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Electroconvulsive Therapy: Improving Psychiatric RN Knowledge and Attitudes Using an Educational Module

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Electroconvulsive Therapy: Improving Psychiatric RN Knowledge and Attitudes Using an Educational Module

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By

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Abstract

Background: Electroconvulsive Therapy (ECT) is a robust, versatile treatment option for many psychiatric disorders and diseases, but systemic low levels of knowledge and negative attitudes exist towards the procedure among healthcare workers, specifically among psychiatric RNs. The negative attitudes surrounding ECT are most attributable to a misunderstanding of its uses, efficacy, procedures, and safety. Psychiatric RNs hold more negative beliefs and misconceptions about ECT than any other group of healthcare workers who directly care for patients receiving the treatment. Psychiatric RNs also demonstrate poor understanding of ECT treatment procedures and outcomes. Current evidence-based practice shows that providing psychiatric RNs with an ECT educational module increases their knowledge of ECT and improves their attitudes towards the procedure.

Purpose: The purpose of this DNP project was to provide an educational intervention regarding ECT to psychiatric RNs caring for patients in a hospital or behavioral health unit setting. The specific aims were to 1.) evaluate changes in knowledge regarding ECT among psychiatric RNs, 2.) evaluate changes in attitudes toward ECT among psychiatric RNs, and 3.) evaluate changes in psychiatric RNs' likelihood of recommending ECT to patients.

Methods: This DNP project used a quasi-experimental pretest-posttest design and included psychiatric RNs. Data were collected via an online REDCap pretest and posttest survey using the standardized and validated QuAKE questionnaire. Data pertaining to psychiatric RN knowledge and attitudes concerning the uses, efficacy, procedure, and safety of ECT and the likelihood of recommending ECT to patients were collected and analyzed using a paired t-test.

Results: Psychiatric RN attitudes concerning ECT mean value scores increased from pretest (M = 3.47, SD = 0.63) to post-test (M = 4.27, SD = 0.38). The likelihood of recommending ECT mean scores increased from pretest (M = 3.42, SD = 0.90) to posttest (M = 4.33, SD = 0.49). Knowledge of ECT mean value scores increased from pretest (M = 75.56, SD = 9.28) to posttest (M = 81.25, SD = 9.23). Psychiatric RN attitudes

towards and likelihood of recommending ECT demonstrated statistically significant improvement ($p < .001$ and $p < .005$, respectively).

Conclusions: This DNP project demonstrated that providing psychiatric RNs an ECT educational module produced statistically significant improvements in their attitudes towards ECT and their likelihood of recommending it to patients. Further research should allow the participants to observe the administration of ECT to become more familiar with the process and patient response. This could help determine if exposure to the administration of ECT affects psychiatric RN's likelihood of recommending the procedure to their patients. Additionally, future research should identify the correlation, if any, between psychiatric RN ECT knowledge and attitudes and actual ECT treatment utilization rates. Future projects should include Advanced-Practice Registered Nurses to identify any change in post-intervention ECT referral frequencies.

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Dedication

I am dedicating this project to my wonderfully supportive and encouraging wife, Megan Payne. You were the rock I leaned on when school was overwhelming, project deadlines were rapidly approaching, and when I felt I could not continue any further through the program. You always believed in me and that is the only reason I succeeded in completing this project or earning my degree. Thank you so much Megan. I love you and I like you.

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Background and Significance

Problem Statement

Electroconvulsive Therapy (ECT) is the intentional induction of seizure activity using a brief electrical impulse sent through the frontal and temporal lobes of the brain (Kellner, 2022). ECT requires five basic elements to be safely administered including anesthesia, a paralytic agent, electrodes for current conduction, electroencephalogram (EEG) monitoring, and a bite block (Matthews et al., 2016). ECT is used to treat various psychiatric disorders such as depressive disorders (bipolar and unipolar), catatonia and malignant catatonia, mania, neuroleptic malignant syndrome, and post-partum depression (Kellner, 2022). Despite the positive evidence for the use of ECT, it remains underutilized. (Sackeim, 2017; Stacey et al., 2008). One reason ECT is underutilized as a treatment option is due to the negative attitudes held by healthcare staff towards the procedure. Psychiatric registered nurses (RNs) report the poorest attitudes towards ECT when compared to other medical professionals including psychiatrists, medical students, and perioperative RNs (Lutchman et al., 2001). Psychiatric RNs often do not receive adequate ECT education about its uses, efficacy, safety, and administration which leads to poor attitudes towards the procedure and decreased likelihood of recommending it to patients as a treatment option (Brender et al., 2018; Hayworth & Hyrkas, 2020).

