

# A Qualitative Inquiry into the Complex Features of Strained Interactions: Analysis and Implications for Health Care Personnel

Charlotta Thunborg, PhD; Martin Salzmann-Erikson, RN, PhD

Perm J 2017;21:16-032

E-pub: 03/29/2017

<https://doi.org/10.7812/TPP/16-032>

## ABSTRACT

**Background:** Communication skills are vital for successful relationships between patients and health care professionals. Failure to communicate may lead to a lack of understanding and may result in strained interactions. Our theoretical point of departure was to make use of chaos and complexity theories.

**Objective:** To examine the features of strained interactions and to discuss their relevance for health care settings.

**Methods:** A netnography study design was applied. Data were purposefully sampled, and video clips (122 minutes from 30 video clips) from public online venues were used.

**Results:** The results are presented in four categories: 1) unpredictability, 2) sensitivity dependence, 3) resistibility, and 4) iteration. They are all features of strained interactions.

**Conclusion:** Strained interactions are a complex phenomenon that exists in health care settings. The findings provide health care professionals guidance to understand the complexity and the features of strained interactions.

## INTRODUCTION

Patients who are perceived as aggressive, demanding, finding faults, and asking too many questions evoke negative feelings within health care professionals, such as anxiety, guilt, frustration, and/or dislike.<sup>1-3</sup> Health care professionals who interact with patients must be able to successfully use communication skills.<sup>4-6</sup> Good communication is the key to interpersonal skills, which in turn is central to successful clinical practice. Failure to communicate may lead to a lack of understanding between health care professionals and patients and will likely result in strained interactions, often leaving patients and families confused and angry.<sup>7</sup> Furthermore, strained and disruptive interactions pose challenges and even risks to both clients and clinicians.<sup>8</sup> In recent years, there has been an increasing interest in shared decision making, cooperation, partnership, and negotiation, with attention to patient agendas, building relationships, and addressing emotions.<sup>9,10</sup> Most studies in the field have focused on upholding the importance of good communication. Up to now, far too little attention has been paid to exploring

and analyzing problematic caregiving situations both in clinics and in nursing homes. Hence, much uncertainty still exists about situations between patients and professionals who do not have the same agenda and who want to achieve different goals, a phenomenon that we refer to as *strained interactions*. Non-health care situations could provide valuable insights for patient-clinician communication, particularly because a person's health status is described not only in biomedical terms but also as a part of multiple self-adjusting and interacting systems in different social settings. We intend to go beyond stigmatized concepts such as "difficult patients" or other similar terms. Therefore, the explicit aim of this study is to examine the features of strained interactions in non-health care situations and to discuss their relevance for practitioner and health care situations.

Our theoretical points of departure were to examine strained interactions from the viewpoint of chaos and complexity theories. These theories are particularly relevant because health care is becoming more complex across all disciplines, at all levels.<sup>11</sup> *Chaos* theory in

nursing practice has been defined as "the qualitative study of unstable aperiodic behavior in deterministic non-linear dynamical systems."<sup>12</sup> Wilbur et al<sup>13</sup> argue that something is complex when it lacks complete predictability in the occurrence of events. Chaffee and McNeill<sup>14</sup> add that complexity theories are useful in attempts to explain complex behaviors. Some helpful examples of the application of complexity theories can be found in nursing literature by researchers such as Chaffee and McNeill,<sup>14</sup> Coppa,<sup>15</sup> Haigh,<sup>16</sup> and Patton,<sup>17</sup> who sought to identify underlying order in chaotic and nonlinear systems. Examples of such complex systems are ant colonies, neural networks, the global economy, and nursing settings.<sup>18</sup> McBride<sup>19</sup> outlines some key conceptual tools for chaos and complexity theories. The initial conditions are characteristics in the theories, which means that the initial conditions are critical components of the outcome of a change. For example, an initial condition could be a variable such as low blood glucose levels of a patient, which in turn can change rapidly by digesting carbohydrates. In relation to strained interactions, a person's difficulty in thinking clearly or in concentrating could generate a problematic health care situation. But as with other health-related struggles, small changes in the initial conditions can have large effects on the outcome. The human body is composed of multiple interacting and self-regulating physiologic systems, including biochemical and neuroendocrine feedback loops.<sup>20</sup> These all affect not only individuals but also their immediate social relationships, which are further embedded within wider social, political, and cultural systems.<sup>11</sup>

