Evaluation of Dyad Effectiveness in a Psychiatric Healthcare Facility

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Evaluation of Dyad Effectiveness in a Psychiatric Healthcare Facility

Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing Practice at the University of Kentucky

By

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Lexington, Kentucky

2022
Abstract

**Background:** Inadequate communication can lead to poor quality of care and patient outcomes. Physician-nurse dyad partnerships have been shown to increase effective communication but there is a lack of data to show the impact these dyads have on dyad members’ perceptions about patient safety, work engagement and quality patient outcome measures.

**Purpose:** This purpose of this project was to determine if a physician-nurse dyad structure in an inpatient psychiatric hospital would lead to improved participant perception about patient safety, work engagement, and patient quality outcomes.

**Methods:** A quasi-experimental pretest-posttest design was used. Participant perceptions related to patient safety, work engagement, and quality patient outcomes were obtained prior to implementation of the dyads and were compared to data and outcomes obtained one-year post implementation. Employee surveys were used to measure dyad participant perception of patient safety and work engagement. This survey included four employee patient safety-related items, in addition to the 17 item Utrecht Work Engagement Scale (UWES). Patient outcome quality measures for each unit, which included falls, use of restraints, and medication errors, were retrieved from the quality department in order to compare pre- and post- implementation outcomes.

**Results:** An increase was noted in participant perception scores related to patient safety and work engagement, although the difference was not significant. Patient quality outcomes improved on units where individual dyad pairs completed performance improvement initiatives. The small sample size of 11 participants could have contributed to the lack of statistical change.
**Conclusion:** The findings from this study suggest working in a dyad partnership increases work engagement scores and a focus on patient safety. Patient quality outcome results varied which may be contributed to the short duration of this study.
Acknowledgements

I have received assistance and support from many throughout my time in the Doctor of Nursing Practice program. I would like to acknowledge my faculty advisor and committee chair Dr. Debra Hampton for her encouragement throughout my DNP journey. Her dedication and support to me has been a constant motivation from day one. Her countless hours of assistance and encouragement have led to my success in this program. I would like to recognize Dr. Karen Butler for serving on my DNP committee. Dr. Butler helped guide me through the proposal writing process and has been an upbeat and extremely supportive mentor throughout this journey. I would like to thank Dr. Andrew Cooley for serving as my clinical mentor and providing his support, guidance, and expertise.
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Evaluation of Dyad Effectiveness in a Psychiatric Healthcare Facility

Background and Significance

Effective communication requires individuals to deliver messages clearly and listen to what is being communicated. According to HIPAA Journal (n.d.), poor communication can lead to a reduction in quality of care, poor patient outcomes, resource waste, and high healthcare costs. Communication failures can have a negative impact on patient and staff satisfaction. Garber et al. (2009) stated that in order to provide quality patient care, collaboration between all members of the interdisciplinary team, no matter the role, is imperative. Many studies exist in the literature regarding communication and teamwork between the physician and nurse and the impact communication has on direct patient care (Clark & Greenawald, 2013; Garber et al., 2009; Tang et al., 2013; Xyrichis and Ream, 2008). Xyrichis and Ream (2008) noted that teamwork is accomplished through collaboration, open communication and shared decision making, and generates value-added patient, organizational and staff outcomes. Physicians and nurses possess different attitudes towards the importance of physician-nurse collaboration; their attitudes are influenced by many factors including communication, respect, trust, unequal power, understanding other professional roles, and task prioritizing (Tang et al., 2013).

Many articles have been published regarding the implementation of a dyad leadership model (Baldwin, et al., 2011; Clausen et al., 2017; Gibeau et al., 2019; Saxena et al., 2018), but little information exists in the literature about its benefits or weaknesses. Because physicians hold a different role than nurses, it is essential for there to be trust and communication between both (Baldwin et al. 2011). The dyad model gives the opportunity for a new relationship between the physician and nurse leader that has not previously existed. According to Baldwin et al.
(2011), there are many benefits to this model. The dyad partnership decreases the “us-them” perspectives that many healthcare organizations experience.

