by doctors during consultations but process it within their own lay theories of illness framework. When lay theories align with scientific medical theories, information transmitted by healthcare providers is better understood; otherwise, comprehension suffers (Williams, 2009). Frosch, Kimmel, and Volpp (2008) studied how lay hypertension attributions affected judgments of pharmacotherapy effectiveness, finding that when experiments activated lay theories inconsistent with scientific medicine, participants with lower doctor-patient trust rated medication effectiveness significantly lower than those with higher trust, thereby affecting adherence. Baines and Wittkowski (2013) reviewed 13 studies on mental illness lay theories using the IPQ and its revised versions, finding that lay theories of illness were strongly related to patients' healthcare-seeking behavior and adherence. When patients believed their diseases were controllable and curable, they demonstrated greater adherence and more positive cooperation. Additionally, Akinlua et al. (2016) studied hypertension lay theories among Nigerian populations and found that lay perspectives on hypertension causes and treatments affected patient adherence. Similar conclusions have been reached in studies on other disease types (Linetzky, Jiang, Funnell, Curtis, & Polonsky, 2017; Tefera, Hailay, Lillian, & Tesfahun, 2016).

Research on patient-reported healthcare experiences also indirectly reflects how lay theories of illness affect treatment outcomes. Patient-reported experience refers to data collected through questionnaires and surveys about patients' satisfaction with doctor-patient communication, treatment timeliness, medication explanations, healthcare environments, and other aspects during medical visits. It is often used as an indicator of healthcare quality (Price et al., 2014). Since patient-reported experiences are actually evaluations of healthcare provider services based on patients' own illness concepts or expectations (Manary, Boulding, Staelin, & Glickman, 2013), they partially reflect discrepancies between lay theories of illness and scientific medical theories. Their impact on treatment outcomes can indirectly reflect how patients' lay theories influence their health recovery. Although research conclusions vary, studies have shown that patient healthcare experiences are negatively correlated with disease-specific mortality (Ruggieri, Berta, Murante, & Nuti, 2018). Kennedy, Tevis, and Kent (2014) collected and analyzed 2011-2012 patient HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) satisfaction survey data and treatment outcome data from 171 US hospitals, finding that lower disease-specific mortality was consistently associated with higher patient satisfaction. Vermeulen, Schirmbeck, van Tricht, and De (2018) studied 654 patients with non-affective psychosis and found that highly satisfied patients scored significantly higher on both clinician-rated and self-rated treatment effectiveness than moderately or low-satisfaction patients. A review study on patient experience and treatment effectiveness also found positive correlations between patient healthcare experiences and treatment effectiveness (Doyle, Lennox, & Bell, 2013).

Furthermore, lay theories of illness can directly or indirectly affect patients' health recovery, thereby influencing doctor-patient cooperation. Swift and Callahan (2009) conducted a meta-analysis of 26 relevant studies involving 2,300 patients and found that when patients' lay beliefs about effective treatments aligned with treatments actually provided by doctors, their conditions were more likely to improve and they were less likely to discontinue treatment. Two additional studies on depressed patients confirmed that when patients' self-preferred therapies were inconsistent with therapies actually administered, patients showed less symptom reduction, more severe depressive symptoms, greater physical and psychological costs, and poorer doctor-patient cooperation

(Kwan, Dimidjian, & Rizvi, 2010). Meanwhile, lay theories of illness can also indirectly affect patient recovery through mediating variables such as trust and adherence. Research shows that patient trust is positively correlated with treatment effectiveness and health-related quality of life (Platonova, Kennedy, & Shewchuk, 2008). Lee and Lin (2011) conducted a one-year longitudinal analysis of 614 Type 2 diabetes patients in Taiwan and found that patient trust promoted blood glucose control and physical health status. Fernandez, Seligman, Quan, Stern, and Jacobs (2012) confirmed these results in a study of US diabetes patients. Other studies have found that patient trust affects treatment outcomes through mediators such as adherence, self-efficacy, or patient expectations of treatment effectiveness (Lee & Lin, 2009; Saha, Jacobs, Moore, & Beach, 2010).

However, current research on how lay theories of illness affect doctor-patient relationships still focuses primarily on their impact on individual disease-coping strategies or treatment effectiveness. The pathways and mechanisms of influence, as well as whether doctor-patient relationships or communication might 反过来 affect lay theories of illness, have received less attention and warrant further investigation.

4 Conclusion and Future Directions

As non-professional healthcare providers, patients' lay theories of illness directly influence their disease judgments, treatment choices, and subsequent healthcare-seeking behaviors. When seeking medical care, patients act as "naive healthcare providers," communicating with doctors while holding their own complex lay theories. When doctors' diagnoses and treatment decisions do not align with these theories, communication barriers easily arise, subsequently affecting treatment quality and doctor-patient relationships. Clearly, not all lay theories of illness align with mainstream medicine; some may even lack scientific basis and hinder recovery. However, due to the highly specialized nature of modern medical knowledge, ordinary people cannot master equivalent medical knowledge to professional practitioners. The gap and even contradictions between lay perspectives and "scientific perspectives" will be a nearly eternal theme in contemporary society and medicine.