Charlotta Thunborg, PhD, is a Registered Physiotherapist in the Department of Neurobiology, Care Sciences and Society at the Karolinska Institutet Division of Neurogeriatrics, Center for Alzheimer Research in Huddinge, Sweden. E-mail: [charlotta.thunborg@ki.se](mailto:charlotta.thunborg@ki.se). Martin Salzmann-Erikson, RN, PhD, is an Associate Professor in Nursing of Health and Occupational Studies in the Department of Health and Caring Sciences at the University of Gävle and a Postdoctoral Researcher in the Faculty of Health and Occupational Studies at Gävle University College in Sweden. E-mail: [martin.salzmann@hig.se](mailto:martin.salzmann@hig.se).

METHODS

A naturalistic observational study design was chosen.<sup>17</sup> Acquiring data from public online venues was a suitable method for accessing a group of people who otherwise would be difficult to assign as research participants.<sup>21</sup> Furthermore, videos recorded in natural settings were chosen in order to study people’s general behavior in situations in which they would ordinarily speak and act.<sup>22</sup> We used the strategy of maximum variation in purposeful sampling, as suggested by Patton.<sup>17</sup>

Data Collection

We searched video clips on YouTube,<sup>23</sup> but authentic clips of strained interactions within the health care context were not possible to find online. Therefore, we chose to make use of different social contextual settings in which the phenomenon could be studied. We engaged in frequent internal discussions to specify various everyday social situations in which strained interactions occur. In accordance with Patton<sup>17</sup> we deliberately chose video clips that were information-rich. We used the internal discussions as a reflective process to strengthen the rigor in our methodology. Three social contexts were purposefully chosen owing to their variances, but all included strained interactions: 1) police arrests, 2) childcare, and 3) customers filling prescriptions. A basic and tentative search was conducted using the keyword “struggle” in combination with the chosen contexts, such as “police arrest struggle,” “defiant children struggle,” and “customer struggling.” The criteria for the purposefully selected videos were the following:

a) of good audio/video quality, b) not exceeding 10 minutes, and c) in English. In total, the sample consisted of 30 video clips for a total of 122 minutes of data from YouTube.<sup>23</sup>

Data Analysis

A deductive content analysis was used to analyze the transcribed data on the basis of the theoretical framework of chaos and complexity theories.<sup>24</sup> The video clips were viewed several times to gain familiarity with the data. Brief reflective memos on the content were recorded. Detailed descriptions of what happened and what was said in the videos were transcribed. We initially followed the principles of inductive content analysis to create different categories: unpredictability, sensitivity dependence, resistibility, and iteration. From the initial analysis, we developed a structured matrix that included the four categories. Next, interesting features of the data that fit into the matrix were coded in a systematic fashion across the entire dataset. The data included in each category were reviewed to make sure that the content within the same categories possessed internal homogeneity and heterogeneity between categories, following the deductive approach. Finally, an ongoing analysis was conducted to refine the specifics of each category and to determine the overall story of the analysis.

Ethical Considerations

This study focused on conducting research using data considered freely accessible on the Internet. The research was not conducted in a clinical setting involving

patient-subjects. Nevertheless, key ethical principles that underlie research involving human subjects—for example, respect for individuals, beneficence, and justice<sup>25</sup>—guided this study. The presumption that because subjects make information publicly available on the Internet, they do not have an expectation of privacy placed a great responsibility upon us as researchers. The protection of privacy and confidentiality is typically achieved through a combination of research tactics and practices. For each included video, we valued the possibility of the potential harm or exploitation that it might have on the subject. Videos were excluded if they included peoples’ expressions of symptoms from severe psychiatric disabilities, such as people experiencing symptoms of schizophrenia.