This study focused on evaluating dyad implementation at a state inpatient psychiatric facility. Each patient care unit in this facility has a treatment team which is comprised of several multidisciplinary team members. Included in this team is an attending psychiatrist as well as a nurse manager. These teams are required to work together daily in order to meet the needs of the patients on their unit. These teams are successful at working together to provide necessary patient care but communication between the nurse manager and psychiatrist regarding quality measures is lacking. Unit quality metrics are provided to teams weekly and monthly by the facilities quality department. Poor communication amongst the teams leads to lack of ownership of this data as well as lack of performance improvement initiatives. The implementation of dyads is new, and the facility hopes dyad use will lead to continuous quality improvements within patient care units, leading to increased quality outcomes for patients. Sharing leadership on the unit level may lead to the creation of an environment for increased employee engagement as well as increased employee satisfaction.

**Purpose/Objectives**

The primary purpose of this study was to determine if the implementation of a unit-based physician-nurse dyad structure at an inpatient psychiatric hospital would lead to improved participant perception about patient safety, work engagement, and patient quality outcomes.

Specific questions to be answered from this study included:

1. Is there a statistically significant increase in employee perception of patient safety?
2. Is there a statistically significant increase in employee work engagement?

3. Have dyads completed performance improvement projects that resulted in a statistically significantly improvement to the patient fall rate, use of restraints, or medication error occurrence?

**Conceptual Framework**

Kurt Lewin’s Change Theory was used as the framework for this study. Lewin’s theory of change includes three stages, unfreezing, changing, and refreezing. During unfreezing problems are identified and letting go of old patterns occurs. During the changing stage individuals are pushed to seek alternatives and create change. The last stage is the refreezing stage; during this stage individuals use new alternatives and turn these into habits. As discussed in Lewin's theory, groups of individuals as well as individuals alone can be affected by outlying factors that influence those individuals in their effort to keep up with the status quo and the work towards positive forces of change (Wojciechowski et al., 2016).

The implementation of dyads creates the need for physicians and nurses to change the way they currently view teamwork on their units. A dyad structure required them to move through all three stages of Lewin’s change theory. They first began by working together as dyad pairs with a focus on quality improvement. They were instructed by leaders to use quality improvement techniques to identify areas of opportunity. Strategies to improve outcomes were created which led to the change phase. The last phase is refreezing which was demonstrated as dyads created new habits developed by their work on performance improvement projects.
Literature Review

Summary of the Evidence

A literature review related to dyads was conducted using CINAHL and PubMed databases. This search was conducted using key terms related to dyads and leadership. Studies were screened according to implementation of dyads, leadership models, physician-nurse dyads, and evaluation of dyads. All studies prior to 2009 were excluded for this review. Eight articles were chosen for thorough review. The goal of this literature review is to focus on evaluation of dyad models and their effectiveness.

Physician and nurse collaboration is essential in order to succeed in providing quality patient care. Two studies were focused on collaboration between physician and nurse leadership and their perception of this collaboration (Garber et al., 2009; Clark & Greenawald, 2013). Attitudes towards collaboration were high in both studies. Nurse’s attitudes toward collaboration were more positive than physician attitudes in the Garber et al. (2009) study. Nurse-physician collaboration was hard to develop without defined roles and responsibilities (Clark & Greenawald, 2013). Both studies acknowledged the importance of collaboration in order to create positive patient outcomes and employee satisfaction.

Several studies focused on the structure and functionality of the dyad structure (Baldwin, et al., 2011; Clausen et al., 2017; Gibeau et al., 2019; Saxena et al., 2018). Three of these were specific to the physician-nurse dyad structure and identified that a mutual relationship built on trust and joint accountability was critical to a successful dyad leadership model (Baldwin et al., 2011; Clausen et al., 2017; Saxena et al., 2018, 2018). Authors of two studies discussed the
importance of dyad teams having clear roles and responsibilities in order to be successful (Gibeau et al., 2019; Saxena et al., 2018).