Context, Scope, and Consequences of the Problem

Psychiatric RNs demonstrated the lowest level of knowledge and understanding of ECT when compared to physicians, medical students, and nursing students, indicating a need for increased education (Ezeobele et al., 2018). Among psychiatric RNs (n=52), nearly 80% believed that ECT should only be used as a last resort treatment and that nearly 50% would be more worried about receiving ECT than having surgery (Lutchman et al., 2001). Only 46% of surveyed psychiatric RNs thought ECT was at least as safe as comparable pharmacologic treatments (Oldewening et al. 2007). Finally, more than 50%

of psychiatric RNs (n=52) incorrectly believed ECT could be used to treat Anorexia Nervosa and only 27% of psychiatric RNs polled (n=52) knew that dementia and pregnancy are not contraindications for ECT (Lutchman et al., 2001).

Psychiatric RNs are less likely to view ECT as an effective, safe treatment option for their patients. This can result in poor patient education and reduced, or delayed, access to ECT treatment which leads to worse patient outcomes (Brender et al., 2018). The lack of ECT education for psychiatric RNs needs to be addressed to improve their knowledge and attitudes concerning the procedure. This will allow psychiatric RNs to provide patients with optimal support when choosing treatment options and lead to improved patient outcomes. Institution-wide negative attitudes associated with a given treatment option, diagnosis, or patient population often are the result of a knowledge gap (APA, 2020). These negative attitudes and knowledge gaps within healthcare settings can negatively impact patients and staff by causing moral distress, reduced access to treatment, and decreased hope (APA, 2020).

Institutional negativism towards ECT is well documented and poor understanding, or distrust, of the procedure is the most cited reason for these negatively held beliefs (Byrne et al., 2006; Sadeghian et al., 2019). Brender et al. (2018) identified that any difference of opinion regarding ECT amongst the psychiatric team can transfer doubt to the patient and impair their ability to decide on receiving the treatment which causes delay or refusal of care. Therefore, it is vital that all healthcare providers are well-educated on ECT to improve institutional attitudes and knowledge to create a unified treatment team. Unfortunately, most healthcare systems do not provide adequate ECT education to their nursing staff which leads to knowledge gaps and resulting negative attitudes towards the procedure (Hayworth and Hyrkas, 2020).

A systematic review conducted by the UK ECT Review Group (2003) found that ECT was significantly more effective than pharmacotherapy (18 trials, 1144 participants, SES -0.80, 95% CI -1.29

to -0.29) in treating patients with a spectrum of depressive disorders. ECT is the gold-standard treatment for catatonia, eliciting an 80-100% response rate in reducing symptom burden (Edinoff et al., 2021). The robust evidence that ECT can be a safer and more effective treatment option than pharmacotherapy for severe depressive disorders, mania, and catatonia indicates how important it is to improve psychiatric RN knowledge and attitudes towards the procedure.

Current Evidence-Based Interventions

To address psychiatric RNs attitudes and knowledge towards ECT, an evidence-based solution is an educational module about uses, efficacy, procedures, and safety of ECT (Hayworth & Hyrkas (2020); Oldewening et al., 2007). Based on current evidence, the educational module intervention should contain at least one of the following elements: a didactic PowerPoint presentation, video-based educational scenarios, case studies, or suggested online resources (Hayworth & Hyrkas, 2020; Nagarajan et al., 2021; Oldewening et al., 2007). Educating psychiatric RNs about ECT is the most effective way to improve attitudes and knowledge toward the procedure (Wood et al., 2007). One study found that after a one-hour educational course consisting of a PowerPoint presentation, case studies, and suggested online resources, RNs were more likely to support ECT as a treatment option for their patient (Hayworth & Hyrkas, 2020). They were also less likely to believe that ECT should only be used as a last resort (Hayworth & Hyrkas, 2020). Based on these literature findings, an anticipated response to an evidence-based education intervention is improved psychiatric RN knowledge and attitudes towards the procedure.