RESULTS

The results in this study present a description of the phenomenon of strained interactions (for concepts relating to patient and staff behavior, see Table 1). Four categories were constructed for the analysis because they are all features of strained interactions: 1) unpredictability, 2) sensitivity dependence, 3) resistibility, and 4) iteration.

Unpredictability as a Feature of Strained Interactions

One feature of strained interactions is the notion of unpredictability. In a health care context, unpredictability means that the systems boundaries are not fixed and well defined. In one of the video situations, a police officer took control of the situation

Table 1. Key concepts related to complexity theories and their relation to patient and staff behavior		
Key concepts	Expression of patient behaviors	Expression of staff behaviors
Unpredictability	Unpredictable patients (ie, stressed persons) often experience cognitive limits in the form of intrusive thoughts and a narrowed focus of attention	Staff behaviors that can be seen as unpredictable are actions that are not in a routine, often occurring in the coordination of the care of a patient with multiple clinical and social needs; staff behavior means adjustment to patient needs
Sensitivity dependence	Small changes in patient behaviors are capable of snowballing into big consequences under certain circumstances	Sensitivity dependence in staff behaviors (ie, communication) with patients means that small differences in the initial variables (ie, tone of voice, body language) can lead to huge differences in outcomes
Resistibility	Resistibility in patient behavior can be seen, for example, in trying to protect one’s own privacy by action or argument	Staff behavior related to resistibility means a re-try approach, which in turn can improve the performance and insights of both patients and staff
Iteration	Iteration in patient behavior is communication in a loop, multiple approaches that lead to continually emerging, subsequent adjustments	Iteration itself is a self-involving, creative, problem-solving activity; staff can reassess a situation by shifting attention toward those things that seem to be working best

by handcuffing a suspect and placing him in the backseat of the police car (V1a). As the situation was seemingly under control, the police officer and her colleague talked to the attacked woman. Unexpectedly, one of the police officers noticed that the suspect had begun to act out in the police car. The following is an excerpt from the transcribed situation in which the three agents were present, two police officers and one suspect:

*The female police officer starts to run back to the car, exclaiming, "He is kicking the car out!" When she approaches the police car, she looks into the window and yells, "Cut that out, man!" Her colleague is located on the other side of the car and opens the passenger door on the left side of the car, while the female police officer opens the door on the car's right side.*

*Suspect: Look at my back! Look at my back, man! Why won't you listen to me? Why?*

*Male police officer: Put your feet up!*

This situation demonstrates the manifestation of unpredictability in the turbulence (ie, being in a state of agitation or tumult) arising from a strained interaction during a police arrest. Even though the situation was under control at first, an unpredictable force disturbed this, and the situation shifted to turbulence. Turbulence occurred and was manifested through random patterns that emerged with irregularity and unpredictability. To reestablish control, the two other agents were drawn into the turbulent situation. In this case, the police officers, as agents, acted as counterparts and constructed a dynamic interrelational process in the strained interaction in order to recreate the controlled situation through their active participation in the form of their presence and interactions. In a similar strained interaction, a mother and her son (V2c) struggled, as the boy threw a game on the floor and refused to pick it up. The mother told her son that he was restricted from watching television. The boy reacted by exhibiting turbulent behavior: he unpredictably threw a game on the floor and screamed. In this strained interaction, the mother tried to respond to his turbulent behavior but was thwarted as the boy repositioned himself behind an easy chair and screamed "Nooo!" The more the mother responded, the more the boy continued

to scream, creating an irregular and unpredictable pattern, causing the situation to dissipate into turbulence.

### Sensitivity Dependence as a Feature of Strained Interactions

A second feature of strained interactions is the notion of sensitivity dependence. Sensitive dependence on initial conditions means that a small difference in the initial variables leads to huge differences in outcomes. An example of sensitivity dependence can be seen in the following excerpt from the transcribed situation in which four people are present: two parents and two siblings (V2j). The video shows a young man having problems with communication. The mother is trying to put pillows between the boy's body and his hands so that he will not accidentally hurt himself. The father is directing the interaction between the mother, the boy, and the helping sibling.