Two studies reviewed acknowledged the importance of communication amongst physicians and nurses (Christensen et al., 2020; Matziou et al., 2014). Lack of communication between nurses and healthcare providers continues to be a problem in healthcare facilities (Christensen et al., 2020). Acknowledging the importance of effective communication and implementing interprofessional teamwork interventions should be incorporated into everyday practice (Matziou et al., 2014). Matziou et al. (2014) also found that absence of interprofessional collaboration may result in a higher possibility of errors and omissions in patient care.

**Current State, Desired State, Gaps in Practice**

The literature illustrated that dyads are beneficial in healthcare and that successful implementation of a physician-nurse collaboration requires mutual respect, joint accountability, and communication. The literature review uncovered little research that shows the effectiveness of dyad models on patient safety or patient outcomes. There were no studies regarding dyads in mental health facilities. This review supports the need for more studies around the effectiveness of physician-nurse dyads utilizing statistical data and longitudinal studies, in varying settings. This study will address the lack of evaluations regarding dyad structure effectiveness as well as dyads in a psychiatric settings.
Methods

Design of Study

This study used a quasi-experimental pre-test-post-test design. Data from surveys and patient outcomes was reviewed from pre-implementation and post-implementation for evaluation of dyad implementation success.

Setting

The study took place at Eastern State Hospital, a 140-bed state inpatient psychiatric facility. This facility provides acute psychiatric care for adults in Fayette County, KY and 50 surrounding counties. The mission of Eastern State Hospital is to instill hope, inspire recovery, and improve overall well-being for Kentuckians. The facility employees over 500 individuals dedicated to fulfilling the mission. Eastern State Hospital leaders set goals around improving patient care and continuously strive to increase patient quality outcomes as well as employee engagement. There is an admissions suite and five patient care units which all have recently implemented dyad pairs. These dyad pairs and their assigned unit’s data were used for this study.

There are many stakeholders for this study starting with the executive leadership team which includes the Chief Operating Officer, Chief Medical Officer, and Chief Nursing Officer. The executive leadership team supervises the leaders who are a part of the dyad teams. Their buy in is extremely important to the success of the study as they are crucial in motivating and supporting staff. The Eastern State Hospital quality department assists dyads with performance improvement projects and helps provide appropriate resources. They provide necessary data to dyads to assist with performance improvement projects. Other stakeholders include patients and staff. Patients are the focus of dyad implementation. The overarching goal of implementing
dyads is to increase the quality of care provided to patients and increase quality outcomes. Each dyad was asked by hospital leadership to create projects based on the outcomes of their unit’s patients. Providers and nurse managers were paired together in a dyad partnership to lead performance improvement projects in efforts to improve patient care.

Several factors were required for completing this study at Eastern State Hospital to include buy-in from the executive leadership team, support from the quality department for data access, and the availability of dyad teams for completion of employee surveys. A barrier for this study included the lack of an electronic health record which required all quality data to be collected manually. To overcome this barrier the quality department agreed to assist in data collection.

**Sample**

The 12-person sample consisted of all Eastern State Hospital dyad pairs which includes nurse managers and attending physicians of each of the five patient care units as well as the nurse manager and provider leader for the admissions suite for a total of six dyad pairs. Patient outcome data broken down by patient falls, restraints, and medication errors were provided by Eastern State Hospital Quality Department.

**IRB Approval**

Prior to the study, Institutional Review Board (IRB) approval was obtained from the University of KY Medical IRB. A letter also was obtained from the Chief Medical Officer of Eastern State Hospital that demonstrated his support for the study.
**Procedure**

Prior to the start of this study, surveys were distributed to all six dyad pair participants pre-facility dyad implementation by the quality department at Eastern State Hospital that included items focused on employee perception of patient safety and work engagement. A request was submitted and approved to obtain this data from the hospital quality department for use in this study. Facility leaders held a kick off meeting which led the implementation of dyads at Eastern State Hospital. Dyad pairs participated in quality improvement projects focused on patient outcomes.