Against this backdrop, accurately grasping patients' lay theories of illness and understanding their similarities and differences with scientific medical perspectives holds important practical significance for implementing more precise treatment measures and ensuring intervention effectiveness. Grounded in China' s medical culture and healthcare system, studying Chinese lay theories of illness, exploring their impact on doctor-patient relationships and underlying social-psychological mechanisms, and subsequently proposing interventions to improve current doctor-patient tensions represent a viable research direction. We propose three methodological pathways for future research in this direction.

First, integrate perspectives and findings from medical psychology, medical sociology, and medical anthropology to conduct comprehensive investigations of general lay theories of illness among Chinese populations as well as disease-specific lay theories, and develop measurement tools and research methods with Chinese 本土 characteristics. Lay theories of illness are profoundly influenced by local culture; discussing them essentially involves excavating body concepts, disease perspectives, and treatment views within 本土 culture. Therefore, research on lay theories of illness in any cultural context must be culturally grounded. Particularly in modern Chinese society, which has long experienced the intermingling and oscillation between Traditional Chinese Medicine concepts and modern medical concepts—a situation of "coexistence without integration" (吕小康, 汪新建, 2013)—contemporary Chinese lay theories of illness possess unique characteristics of "integrating Chinese and Western medicine." As noted, "Although modern Chinese people have accepted many Western physiological knowledge and medical terms through school education and mass media, this does not prevent them from simultaneously inheriting many traditional ideas through mass media and daily life experience, viewing their bodies and diseases in a mixed and hybrid manner" (吕小康, 汪新建, 2012). This adds complexity to contemporary Chinese lay theories of illness that cannot be simply studied using Western tools and methods. To some extent, lay theories of illness research should emphasize cultural uniqueness rather than universality, avoiding the loss of distinctive features in pursuit of international cross-cultural comparisons. In this regard, social psychology research can draw experience and inspiration from the approaches and themes of medical sociology and medical anthropology.

Second, based on the aforementioned investigations of lay theories of illness, further explore the social-psychological mechanisms and pathways through which lay theories affect doctor-patient communication. While the influence of patients' own beliefs on healthcare-seeking behavior and satisfaction is not a new research topic, such studies often treat these beliefs as mere "background factors," discussing their impact on doctor-patient communication superficially, or limit themselves to specific case introductions and experiential summaries. More in-depth, detailed research that can establish causal relationships remains scarce. This line of research should employ field experiments across different clinical departments and treatment contexts, integrating theories from social trust, risk perception, and related fields to explore how lay theories of illness influence doctor-patient communication and relationships. Particularly for chronic diseases and mental illnesses where nursing care demands are high and experiential factors (such as healthcare providers' attitudes and service convenience) significantly impact doctor-patient relationships, the effects of lay theories of illness on communication quality and trust require greater attention. After clarifying relevant mechanisms, targeted interventions can be proposed and validated regarding hardware environment modifications, consultation process optimization, and communication pattern improvements.

Third, building on the aforementioned research, further reflect on the advantages and disadvantages of contemporary biomedical treatment models, identify deficiencies in current medical education, medical knowledge 普及, and hospital management models, and explore effective pathways to bridge the gap between scientific medical perspectives and lay medical perspectives. Lay theories of illness contain complex and diverse components, often including misleading, pseudoscientific beliefs that may be highly correlated with religious or folk beliefs. Particularly when patients experience “poverty due to illness” or “religious conversion due to illness,” some individuals may develop extreme beliefs that foster anti-social tendencies and become potential risk factors for doctor-patient conflicts (韩静舒, 谢邦昌, 2016; 梁振华, 齐顾波, 2015; 周浪, 孙秋云, 2017; Callander & Schofield, 2015; Keshet & Liberman, 2014). How to shape lay theories of illness through education, media, and social activities, guiding them toward healthy and scientific directions, reducing their divergence from scientific medical theories, and improving patients’ modern medical 常识 levels to maintain reasonable treatment expectations represents a long-term path for improving doctor-patient relationships from a socio-cultural perspective. This essentially constitutes a process of patient education and medical science 普及 in the broad sense, which cannot be limited to medical institution settings but must penetrate educational institutions, communities, and all levels of social life to conduct 宣传教育 on disease prevention, rational medication use, and appropriate healthcare-seeking through various channels. This approach moves the frontline of patient education forward and fully leverages new media and communication methods in the internet era (蔡博宇, 徐志杰, 2016; Gielen & Green, 2015) to explore accessible and effective pathways for disseminating scientific medical knowledge.

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