*Sibling: What do I do?*

*The sibling stands beside the boy and mother holding two pillows in her hands.*

*Dad: Don't restrain him, don't restrain him. Put the pillows between his hands. Hand him the pillows.*

*Mother: Okay.*

*Dad: You have to do it, Anne.*

*Mother: Okay. I'll try it, man.*

*Sibling: Try what?*

*The mother firmly puts the boy into an armchair.*

*Dad: Anne, he does not know.*

*The mother tries to put the pillows between the boy's arms and his body.*

*Mother: The goofy idea that you are not supposed to restrain him. Yeah, that works for a while. That works well. That's a beautiful idea. That is about as dumb as anyone ... I get screwed ... having my son injured because some mental case says you can't restrain them.*

In this situation, the uncertainty, or sensitivity dependence, is characterized by small events of change that have major impacts on the struggling situation. In this example, the mother's struggles to follow the experts' advice could be interpreted as a sensitivity dependency that altered the interaction process. Change comes when the mother lets go of the "pillow protection" approach because she just cannot agree that the intervention is effective for her

son's behavior. The underlying mechanism in this example of sensitivity dependence remains unmeasured because the uncertainty factor is high. The three agents (the boy, the mother, and the sibling) do not know what will happen next. Although the parents and the sibling desperately want to protect the boy, they cannot be sure if their actions (ie, the "pillow protection") will be accepted by him. In this situation, the environment also establishes sensitivity dependence, meaning that the father leads the intervention without becoming directly involved.

### Resistibility as a Feature of Strained Interactions

Another feature of strained interactions is resistibility. Resistibility can be seen when a person is trying to protect one's own privacy by action or argument. Resistibility was identified in the videos, but to varying degrees. For example, in one of the videos, a mother is trying to get her son to stop watching television and pick up cards spread out across the living room (V2c). Both agents in this system disagree with each other's intentions, so resistibility arises. The resistance manifests as they use their own bodies to physically reposition the other agent to achieve their individual goals. There is a continual struggle between the two agents in the situation, and the boy tries to resist his mother and uses his body language and verbal resistance by crying and screaming.

*Mother: You could pick up that, up now!*

*The boy is heading for the game and throws it on the floor again.*

*Boy: No, no, nooo!*

*Mother: All I was asking you to do ...*

*Boy: No, no, no, no!!! (hits his fist on the ground)*

*Mother: All I'm asking you to do ...*

*Boy: Nooo!!! (hides behind the armchair).*

*Mother: All I asked you to do was to pick up those three cards.*

*Boy: Nooo! (waving with his arms).*

*Mother: You can pick up the whole thing now. You don't get to watch TV.*

*Boy: I want to watch TV! (down on his knees in the armchair, throwing his body back and forth).*

This situation is an example of resistibility when the interaction is strained

because it has reached an impasse. Strained interactions are here regarded as a system that includes different agents that act upon each other, interrelate, and respond to previous input. Thus, resistibility is elemental and profound because it acts as a balancing entity to prohibit the continuation of strained interactions in terms of duration and magnitude. Both agents rebound against each other when they face the challenging situation, which becomes clear when they are active participants and co-create the struggling situation. This example can be viewed as a complex system, in which the agents interact and adapt. However, in this sequence, the actions of the agents (the boy and his mother) do not improve the struggling situation. Overt information, such as reinforcement, might be inherent in the situation, but it is only partially or irregularly present, which means that the agents do not receive any rewards for their actions. In addition, in this case, the agents' rules are ineffective or detrimental, which also increases the resistibility in the strained interaction.