Purpose and Objectives

The purpose of this DNP project was to provide an educational intervention regarding ECT to psychiatric RNs caring for patients in a hospital or behavioral health unit setting. The specific aims were to 1.) evaluate changes in knowledge regarding ECT among psychiatric RNs, 2.) evaluate changes in

attitudes toward ECT among psychiatric RNs, and 3.) evaluate changes in psychiatric RNs' likelihood of recommending ECT to patients.

Review of Literature

The literature review for this DNP project utilized the PubMed and CINAHL databases to answer the following question: In psychiatric RNs, what is the effect of an educational module regarding electroconvulsive therapy on attitudes and knowledge? The key words and Boolean modifiers used to create the query were “ECT” OR “electroconvulsive therapy” AND “nursing” OR “RN” AND “stigma” OR “attitude.” The initial search returned 52 relevant articles. Articles were included if they were published within the past 20 years, peer-reviewed, and available in full text. Any articles that were personal reflections or non-peer-reviewed works were excluded from the literature search to ensure only evidence-based or critically reviewed articles were referenced. Two articles had to be specifically excluded because they contained the phrase ‘etc.’ and were included in the keyword search results. After applying the inclusion and exclusion criteria, the search returned 27 relevant articles. Additionally, citation searching was utilized while reviewing articles for the project to ensure the most recent and relevant articles were included. The articles identified using these strategies, plus a specific article containing the validated tool for the project (which fell outside the 20-year window) was added, brought the total to 38 articles.

Synthesis of Evidence

There are several studies that indicated providing healthcare workers (including psychiatric RNs) with ECT educational materials, classes, and presentations helped to improve their attitudes and knowledge surrounding the procedure (Arkan & Ustün, 2008; Brender, Dar, & Dannon, 2018; Byrne, Cassidy, & Higgins, 2006; Ezeobele et al., 2022; Hayworth & Hyrkas, 2020; Kitay et al., 2020; Kitay et al., 2022; Lonergan, Timmins, & Donohue, 2021: Lutchman et al., 2001; Nagarajan et al, 2021; Oldenwing et

al., 2007; Scholz-Hehn et al., 2019; Tsai et al., 2021; Wood, Chambers, & White, 2007). Various validated data collection instruments were utilized in these studies. The validated tools included the Questionnaire on Attitudes and Knowledge of ECT (QuAKE) (Appendix A) (Brender et al., 2018; Ezeobele et al., 2022; Lutchman et al., 2001; Wood et al., 2007), the ECT-Preparations and Knowledge Questionnaire (ECT-PK) (Tsai et al., 2021), the ECT Attitudes Questionnaire (EAQ) (Alexander et al., 2020), the Agarawal questionnaire (Brender et al., 2018), and the Janicack questionnaire (Brender et al., 2018). One study generated their own informal 7- item questionnaire measuring attitudes towards ECT amongst healthcare providers, but this tool is not validated (Scholz-Hehn et al., 2019). In every study, regardless of which assessment tool was used or how educational material was presented, knowledge and attitudes towards ECT showed improvement.

There is evidence to support that when healthcare systems and institutions did not provide their employees with adequate education concerning ECT, it led to poor knowledge and attitudes towards the procedure (Adams, 2015: Patry et al., 2013; Sharma, Ghia, & Grover, 2017; Zong et al., 2020). A lack of standardized, institutionally approved education within healthcare systems is the primary cause of the knowledge gaps and negative attitudes towards ECT seen in psychiatric RNs (Hayworth & Hyrkas, 2020). Studies indicated that educational interventions which included multi-media, didactic learning sessions, and clinical exposure to the procedure, were effective in closing that knowledge gap (Kitay et al., 2022; Nagarajan et al, 2021). Several studies indicated that providing psychiatric RNs with educational materials, classes, and presentations improved their attitudes and knowledge surrounding ECT (Hayworth & Hyrkas, 2020; Kitay et al., 2020; Kitay et al., 2022; Lutchman et al., 2001; Oldenwing et al., 2007). Each study found that when compared to not receiving ECT specific education, healthcare workers (physicians, psychiatric RNs, non-psychiatric RNs, and medical and nursing students) demonstrated higher levels of ECT knowledge and more positive attitudes towards the procedure

(Hayworth & Hyrkas, 2020; Kitay et al., 2020; Kitay et al., 2022; Lutchman et al., 2001; Oldenwing et al., 2007).