One year post dyad implementation this same survey was distributed by the project manager who is a Doctor of Nursing Practice student. Results for this survey were collected using REDCap and transferred to SPSS software. REDCap is a secure web-based application designed to capture data from surveys. Data was compared to assess for changes in dyad participant work engagement. Quality outcome data for patient falls, restraints, and medication variances already existed at Eastern State Hospital. A request was submitted and approved to obtain this data from the hospital quality department for review for this study. Patient outcome data related to quality metrics measured for each unit that completed a performance improvement project was retrieved from the quality department in order to compare pre and post-implementation outcomes. Patient outcome data was provided by Eastern State Hospital quality department in an excel file and transferred to SPSS software by student for analysis.

**Measures and Instrument**

Employee surveys were anonymous, and the only demographic information included was the participant’s role in the dyad pair, Nurse Manager Vs Provider. The survey included items to
measure dyad participant’s perception of patient safety and work engagement. Employee perception of patient safety was measured by four items based on a Likert scale from 1 to 5 of “strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. An example of a perception of patient safety question was: The quality of patient care has improved during the past 12 months. These four items were pulled from the facilities much larger 89 item Press Ganey employee engagement survey. Press Ganey partners with more than 41,000 healthcare facilities helping organizations transform the patient care experience providing services for both patient and employee surveys.

The 17 item Utrecht Work Engagement Scale (UWES) was used to measure work engagement. UWES assesses for three aspects of work engagement: vigor, dedication, and absorption. Participates rated items based on a 6-point Likert scale of “almost never”, “rarely”, “sometimes”, “often”, “very often”, and “always”, with higher scores demonstrating greater well-being. “A majority of studies have confirmed that the three-factor structure of the UWES is superior to a one-factor, or unidimensional, conceptualization of engagement” (Mills, et. al., 2012). Mills et al., (2012) analyzed the UWES using two studies that focused on the scale that was developed and the reliability of scores. UWES scores were found to be valid and yielded reliable scores; research supported the multifactorial conceptualization.

Data for patient falls and restraints was provided broken down by month in the form of a rate. Medication error data was provided as a number of occurrences per month.

Data Analysis

Data from both surveys and the quality measures were analyzed using SPSS, version 28. Data were summarized using descriptive statistics, including mean, standard deviations or
percentages, as appropriate. Data from participant surveys pre dyad implementation and post dyad implementation were compared using independent samples t-test’s and Levene’s test. Independent samples t-test and Levene’s test were also used to analyze patient outcome data pre and post dyad performance improvement projects. Statistical significance was considered a p-value less than or equal to .05.

**Results**

Of the 12 dyad participants, 11 completed the pre-survey and post-survey. Of these participants the distribution was the same for both surveys: 45% were providers and 55% were nurse managers (see Table 1).

A decrease was noted for the mean score for overall perception of patient safety, but the decrease was not statistically significant (pre, M= 4.00, SD= 0.73 vs. post, M= 3.84, SD=0.59; p=.09, see Table 2). There was no significant change in any of the individual employee perception of patient safety items from the pre to post-dyad implementation (see Table 2). The majority of participants agreed or strongly agreed that patient safety was a priority in the organization (90% pre; 73% post); there was a decline in the mean score also post dyad implementation (pre, M= 4.40, SD= 0.70 vs. post, M= 3.91, SD=1.22; p=.14, see Table 2). A majority of participants indicated that they agreed or strongly agreed that the organization was actively doing things to improve patient safety (82% pre and post), but there was a decrease in the mean score for this item post dyad implementation (pre, M= 4.00, SD= 0.63 vs. post, M= 3.91, SD=0.83; p=.39, see Table 2). A majority of participants (82%) agreed or strongly agreed that there was effective teamwork between physicians and nurses prior to implementation of the dyad teams. Although the change in scores was not statistically significant, beliefs related to effectiveness of teamwork increased post dyad implementation to 100%, revealing that all
participants agreed or strongly agreed that teamwork between physicians and nurses had increased. There was also an increase in the mean score for this item (pre, M= 3.91, SD= 0.83 vs. post, M= 4.18, SD=0.41; p=.17, see Table 2). A majority of participants agreed or strongly agreed that the quality of care had improved pre-survey (72.8%), but post-dyad implementation only 45.5% of participants agreed or strongly agreed that quality of care had increased. This item also had the lowest post-survey item score (pre, M= 3.91, SD= 0.94 vs. post, M= 3.36, SD=0.91; p=.09, see Table 2).