### Iteration as a Feature of Strained Interactions

The act of repeating a process with the aim of approaching a desired goal or result is called iteration. Iteration is present when strained interactions involve a process wherein a set of instructions or structures are repeated in a sequence until a specific condition is met. In most strained interactions, iteration seems exhaustive for both parties, particularly in childcare situations. The iteration process as a feature of strained interactions was also emphasized by body language and increased in intensity. In one video clip (V3a), a customer/patient is trying to fill his prescription. The customer/patient wants to know why he cannot get his prescription and why the pharmacist has been rude to him.

*Customer: I would like to pick up my prescriptions!*

*Pharmacist: No.*

*Customer: That's a medication that I can't not have. You need to let me have a prescription.*

*Pharmacist: There is a CVS [brand name for another pharmacy] right over here (points the direction out to the*

*customer) and a Kinney [brand name for yet another pharmacy] right down over there.*

*Customer: You're refusing to give me my prescription, a medication that my doctor ...*

*Pharmacist: I don't have your medicine.*

*Customer: I'm here. I have a credit card (shows the credit card in the video lens). I'm willing to pay for the prescription. The only problem I have with you is that you have been exceptionally rude and I just wanted to address it with you, and you've done nothing but being rude in response.*

*Pharmacist: That's an opinion, not a fact!*

*Customer: I'll leave. I'm going. I would like to have my prescription, but I'm going to make sure this video is going to post on the Internet, and everybody knows that when you get upset, you make sure that the patients don't get their prescription. That's bad business, brother!!*

During the iteration process, neither the customer nor the pharmacist made any progress, and the situation was stuck in a dialectic loop. However, a small change (action) was evident: the situation changed because the pharmacist said, "*That's an opinion, not a fact!*" The feature of iteration in strained interactions may proceed through time until an external force is added—for example, when one of the two agents grows tired and brings the iteration process to an end.

### DISCUSSION

In this study, we stress four features of strained interactions: 1) unpredictability, 2) sensitivity dependence, 3) resistibility, and 4) iteration, and we will elaborate upon these features and their transferability into the health care context.

Communication is a fundamental part of interaction.<sup>26</sup> However, very little was found in the literature on the question of the interpersonal processes that happen when communication does not "flow."

The use of complex theories in nursing science<sup>14-17</sup> directs attention to understanding how systems adapt to their environments and how they can cope with conditions of *unpredictability*. Not so long ago health care was the science of controlling infectious diseases by identifying the "cause" and taking steps to fix it; now,

the systems have fuzzier boundaries, and patients can read about treatment strategies on the Internet. That is one reason why experiences of escalating complexity on a practical and personal level can lead to frustration and disillusionment in both patients and practitioners. In these complex situations communication can become an obstacle.

When communication is locked into strained interactions we must also incorporate the feature of reciprocity. One basic assumption concerns triadic reciprocity<sup>27</sup>—that is, the view that "resolving the situation" relies on personal, behavioral, and environmental factors that influence one another in a bidirectional, reciprocal fashion. The nature of patients' values and outcome expectations about health care, and their relationships with adjustments, imply complexity for many people. Hospitalization generates anxiety, and patients often feel out of control.<sup>4</sup> This may cause personality characteristics to become exaggerated as a basic-level coping strategy,<sup>28</sup> resulting in aggressiveness and in the patient being labeled as uncooperative. The practitioner is a part of the social systems, and professions, roles, communication, and norms are power factors related to interactions that can interfere with communication.<sup>26</sup> Patients' expectations and their possible anxiety as well as practitioners' approaches are all parts of the social system, which presupposes an inseparability of the human and the environment as the two interact and adapt.<sup>29-31</sup> We therefore view this ongoing process as a "reciprocal struggle." Reciprocal struggle was identified as the theme in a study exploring caregivers' experiences in dementia care.<sup>32</sup>

A strained interaction involves reciprocal struggle and *sensitivity dependence*. Sensitivity dependence in turn is viewed as small variances—for example, variances of nonverbal communication, tone of the voice, or eye contact.<sup>33</sup> A patient and a practitioner will be involved in a nonlinear relationship that leads to what complexity scientists have called "sensitive dependence on initial conditions."<sup>34</sup> Sensitivity dependence as a feature of strained interactions is characterized by the principle of uncertainty and a lack of hierarchical order. As we have identified in our data, it is not possible to foresee every event that might



occur in a social interactional situation, and this applies to a care situation as well. Grounded in the data, one example of triadic reciprocity<sup>27</sup> and reciprocal struggling is when the mother tries to carry out the father's well-intended directions for the boy (V2j). The two agents (ie, mother-boy) in the system adapt to their environment (ie, the father). Small variances in the father's directions lead to huge differences in outcomes. The mother ends up frustrated because she is not able to carry out the father's directions.