Four of the studies utilized the QuAKE questionnaire to assess knowledge and attitudes concerning ECT. It was the only validated instrument that was used in more than one study. The QuAKE questionnaire is a validated tool with robust data supporting its ability to assess ECT knowledge and attitudes (Lutchman et al., 2001). It consists of 2 sections: [1] 16 questions scored on a 1-5 Likert scale assessing attitudes towards ECT and [2] 16 questions scored on a true/false scale assessing ECT knowledge (Lutchman et al., 2001). The four studies that used the QuAKE questionnaire all found an increase in knowledge and attitudes towards ECT after an educational intervention (Brender et al., 2018; Ezeobele et al., 2022; Lutchman et al., 2001; Wood et al., 2007). Utilizing the QuAKE questionnaire provided accurate, reproducible data when assessing staff ECT knowledge and attitudes.

Theoretical Framework

The theoretical framework used to guide this project was Lewin's Model for Change. This model outlined how to systematically undertake changing a person's or organization's belief system from an old to a new way of thinking. Lewin (1947) theorized that these changes are accomplished in three distinct phases: [1] Unfreezing, in which an old belief is released through education and exposure to evidence, [2] Change, in which the desired new way of thinking is introduced and implemented, and [3] Refreezing, when the new way of thinking is adopted and accepted by the person or organization. This theory guided this project because the objective was changing the fundamental beliefs psychiatric RNs have about ECT. This was accomplished by identifying their currently held beliefs using a survey and subsequently unfreezing this mindset. The change was enacted in the form of education about the ECT procedure and efficacy. Finally, the project aimed to refreeze the newly learned, less-stigmatized views towards ECT to improve patient education and adherence concerning ECT.

Methods

Design

This DNP project used a quasi-experimental pretest-posttest design to assess changes in psychiatric RN knowledge regarding ECT, changes in their attitudes toward ECT and changes in the likelihood of psychiatric RNs recommending ECT to patients.

Setting

Agency Description

The DNP project took place at multiple sites within the UK HealthCare enterprise including the Good Samaritan Hospital Adult Behavioral Health Unit (GSH BHU), The Kentucky Children's Hospital Child and Adolescent Behavioral Health Unit (KCH BHU), and Eastern State Hospital (ESH). The GSH BHU is a 19-bed psychiatric unit that treats and provides behavioral services to adults with various diagnoses including but not limited to mood disorders, substance use disorders, personality disorders, and thought disorders (UK HealthCare, n.d.). The GSH BHU also offers unique services to patients including treatment of opiate addiction and pregnant women, and access to ECT (UK HealthCare, n.d.). The KCH BHU is a 17-bed inpatient psychiatry unit that specializes in treating mental health disorders with pharmacotherapy and behavioral treatment to patients under the age of 17 (UK HealthCare, n.d.). The GSH and KCH BHUs employed 26 full time psychiatric RNs, at the time of project, to provide nursing care for their respective patients. ESH is a UK HealthCare managed state psychiatric treatment facility with 189 patient beds providing services to 50 counties, including Fayette County (UK HealthCare, n.d.). ESH provides psychiatric evaluation and treatment to patients 18 years of age and older for severe and persistent mental illness (UK HealthCare n.d.).

Congruence of Project to Agency's Strategic Plan

UK Healthcare's plan through the year 2025 identified five key strategic objectives: [1] Building Our Culture, [2] Providing More Value, [3] Creating a Healthier Community, [4] Investing in Our People, and [5] Advancing Care Strategically (UK HealthCare, 2022). This DNP project provided each unit with three ECT educational sessions for psychiatric RNs which aligned with three of UK HealthCare's Strategic Objectives ([2], [4], and [5]). The DNP project created a more informed environment for the treatment of psychiatric illness through direct investment in psychiatric RNs which advanced patient-centered care.

Description of Stakeholders

There were several groups of stakeholders for this project. Managers and directors of the respective units within UK HealthCare were stakeholders because their staff benefited from improved ECT treatment knowledge and attitudes. Psychiatric RNs were project stakeholders because the ECT education was expected to increase their knowledge and attitudes towards the procedure and improve their likelihood of recommending ECT to their patients.

Site-Specific Facilitators and Barriers

DNP project facilitators included BHU managers and program directors who provided the support and resources needed to implement the project. Additionally, the UK HealthCare enterprise was a large facilitator of this project because of its commitment to continuing education for nursing staff to improve patient care. Time was a barrier to this DNP project because the educational module, pretest, and posttest had to be deliverable in 40 minutes or less to encourage RN participation during their workday or staff meetings. The largest barrier was the disparate work schedules held by the nursing staff that made it difficult to ensure every psychiatric RN received the ECT educational intervention.