An increase was noted post dyad implementation in the mean score for overall engagement, but the increase was not statistically significant (pre, M=3.88 SD=0.69 vs. post, M=4.14, SD=0.73; p=.39, see Table 3). Scores for the vigor, dedication and absorption components of work engagement increased post-dyad implementation, but none of the increases were significant (eg; Vigor, pre, M=3.72, SD=0.89 vs. post, M=3.88, SD=1.19; p=.71; Dedication, pre, M=4.03, SD=0.86 vs. post, M=4.40, SD=0.85; p=.33; Absorption, pre, M=3.92, SD=0.61 vs. post, M=4.19, SD=0.66; p=.33, see Table 3).

Patient outcomes were measured for three categories: hospital wide falls, restraints on one unit, and medication variances for one unit. No statistical change in the fall rate pre-dyad implementation to post-dyad implementation was noted (pre, M=6.10, SD=4.21 vs. post, M=6.58 SD=3.53; p=.49, see Table 4). While there was a decrease in the restraint rate, no statistically significant change in the restraint rate pre-dyad implementation to post-dyad implementation was noted (pre, M=0.16, SD=0.17 vs. post, M=0.04 SD=0.04; p=.10, see Table 4). No statistical change in Medication errors pre-dyad implementation to post-dyad implementation also were noted (pre, M=3.00, SD=4.14 vs. post, M=2.00 SD=0.70; p=.70, see Table 4).
Discussion

Improving patient care outcomes is a high priority for healthcare organizations. This study focused on evaluating the effectiveness of a physician/nurse dyad partnership, including the impact on perceptions about patient safety, dyad member work engagement and achievement of specific patient outcomes in a facility with a newly implemented dyad partnership.

The majority of participants agreed pre-dyad implementation that the organization made patient safety a priority, but post dyad implementation scores on three of the perception of patient safety items decreased. The timing of this study was during the peak of the COVID-19 pandemic which could have played a role in the decrease of scores. The facility’s dyad implementation focused on creating a physician-nurse dyad partnership and encouraging these individuals to work as a team to improve patient care on their units. The increase in participant scores from 82% to 100% related to effectiveness of teamwork between physicians and nurses showed that the teamwork aspect of this implementation was successful.

Although not statistically significant, the total score as well as scores in each of the three categories (vigor, dedication, and absorption) all increased post dyad implementation. The UWES manual (Schaufeli et al., 2011) identifies established statistical norms for the UWES using five categories “very low”, “low”, “average”, “high”, and “very high” (see Table 6). High scores of vigor illustrate high energy, zest and stamina while working. Individuals with high scores in dedication find their work meaningful, inspiring and challenging. Absorption items relate to participates being happily wrapped up in their work. Results from this study indicate that dyad participant scores fell into the average category based on scoring both pre-and post-dyad implementation. This is very positive given the difficult time healthcare workers faced in
the middle of the COVID-19 pandemic. Engagement levels in this study were also more positive than those published in the literature. A study utilizing the UWES scale for a component to measure work engagement for physicians and nurses concluded that work engagement scores for both groups were mediocre (Lymberakaki et al., 2021).

Performance improvement initiatives were led by dyad partnerships during the course of time between pre-post dyad implementation and although all dyad pairs focused on decreasing patient falls, there was no statistical change in the hospital fall rate. One dyad pair focused on decreasing their restraint rate and another dyad pair focused on decreasing medication errors. The findings from this study illustrated both outcomes decreased but with no statistically significant change. The restraint rate dropped 75% which is an impressive shift that could be tied to the performance improvement initiatives from that unit’s dyad partners. The lack of statistical change in these measures can be contributed to the small sample size and the low pre-implementation scores.

