

# QUANTUM PHYSICS PRINCIPLES AND COMMUNICATION IN THE ACUTE HEALTHCARE SETTING: A PILOT STUDY



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**Objective:** This pilot study explores whether clinician awareness of quantum physics principles could facilitate open communication between patients and providers.

**Design:** In the spirit of action research, this study was conceptualized with a holistic view of human health, using a mixed method design of grounded theory as an emergent method.

**Sampling:** Instrumentation includes surveys and a focus group discussion with twelve registered nurses working in an acute care hospital setting.

**Results:** Findings document that the preliminary core phenomenon, energy as information, influences communication in the healthcare environment. Key emergent themes include

awareness, language, validation, open communication, strategies, coherence, incoherence and power.

**Conclusion:** Research participants indicate that quantum physics principles provide a language and conceptual framework for improving their awareness of communication and interactions in the healthcare environment. Implications of this pilot study support the feasibility of future research and education on awareness of quantum physics principles in other clinical settings.

**Key words:** quantum physics principles, grounded theory, healthcare, communication, bioenergy, clinical environment

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## INTRODUCTION

Although a reported 50% of patients use complementary, alternative medicine (CAM), up to 77% do not convey this information to their biomedical providers.<sup>1,2</sup> This statistic suggests a gap in communication and lack of trust in the patient–clinician relationship. Our research explored whether clinician awareness of quantum physics principles could improve trust and communication between patients and clinicians. These principles offer terminology and a scientific conceptual framework for understanding the interconnected energetic field aspect in human relationships, the mind–body connection, and many CAM disciplines.<sup>3,4</sup> We conducted a pilot study to test if clinician education about quantum physics principles could enhance their awareness of bioenergetic phenomena of human health, relationships, and communication. An integrative model of healthcare requires clinician awareness and language to describe the bioenergetic aspects of human health.

## BACKGROUND

There is a need for new approaches to communication in the clinical setting in order to encourage mutual respect and understanding among patients and clinicians about an integrative model of healthcare.<sup>5,6</sup> Many CAM modalities as well as aspects of communication and relationships in and between humans have bioenergetic components.<sup>7,8,4</sup> The impact of clinician presence and interpersonal communication in healthcare relationships is essential to the cultivation of a healing clinical environment.<sup>9,10</sup> Human relationships and collaboration are increasingly recognized as core elements of human health and healthcare delivery. A growing body of experimental evidence supports that the effects of intention, thought, and emotion can exteriorize from a clinician's or therapist's mind to influence a patient's well-being.<sup>11</sup>

Conventional science and quantum physics represent two different perceptions and explanations of reality. The conventional biomolecular framework assumes that biocommunication in living systems operates primarily from chemically mediated interactions.<sup>12</sup> The emergence of quantum physics has led to new models for understanding subatomic interactions. Quantum field theory has expanded concepts from orthodox quantum mechanics developed at the beginning of the 20th century to include broad applications of the principles used to describe physical reality.<sup>13</sup> Quantum field theory introduces the concept of a field that is viewed as

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a space-filling primary entity that creates, connects, and destroys particles.<sup>14,15</sup> According to this theory, events that Einstein famously referred to as “spooky actions at a distance” are in fact connected by the quantum field.<sup>16</sup> Researchers are finding evidence that quantum theory provides the most accurate model of physical reality and that the underlying principles may be useful in a healing context.<sup>17,18,5</sup> Quantum theory has significant implications for understanding the relationship between consciousness and human health.<sup>19,20</sup> Increasingly, quantum physics–inspired models are proposed to describe a wide variety of psychological and physiological processes that have been difficult to explain through traditional assumptions.<sup>7,21,19</sup> Clinician awareness of the application of quantum theory to human health and interactions has the potential to enhance relationships, trust, and open communication about CAM to facilitate an integrative approach to patient care.