Sample

The target population for this DNP project were psychiatric RNs who worked in one of the following areas or capacities for UK HealthCare when the project was implemented: GSH adult BHU, KCH BHU, ESH, or Behavioral Health Specialist (BHS). Inclusion criteria stipulated the RN worked full-time (defined as at least 32 hours worked per week) in one of the aforementioned areas in a direct patient care role. Exclusion criteria stipulated psychiatric RNs who worked on GSH BHU, KCH BHU, ESH, or as a BHS that were not full-time UK HealthCare employees could not participate.

Procedure

IRB Approval

This DNP project was approved by the University of Kentucky Medical Center Nursing Research Council on September 13, 2023, and the University of Kentucky Medical Center affiliated Institutional Review Board (IRB) on October 18, 2023, prior to implementation.

Description of Evidence-Based Intervention

After obtaining IRB approval, an email containing a pretest cover letter (Appendix B) with an embedded survey link was sent to all identified possible participants. Permission to access email addresses via unit listserv were obtained from unit management and program directors for UK HealthCare and ESH. A pretest which consisted of demographic questions, the QuAKE questionnaire, and likelihood domain question was administered to all participants, via an online REDCap survey. Written permission to use the QuAKE questionnaire was obtained from Dr. Martin Orrell prior to its inclusion in the project survey (Appendix C). Upon completion of the pretest survey, a brief 20-minute educational module covering the indications, efficacy, outcomes, and risks of ECT was presented by the PI. The educational module consisted of a PowerPoint presentation created by the PI using peer-

reviewed resources and articles which was reviewed by a physician who has expert knowledge in ECT. The participants were sent the posttest cover letter (Appendix D) upon completion of the educational module. Participants then completed the posttest survey consisting of the demographic questions, the QuAKE questionnaire, and the likelihood domain question embedded in the posttest cover letter. All portions of the project including the pretest survey, educational module presentation, and posttest survey were sequentially conducted in-person or via Zoom.

Measures and Instruments

A single assessment tool was utilized. The assessment tool prompted each participant to generate a unique 4-digit identification number to ensure their responses to the pretest and posttest could be correlated while remaining anonymous. Demographic data were collected including age, race, and educational level [associate degree in nursing (ADN), Bachelor of Science in nursing (BSN), or Master of Science in nursing or higher (APRN)].

The assessment tool included the QuAKE Questionnaire which is a two-part questionnaire that assesses attitudes and knowledge of ECT. The Attitude portion of the QuAKE questionnaire consisted of 16-questions scored on a Likert scale from 1-5 (1-Very Unlikely, 2- Unlikely, 3-Neutral, 4-Likely, 5- Very Likely). Attitude questions 1, 3, 5, 6, and 7 utilized an inverted Likert scale (1-Very Likely, 2- Likely, 3-Neutral, 4-Unlikely, 5- Very Unlikely) to help mitigate response bias and ensure increased participant engagement with the survey questions (Lutchman et al., 2001). The Knowledge portion of the survey consisted of 16-questions scored as True or False. These questions covered aspects of ECT knowledge including indications, adverse effects, and contraindications (Lutchman et al., 2001). In addition to the QuAKE questionnaire, a third domain was included consisting of one question to determine the likelihood of psychiatric RNs recommending ECT to their patients. This question was scored on a Likert scale from 1-5 (1-Very Unlikely, 2- Unlikely, 3-Neutral, 4-Likely, 5- Very Likely).

Data Collection and Analysis

All data from the pretest and posttest surveys were collected via electronic REDCap and securely transferred to IBM SPSS (version 29) software for statistical analysis. Demographic data of the participants were analyzed using descriptive statistics, including frequency distributions and percentages. A paired t-test was used to evaluate the difference between mean values of the attitudes, knowledge, and likelihood domains from pretest to posttest, with statistical significance considered a p-value less than 0.05.

Results

Thirteen of the contacted psychiatric RNs across UK HealthCare and ESH participated in the DNP project and attended at least one of the ECT educational modules. Of the 13 that attended the module, 12 participants completed the pretest, educational module, and posttest in correct, sequential order. One participant only completed the pretest and educational module and was excluded from the data analysis.