In another example, grounded in data, we observed that strained interactions involve the feature of *resistibility*. For example, we may identify several situations of such resistibility in police-arrest situations because the subject being arrested sometimes opposes the act and does not wish to comply with the situation. In patient-health care interactions, it may be understood that resistibility is a problematic feature of reciprocal struggles, as behaviors that continue are those power struggles that arise between patient and practitioner when both sides hold onto the need to be right and not "give in."<sup>4</sup> However, we argue that resistibility in a care dyad interaction may be viewed as healthy, since one individual does not fully control the other individual in a hegemonic way. In fact, in recovery research within the field of mental health, continuing to struggle and not giving in have been identified as key elements in a successful recovery process.<sup>35</sup> We contend that resistibility must be viewed in a way that expands beyond binary thinking and simplified characterizations of patients as either being difficult or showing compliance. In care situations, we anticipate that a caregiver must adopt a mindset of "go with the flow" and realize that even though formal hierarchical order and power relations exist, it is not possible or desirable to exercise this power, since it may only aggravate the strained interaction.

*Iteration*, as a feature of strained interactions, is the act of repeating a process with the aim of approaching a desired goal or result.<sup>2,36</sup> In complex environments, such as nursing practice areas, individuals are not fully able to analyze the situation and calculate their optimal strategy. The lack of reflective capacities and the inability to

calculate a strategy are individual factors that are labeled as bad behaviors in a not-optimal (difficult) patient.<sup>3,37</sup> We assert that the process of reciprocal struggle in social settings, such as a customer filling a prescription, is similarly an iterative process; parts are presented to each agent to achieve the goal.

Even though we acknowledge methodological weaknesses in our study, such as the fact that the phenomenon could not be studied within a health care context, we still argue for the value of this study as a first attempt to present an examination of the features of strained interactions in general. The findings are transferable into the health care context. First, strained interactions are a naturally evolving force because patients are free to act in ways that are not always totally predictable, and their actions are interconnected so that the actions of one agent (ie, the patient) change the context for other agents (ie, health care professionals). Second, the easy accessibility and potential value of short video clips as learning tools for physicians, clinicians, and nurses who can access them quickly when they have time makes the method well-suited in different health care settings.

## CONCLUSION

We argue that strained interactions are complex because they feature unpredictability, sensitivity dependence, resistibility, and iteration. Everyday activities in care are not determined in advance but, rather, are self-adapting and change over time. Rarely do patients fit textbook cases, and current health care systems require an integration of patient values and outcome expectations. Therefore, strains and paradoxes are natural phenomena, not issues that can be explicitly and systematically resolved. On the basis of our extensive review of YouTube videos and existing research, we recommend that busy clinicians rethink current assumptions about patient-health care relationships. Viewing traditional clinical care as "reduce and resolve" must be replaced by an approach that accepts a reciprocal struggle and its inherent unpredictable events. Health care professionals have an obligation to recognize the unconditional value of patients as people, so educational and developmental initiatives

must involve creative and problem-solving activities that lead to dynamic approaches to these strained interactions. ♦

## Disclosure Statement

*The author(s) have no conflicts of interest to disclose.*

## Acknowledgment

*Mary Corrado, ELS, provided editorial assistance.*

## How to Cite this Article

Thunborg C, Salzmann-Erikson M. A qualitative inquiry into the complex features of strained interactions: Analysis and implications for health care personnel. *Perm J* 2017;21:16-032. DOI: <https://doi.org/10.7812/TPP/16-032>.