### **THEORY BEING TESTED**

A review of the literature reveals that the bi-directional flow of energy in humans has implications for health as well as for communication between individuals.<sup>22</sup> Energetic phenomena in humans may be understood through quantum physics principles.<sup>23,13,7,24,4</sup> This research investigated whether clinician awareness of four quantum physics principles could facilitate open communication in the patient–clinician relationship.

### **STUDY DESIGN**

This pilot study applied grounded theory using quantitative and qualitative instrumentation. Pre- and post-focus group data was gathered through an e-mailed questionnaire and online survey. A PowerPoint education tool introducing the four identified quantum physics principles was e-mailed to participants prior to a World Café format focus group discussion.

### **FOUR QUANTUM PHYSICS PRINCIPLES**

Concepts from quantum physics can be applied to describe information transfer and dynamic relationships within the human system.<sup>13,7</sup> The bioenergetic aspects of human physiology include molecular energy fields in and between cells and their interactions with other energy fields. Information exchange is vital to all living systems whether the communication is inter- or intra-cellular, organ to organ, brain to body, or individual to individual.<sup>25</sup> Experimental evidence support that some aspects of human cognitive abilities impacting communication such as intuitive judgment and awareness of context, are better explained using quantum rather than classical models.<sup>19</sup>

Quantum physics transcends conventional notions of signaling and information transfer. For example, subatomic transformations and interactions of quantum systems reveal the puzzling phenomenon of quantum dualism where particles also behave like waves.<sup>26</sup> Some quantum theories view particles as interrelated energy patterns where communication occurs through a network of relations,<sup>27</sup> however, a discussion about quantum duality is outside the scope of this article.

While scientists debate the merits of the quantum field theory approach versus the perspective of quantum mechanics, it is clear that quantum phenomena reveal underlying principles of interconnectedness.<sup>27</sup>

We have explored four phenomena in quantum physics and their application as principles to interpersonal relationships. An expanded conceptual framework of healthcare views human health as an integrated system that incorporates dynamics of relationships and communication in multiple arenas, including the clinical environment.<sup>28</sup> The principles we identified as relevant to communication within the healthcare environment are nonlocality, entanglement, phase locking/coupling, and coherence.

### **Nonlocality**

According to quantum theory, nonlocality is a fundamental aspect of reality. The principle of nonlocality refers to the potential for remote relationships between separate particles.<sup>29</sup> Nonlocal phenomena are instantaneous and unconstrained by the speed of light.<sup>30</sup> This principle states that regardless of how large or small a system is, one part can affect the whole system concurrently and without direct connectivity. Nonlocal influences do not diminish with distance, with no known form of energy being exchanged.<sup>11,30</sup> The principle of nonlocality can be applied to explore distant healing and prayer between individuals across space and time.<sup>31–33</sup> While this principle initially was thought only to apply to microscopic particles, recent advances in research have shown that it is a general phenomenon that also occurs in macroscopic systems.<sup>19</sup> Experimental research results have demonstrated nonlocal brain-to-brain correlation, supporting the brain's quantum nature at the macroscopic level.<sup>34</sup> Nonlocality may underlie bioenergetic aspects of human biology and could explain how the mind–body connection is impacted by intuition and intention.<sup>35</sup>

### **Entanglement**

The principle of entanglement refers to how objects that appear separate are actually interconnected even though their spacial distance would exclude this as a possibility. Microscopic particles that have been in contact with one another and become entangled can be observed at a distance as mirroring and providing information about the other's movement or spin.<sup>23</sup> When individual particles interact, a new property of the multi-particle system emerges that can no longer be considered separate—regardless of distance.<sup>19</sup> There is a growing body of research showing that molecules are sensitive to magnetic fields because of electron entanglement.<sup>20</sup> Quantum entanglement has been correlated to DNA oscillations and transmission of information within the body.<sup>23</sup> Magnetic resonance imaging (MRI) scans of recipients receiving distant healing have shown changes in the frontal lobe of the brain, supporting evidence of macroscopic entanglement.<sup>36</sup> In addition, the well-documented psycho-physiological impact of the placebo effect has also been associated with the principle of entanglement.<sup>37,38</sup>

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