The ages for the 12 participants ranged from 29-55 years old, with a mean age of 41 (see Table 1.1). Of the 12 participants, 100% were white, not Hispanic or Latino (see Table 1.2). The educational level for the participants were as follows: 2 held an ADN (16.7%), 9 held a BSN (75%), and 1 held a Master of Science in nursing or higher (8.3%) (see Table 1.3).

There was an overall statistically significant ($p < 0.05$) increase in mean values of the attitude and likelihood domains of the survey, (see Table 2.1). The attitude domain identified a significant difference ($p < .001$) between the pretest ($M = 3.47$, $SD = 0.63$) and posttest ($M = 4.27$, $SD = 0.38$) values. Improvement in the attitude domain posttest mean values indicates that psychiatric RNs who attended the ECT educational module demonstrated improved attitudes towards the procedure. The likelihood domain demonstrated a significant difference ($p < .005$) between the pretest ($M = 3.42$, $SD = 0.90$) and

posttest (M = 4.33, SD = 0.49) values (see Table 2.2). The knowledge component of the survey demonstrated an overall increase in mean value between the pretest (M = 75.56, SD = 9.28) and posttest (M = 81.25, SD = 9.23), but the difference was not statistically significant (p = .169). Certain individual survey items within the knowledge domain demonstrated significant improvement while other survey items demonstrated a reduction in posttest mean values. However, this lack of significant difference between overall pretest and posttest mean values could indicate that psychiatric RN knowledge did not improve after attending the educational module.

The mean responses for all participants to each question in the attitude domain were calculated and analyzed for difference between the pretest and posttest (see Table 2.3) to identify which individual questions demonstrated the highest levels of improvement. Three questions in the attitude domain of the QuAKE questionnaire demonstrated the greatest improvement in posttest mean values. Question 1, which asked participants if they would consider ECT as a treatment option for a friend/relative, demonstrated a 38% increase (pretest M = 3, SD = 1.06; posttest M = 4.17, SD = 0.6). Question 3, which asked participants if ECT is more likely to be beneficial than harmful, demonstrated a 38% increase (pretest M = 3.42, SD = 0.96; posttest M = 4.67, SD = 0.49). Question 8, which asked participants if imagining themselves having ECT was more worrying than the thought of having surgery for appendicitis, demonstrated a 61% increase (pretest M = 2.23, SD = 1.42; posttest M = 3.58, SD = 0.99).

Data analysis from the knowledge domain of the QuAKE questionnaire revealed no statistically significant improvement (p = 0.168) in total mean value after the educational module. Examining the results for each question in the knowledge domain (see Table 2.4) demonstrated that while the increase across all questions was not significant, there were several areas in which the participants showed a marked increase in posttest mean values. Posttest mean values for question 14, which asked participants if ECT is contraindicated in patients with dementia, improved 50% after the educational module. Question 15, which asked participants if ECT is contraindicated in patients with a known

pregnancy, demonstrated a 100% improvement in posttest mean values. Correct responses to question 16, which asked participants if ECT is contraindicated in patients with brain tumors, improved 32% in the posttest.

Discussion

This DNP project was designed to evaluate how an educational module impacted psychiatric RN knowledge and attitudes towards ECT and their likelihood of recommending the procedure to a patient. The results of the DNP project demonstrated an increase in psychiatric RN knowledge and statistically significant increase in their attitudes concerning ECT and overall likelihood of recommending the treatment to their patients.

According to the literature there exists pervasive negative attitudes and knowledge gaps surrounding ECT among psychiatric RNs and other healthcare workers. (Adams, 2015; Brender, et al., 2018; Byrne, et al., 2006; Ezeobele et al., 2022; James et al., 2010; Patry et al., 2013, Scholz-Hehn et al., 2019; Sharma, et al., 2017; Wood, Chambers, & White, 2007; Zong et al., 2020). Several studies indicated that providing psychiatric RNs with educational materials, classes, and presentations improved their attitudes and knowledge surrounding ECT (Hayworth & Hyrkas, 2020; Oldenwing et al., 2007). In congruence with the literature, this DNP project provided psychiatric RN participants with a pretest and posttest survey consisting of the QuAKE questionnaire and additional likelihood domain question, to assess their change in knowledge and attitudes towards ECT after an educational intervention.

