FACTORS ASSOCIATED WITH THE IMPLEMENTATION OF TELEHEALTH

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Faculty Disclosure

There are no relevant financial relationships to report.
Objectives

• Describe Diffusion of Innovation theory and its relation to adoption
• Identify the factors that influence adoption of telehealth
• Identify barriers and facilitators of telehealth innovations
• Identify the clinical implications of research to your healthcare setting
Background and Problem: current healthcare system

- Episodic face to face care = little contact
- Poor coordination over time
- Baby boomers: by 2030 = 20% US population will be seniors
- Problem: communication is the critical aspect of effectively managing illness (Estes et al., 2013)
Review of the Literature

Barriers:
- Apprehension
- Cost
- Knowledge Deficits
- Intrusive Equipment
- Lack Of Company Support

Facilitators:
- Cost Savings
- Patient Self – Efficacy
- Reduced Disease Process/Health Burden
- Increased Rural Access
- Organizational Support

(Rogers et al., 2011)
Research Question

“What are the variables that support adoption of telehealth in a retail health clinic?”
Definitions

• Retail Health Clinic
• Nurse Practitioner
• Licensed Vocational Nurse
• Telehealth
Old Communication
New Communication
New Communication
PARiHS Model: Promoting Action on Research Implementation in Health Services

Figure 1. PARiHS framework conceptualization. Adapted from (Helfrich et al., 2010)
Rogers Diffusion of Innovations Theory

*Figure 2. Rogers Diffusion of Innovations Conceptualization. Adapted from (Berwick, 2003).*
Methods

Design
• Descriptive cross-sectional design

Setting
• Retail health clinics inside pharmacies within 3 regions of California

Sample
• Convenience sample of all NPs & LVNs

- Relative advantage
- Trialability
- Complexity
- Observability
- Compatibility
- Result Demonstrability
- Image
- Voluntariness
Results

• 63 respondents = 68% response rate

• 77% = NP’s / 23% = LVN’s

• 43% of respondents - high adoption region

• Average years in practice = 10.5

• Average months on telehealth = 10.6
Table 2: Bivariate analysis of Telehealth Questionnaire and Demographic Characteristics (n=63)

<table>
<thead>
<tr>
<th>Question</th>
<th>Telehealth Adopters</th>
<th></th>
<th>p1,2</th>
<th>p3,4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High (n = 26; 41.3%)</td>
<td>Low (n = 37; 58.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2.1 (Voluntariness - My boss requires me to use Telehealth)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>11 (42.3)</td>
<td>3 (8.1)</td>
<td>10.3332</td>
<td>0.0020</td>
</tr>
<tr>
<td>Disagree</td>
<td>15 (57.7)</td>
<td>34 (91.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2.2 (Voluntariness - Although it might be helpful, using Telehealth is compulsory in my job)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>14 (53.8)</td>
<td>2 (5.4)</td>
<td>18.9112</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Disagree</td>
<td>12 (46.2)</td>
<td>35 (94.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4.2 (Compatibility - I think that using Telehealth fits well with the way I like to work)</td>
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</tr>
<tr>
<td>Agree</td>
<td>23 (88.5)</td>
<td>23 (62.2)</td>
<td>5.3604</td>
<td>0.0239 b</td>
</tr>
<tr>
<td>Disagree</td>
<td>3 (11.5)</td>
<td>14 (37.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4.3 (Compatibility - Using Telehealth fits into my work style)</td>
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</tr>
<tr>
<td>Agree</td>
<td>23 (88.5)</td>
<td>22 (59.5)</td>
<td>6.2935</td>
<td>0.0219 b</td>
</tr>
<tr>
<td>Disagree</td>
<td>3 (11.5)</td>
<td>15 (40.5)</td>
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<td></td>
</tr>
<tr>
<td>Education 3</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors/Masters/Doctorate</td>
<td>21 (80.8)</td>
<td>27 (75.0)</td>
<td>0.2874</td>
<td>0.5919 a</td>
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<tr>
<td>LVN/LPN/Associate/Other</td>
<td>5 (19.2)</td>
<td>9 (25.0)</td>
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<tr>
<td>Time (min.) it took Respondents to answer Survey</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>9.9 ± 8.2</td>
<td>16.4 ± 20.7</td>
<td>1.13e</td>
<td>0.3295 e</td>
</tr>
<tr>
<td>95% CI</td>
<td>6.6-13.3</td>
<td>9.3-23.3</td>
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<tr>
<td>Range, SE</td>
<td>3-34; 1.6</td>
<td>3-71; 3.4</td>
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<td></td>
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<tr>
<td>Years in practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>11.9 ± 11.8</td>
<td>9.2 ± 8.5</td>
<td>3.08e</td>
<td>0.0544</td>
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<tr>
<td>95% CI</td>
<td>6.9-16.9</td>
<td>6.1-12.2</td>
<td></td>
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<tr>
<td>Range, SE</td>
<td>1-40; 2.4</td>
<td>1-36; 1.0</td>
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<td></td>
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<tr>
<td>Months used Telehealth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>12.9 ± 2.9</td>
<td>12.5 ± 9.4</td>
<td>0.09e</td>
<td>0.9131 e</td>
</tr>
<tr>
<td>95% CI</td>
<td>11.7-14.1</td>
<td>9.2-15.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range, SE</td>
<td>1-18; 0.6</td>
<td>1-60; 1.6</td>
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</tbody>
</table>

High Telehealth Adopters (Regions A & B); Low Telehealth Adopters (Regions C & D)
1 Chi-Square Test; 2 Pearson’s Exact Chi-Square Test; 3 ANOVA (One-Way) F test
4 Agree = Agree/Strongly Agree categories were collapsed
5 Disagree = Neutral/Disagree/Strongly Disagree were collapsed
6 x = sample mean; s = sample standard deviation
7 n=36
Voluntariness

“My boss requires me to use Telehealth”

• 42.3% high adopters vs 8.1% low adopters AGREE (p = 0.002)

“Although it might be helpful, using Telehealth is compulsory in my job”

• 53.8% of high vs 5.4% of low adopters AGREE (p<.0001)
Compatibility

“I think that using Telehealth fits well with the way I like to work”

• 11.5% of high adopters vs 37.8% of low adopters
  DISAGREE (p = 0.024)

“Using Telehealth fits into my work style”

• 11.5% of high adopters vs 40.5% of low adopters
  DISAGREE (p = 0.022)
The Big Picture

- Perceptions of voluntariness and compatibility were the major factors influencing telehealth adoption

- Focus on individual level to achieve success
Adoption needs buy in to work!
Significance & Implications

- Leadership
- Champions
- Peer Review
- Role Play
Acknowledgments

• I wish to thank my Chair Dr. Goebel, Dr. Van Otterloo, Dr. Boutary and Marlaine Skaggs, MSN.

• I also want to extend thanks to all of the NP’s and LVN’s who gave their input and participated in the survey.
Questions?
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