**Implication for Practice**

Future research is needed in order to more fully understand if the use of dyad partnerships can improve employee perception of patient safety, work engagement, and patient quality measures. Measuring patient outcomes for a lengthier time period than this study allowed would be beneficial in gaining additional data on success of dyad partnerships. All dyad pairs participated in efforts towards decreasing falls but only two pairs completed performance improvement initiatives that were able to be analyzed in this study. Providing dyad partners with education around performance improvement tools and strategies may be beneficial in helping the teams’ impact patient safety. In a psychiatric setting all patient care units have similar quality measures; therefore, having dyad pairs consult with other dyad pairs on performance
improvement techniques may yield positive outcomes. Additional studies focused on outcomes in psychiatric healthcare facilities would help in understanding if dyad effectiveness varies based on setting.

It would be beneficial to see if encouragement from leadership and placing a priority on performance improvement initiatives from dyad participants results in different outcomes than seen in this study. A qualitative study focused on factors that influence nurse physician collaboration found the need for organizations to facilitate deliberate, structured interprofessional communication to advance collaboration between nurses and physicians (Clark & Greenawald, 2013).

**Limitations**

One limitation of the study was the small sample size of participants. The facility is small with a total of five patient care units and an admissions suite which limited the amount of dyad partnerships available to study. This small sample size also could have contributed to the lack of significant change in work engagement or other outcomes. Another limitation of this study was the turnover of participants. Three providers and one nurse manager left the facility and were replaced by new staff after the pre-survey and before the post-survey. This study occurred during the COVID-19 pandemic. Because of the pandemic there was a shift of priorities for dyad partners which may have led to decreases in perceptions related to patient safety and non-statistical changes in quality outcomes.

**Conclusion**

This study focused on the impact of implementation of a physician/nurse dyad partnership at a psychiatric healthcare facility. Participants work engagement scores and perceptions about teamwork increased during this year while working as part of a dyad
partnership. This increase in score demonstrates the positive impact these dyad partnerships had, especially during the challenging times such as those endured during the middle of a pandemic. Dyad partnerships need to be supported and encouraged by executive leaders to implement performance improvement initiatives on their patient care units. Future studies that include larger sample sizes need to be conducted to evaluate the effectiveness of physician-nurse dyad pairs on safety culture, work engagement and quality outcomes.
References


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Table 1. *Participant Job Category (N= 11)*

<table>
<thead>
<tr>
<th>Job Category</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider (Psychiatrist or Physician Assistant)</td>
<td>5 (45%)</td>
</tr>
<tr>
<td>Nurse Manager</td>
<td>6 (55%)</td>
</tr>
<tr>
<td></td>
<td>Pre-dyad structure</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Patient safety is a priority in this organization</td>
<td>4.40 (0.70)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>1 (10.0%)</td>
</tr>
<tr>
<td>Agree</td>
<td>4 (40.0%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>5 (50.0%)</td>
</tr>
<tr>
<td>The quality of patient care has improved during the past 12 months</td>
<td>3.91 (0.94)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Agree</td>
<td>5 (45.5%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>3 (27.3%)</td>
</tr>
<tr>
<td>We are actively doing things to improve patient safety</td>
<td>4.00 (0.63)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Agree</td>
<td>7 (63.6%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>There is effective teamwork between physicians and nurses at this hospital</td>
<td>3.91 (0.83)</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>1 (9.1%)</td>
</tr>
<tr>
<td>Agree</td>
<td>7 (63.6%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>2 (18.2%)</td>
</tr>
<tr>
<td>Total score</td>
<td>4.00 (0.73)</td>
</tr>
</tbody>
</table>
Table 3. *Utrecht Work Engagement Scale Scores Pre and Post-Intervention (N = 11)*