## References

1. Wasan AD, Wootton J, Jamison RN. Dealing with difficult patients in your pain practice. *Reg Anesth Pain Med* 2005 Mar-Apr;30(2):184-92. DOI: <https://doi.org/10.1097/00115550-200503000-00009>.
2. Edgoose J. Rethinking the difficult patient encounter. *Fam Pract Manag* 2012 Jul-Aug;19(4):17-20.
3. Khalil DD. Nurses' attitude towards 'difficult' and 'good' patients in eight public hospitals. *Int J Nurs Pract* 2009 Oct;15(5):437-43. DOI: <https://doi.org/10.1111/j.1440-172x.2009.01771.x>.
4. Nield-Anderson L, Minarik PA, Dilworth JM, et al. Responding to 'difficult' patients. *Am J Nurs* 1999 Dec;99(12):26-34. DOI: <https://doi.org/10.1097/00000446-199912000-00037>.
5. Davis AM, Rivkin-Fish M, Love DJ. Addressing "difficult patient" dilemmas: Possible alternatives to the mediation model. *Am J Bioeth* 2012;12(5):13-4. DOI: <https://doi.org/10.1080/15265161.2012.665144>.
6. Michaelsen JJ. Emotional distance to so-called difficult patients. *Scand J Caring Sci* 2012 Mar;26(1):90-7. DOI: <https://doi.org/10.1111/j.1471-6712.2011.00908.x>.
7. Brown T. How to have difficult conversations with patients, families [Internet]. New York, NY: Medscape, WebMD LLC; 2012 May 9 [cited 2016 Sep 13]. Available from: [www.medscape.com/viewarticle/763543](http://www.medscape.com/viewarticle/763543).
8. Paterson B, Leadbetter D, Bowie V. Supporting nursing staff exposed to violence at work. *Int J Nurs Stud* 1999 Dec;36(6):479-86. DOI: [https://doi.org/10.1016/s0020-7489\(99\)00046-2](https://doi.org/10.1016/s0020-7489(99)00046-2).
9. Cushing A, Metcalfe R. Optimizing medicines management: From compliance to concordance. *Ther Clin Risk Manag* 2007 Dec;3(6):1047-58.
10. Makoul G, Clayman ML. An integrative model of shared decision making in medical encounters. *Patient Educ Couns* 2006 Mar;60(3):301-12. DOI: <https://doi.org/10.1016/j.pec.2005.06.010>.
11. Plsek PE, Greenhalgh T. Complexity science: The challenge of complexity in health care. *BMJ* 2001 Sep 15;323(7313):625-8. DOI: <https://doi.org/10.1136/bmj.323.7313.625>.
12. Kellert SH. In the wake of chaos: Unpredictable order in dynamical systems (science and its conceptual foundations series). Chicago, IL: The University of Chicago Press; 1993.
13. Wilbur MP, Kulikowich JM, Roberts-Wilbur J, Torres-Rivera E. Chaos theory and counselor training. *Couns Values* 1995 Jan;39(2):129-44. DOI: <https://doi.org/10.1002/j.2161-007x.1995.tb01016.x>.