<table>
<thead>
<tr>
<th>UWES subscale</th>
<th>Pre-dyad structure mean (SD)</th>
<th>Post- dyad structure mean (SD)</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vigor</td>
<td>3.72 (0.89)</td>
<td>3.88 (1.19)</td>
<td>.71</td>
</tr>
<tr>
<td>Dedication</td>
<td>4.03 (0.86)</td>
<td>4.40 (0.85)</td>
<td>.33</td>
</tr>
<tr>
<td>Absorption</td>
<td>3.92 (0.61)</td>
<td>4.19 (0.66)</td>
<td>.33</td>
</tr>
<tr>
<td>Total Score</td>
<td>3.88 (0.69)</td>
<td>4.14 (0.73)</td>
<td>.39</td>
</tr>
</tbody>
</table>
Table 4. *Patient Outcomes*

<table>
<thead>
<tr>
<th></th>
<th>Pre-Dyad Performance Improvement Project mean (SD)</th>
<th>Post-Dyad Performance Improvement Project mean (SD)</th>
<th><em>p</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls</td>
<td>6.10 (4.21)</td>
<td>6.58 (3.53)</td>
<td>.49</td>
</tr>
<tr>
<td>Restraints</td>
<td>0.16 (0.17)</td>
<td>0.04 (0.04)</td>
<td>.10</td>
</tr>
<tr>
<td>Medication Variances</td>
<td>3.00 (4.14)</td>
<td>2.00 (0.70)</td>
<td>.70</td>
</tr>
</tbody>
</table>
Table 5. *Utrecht Work Engagement Survey Dimension Breakdown*

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Statements</th>
</tr>
</thead>
</table>
| Vigor     | 1. At my work, I feel bursting with energy  
            2. At my job, I feel strong and vigorous  
            3. when I get up in the morning, I feel like going to work  
            4. I can continue working for very long period of time  
            5. At my job, I am very resilient, mentally  
            6. at my work I can always persevere, even when things do not go well |
| Dedication| 1. I find the work that I do full of meaning and purpose  
            2. I am enthusiastic about my job  
            3. My job inspires me  
            4. I am proud on the work that I do  
            5. To me, my job is challenging |
| Absorption| 1. Time flies when I’m working  
            2. When I am working, I forget everything else around me  
            3. I feel happy when I am working intensely  
            4. I am immersed in my work  
            5. I get carried away when I am working  
            6. It is difficult to detach myself from my job |

(Responses are based on a 6-point Likert scale with 1 being almost never and 6 being always)
Table 6. *Norm Scores for the UWES-17 (Schaufeli and Baker, 2004)*

<table>
<thead>
<tr>
<th></th>
<th>Vigor</th>
<th>Dedication</th>
<th>Absorption</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>≤ 2.17</td>
<td>≤ 1.60</td>
<td>≤ 1.60</td>
<td>≤ 1.93</td>
</tr>
<tr>
<td>Low</td>
<td>2.18 – 3.20</td>
<td>1.61 – 3.00</td>
<td>1.61 – 2.75</td>
<td>1.94 – 3.06</td>
</tr>
<tr>
<td>Average</td>
<td>3.21 – 4.80</td>
<td>3.01 – 4.90</td>
<td>2.76 – 4.40</td>
<td>3.07 – 4.66</td>
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<tr>
<td>High</td>
<td>4.81 – 5.60</td>
<td>4.91 – 5.79</td>
<td>4.41 – 5.35</td>
<td>4.67 – 5.53</td>
</tr>
<tr>
<td>Very High</td>
<td>≥ 5.61</td>
<td>≥ 5.80</td>
<td>≥ 5.36</td>
<td>≥ 5.54</td>
</tr>
<tr>
<td>M</td>
<td>3.99</td>
<td>3.81</td>
<td>3.56</td>
<td>3.82</td>
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<tr>
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<td>1.08</td>
<td>1.31</td>
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<td>.01</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Range</td>
<td>.00-6.00</td>
<td>.00-6.00</td>
<td>.00-6.00</td>
<td>.00-6.00</td>
</tr>
</tbody>
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