14. Chaffee MW, McNeill MM. A model of nursing as a complex adaptive system. *Nurs Outlook* 2007 Sep-Oct;55(5):232-41. DOI: <https://doi.org/10.1016/j.outlook.2007.04.003>.
15. Coppa DF. Chaos theory suggests a new paradigm for nursing science. *J Adv Nurs* 1993 Jun;18(6):985-91. DOI: <https://doi.org/10.1046/j.1365-2648.1993.18060985.x>.
16. Haigh C. Using chaos theory: The implications for nursing. *J Adv Nurs* 2002 Mar;37(5):462-9. DOI: <https://doi.org/10.1046/j.1365-2648.2002.02113.x>.
17. Patton MQ. *Qualitative research & evaluation methods*. 3rd ed. Thousand Oaks, CA: Sage Publications, Inc; 2002.
18. Paley J. Complex adaptive systems and nursing. *Nurs Inq* 2007 Sep;14(3):233-42. DOI: <https://doi.org/10.1111/j.1440-1800.2007.00359.x>.
19. McBride N. Chaos theory as a model for interpreting information systems in organizations. *Information Systems Journal* 2005 Jul;15(3):233-54. DOI: <https://doi.org/10.1111/j.1365-2575.2005.00192.x>.
20. Wilson T, Holt T, Greenhalgh T. Complexity science: Complexity and clinical care. *BMJ* 2001 Sep 22;323(7314):685-8. DOI: <https://doi.org/10.1136/bmj.323.7314.685>.
21. Langer R, Beckmann SC. Sensitive research topics: Netnography revisited. *Qualitative Market Research* 2005 Jun;8(2):189-203. DOI: <https://doi.org/10.1108/13522750510592454>.
22. Johnson JB, Reynolds HT, Mycoff JD. *Political science research methods*. 6th ed. Washington, DC: CQ Press; 2008.
23. YouTube [Internet]. San Bruno, CA: YouTube, LLC; c2016 [cited 2014 Apr 5]. Available from: [www.youtube.com](http://www.youtube.com).
24. Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs* 2008 Apr;62(1):107-15. DOI: <https://doi.org/10.1111/j.1365-2648.2007.04569.x>.
25. Beauchamp TL, Childress JF. *Principles of biomedical ethics*. 6th ed. New York, NY: Oxford University Press; 2009.
26. Gill SP. *Cognition, communication and interaction: Transdisciplinary perspectives on interactive technology*. London, United Kingdom: Springer London Ltd; 2007.
27. Bandura A. Human agency in social cognitive theory. *Am Psychol* 1989 Sep;44(9):1175-84. DOI: <https://doi.org/10.1037/0003-066x.44.9.1175>.
28. Lazarus RS. The psychology of stress and coping. *Issues Ment Health Nurs* 1985;7(1-4):399-418. DOI: <https://doi.org/10.3109/01612848509009463>.
29. Newman MA. *Health as expanding consciousness*. 2nd ed. Burlington, MA: Jones & Bartlett Learning; 1999.
30. Parse RR. Human becoming: Parse's theory of nursing. *Nurs Sci Q* 1992 Spring;5(1):35-42. DOI: <https://doi.org/10.1177/089431849200500109>.
31. Rodgers BL. Exploring health policy as a concept. *West J Nurs Res* 1989 Dec;11(6):694-702. DOI: <https://doi.org/10.1177/019394598901100604>.
32. Thunborg C, von Heideken Wägert P, Söderlund A, Götell E. Reciprocal struggling in person transfer tasks—caregivers' experiences in dementia care. *Adv Physiother* 2012;14(4):175-82. DOI: <https://doi.org/10.3109/14038196.2012.725184>.
33. Timmermann C, Uhrenfeldt L, Birkelund, R. Ethics in the communicative encounter: Seriously ill patients' experiences of health professionals' nonverbal communication. *Scand J Caring Sci* 2016 Apr 4. DOI: <https://doi.org/10.1111/scs.12316>.
34. Zimmerman B, Lindberg C, Plsek P. *Edgework: Lessons from complexity science for health care leaders*. 2nd ed. Irving, TX: VHA Inc; 1998.
35. Kartalova-O'Doherty Y, Tedstone Doherty D. Recovering from recurrent mental health problems: Giving up and fighting to get better. *Int J Ment Health Nurs* 2010 Feb;19(1):3-15. DOI: <https://doi.org/10.1111/j.1447-0349.2009.00636.x>.
36. Axelrod R. *The complexity of cooperation: Agent-based models of competition and collaboration*. Princeton, NJ: Princeton University Press; 1997.
37. Koekkoek B, van Meijel B, Hutschemaekers G. "Difficult patients" in mental health care: A review. *Psychiatr Serv* 2006 Jun;57(6):795-802. DOI: <https://doi.org/10.1176/ps.2006.57.6.795>.