Psychiatric RN attitudes towards ECT demonstrated improvement in scores after the educational intervention ($p < .001$). The pretest QuAKE questionnaire identified specific areas of attitude deficits including their thoughts on the comparative dangers of ECT to surgery, psychiatrists not taking their views into consideration when deciding to use ECT, and negative views of the induced seizure. Posttest data indicates a 61% increase in psychiatric RN attitudes concerning the comparative dangers of

receiving ECT as opposed to surgery. Their improved attitude in this domain indicates that the educational module improved their understanding of ECT's risks and benefits. Posttest data revealed psychiatric RNs were 24% more likely to feel that psychiatrists considered their thoughts when deciding to use ECT treatment. This finding was important because it demonstrates that psychiatric RNs feel their input matters when considering ECT as a treatment option. Finally, posttest data indicated a 14% improvement in psychiatric RNs attitudes regarding the induced seizure aspect of ECT treatment. An improvement in attitude concerning the induced seizure may increase psychiatric RN's likelihood of recommending the procedure. These project findings are consistent with similar studies involving psychiatric RNs who received ECT education (Hayworth & Hyrkas, 2020; Oldenwing et al., 2007).

Psychiatric RN knowledge of ECT posttest data indicated overall improvement ($p = .168$). Initial evaluation of the knowledge domain revealed deficits concerning the ECT consent process, memory impairment associated with ECT, and contraindications for ECT. Posttest scores concerning the ECT consent process improved 13% indicating that psychiatric RNs are better able to understand who can consent for the procedure. This knowledge of the consent process helps psychiatric RNs advocate for the patient's right of healthcare self-determination. Psychiatric RN knowledge of memory impairment associated with ECT increased 12% after the intervention. Improved understanding of the potential side-effects of ECT helps psychiatric RNs provide more accurate patient education and expectations from treatment. Knowledge scores concerning the contraindications for ECT were evaluated for multiple conditions including dementia, pregnancy, and brain tumors. Posttest data revealed a 50% improvement concerning dementia, 100% concerning pregnancy, and 33% concerning brain tumors. The result is that psychiatric RNs can properly identify which conditions are important to consider before starting ECT treatment.

The DNP project found that providing psychiatric RNs with ECT education improved their likelihood of recommending the procedure to a patient, family member, or friend ($p < .005$). The data

indicated that improved psychiatric RN ECT knowledge and attitudes positively impacted their likelihood of recommending the procedure to a patient. Psychiatric RN attitudes towards ECT demonstrated a more significant overall improvement than their knowledge ($p < .001$ and $p = .168$, respectively). These results could indicate that psychiatric RN's attitudes towards ECT, rather than their knowledge of the procedure, had a greater impact on the likelihood of recommending the treatment to their patients.

Findings Related to Existing Literature

Recent studies demonstrate a need to provide healthcare workers with opportunities to attend educational sessions pertaining to ECT, including didactic PowerPoint presentation learning modules. Research indicates that these educational sessions have a positive impact on their knowledge and attitudes towards ECT (Oldewening et al., 2007). The literature recognizes that peri-anesthesia RN's knowledge and attitudes concerning ECT improved after an educational session consisting of a didactic PowerPoint presentation (Hayworth & Hyrkas, 2020). The literature also indicates that as RN knowledge and attitudes towards ECT improves, so does their likelihood of recommending the procedure to friends and family members (Lutchman et al., 2001). This DNP project addressed the ECT knowledge gap in psychiatric RNs by providing a PowerPoint presentation educational module that specifically addressed the history, uses, efficacy, and safety of ECT. The DNP project post-intervention data indicated that the educational module produced an overall improvement in the mean scores of psychiatric RN knowledge of ECT. The data also demonstrated an improvement in psychiatric RN attitudes towards ECT and their likelihood of recommending the procedure to their patients. Therefore, the results of this DNP project correspond closely to the literature that an ECT educational module can improve RN knowledge and attitudes towards ECT and their likelihood of recommending the treatment.

Project Impact and Sustainability Plans

This DNP project had a positive impact on the participant's knowledge and attitudes towards ECT and likelihood of recommending ECT to a patient. The improved knowledge, attitudes, and likelihood of recommending ECT as a treatment option by the UK HealthCare psychiatric RNs has the potential to increase patient education concerning the procedure and improve utilization of ECT and compliance with treatment recommendations. This is significant because improved psychiatric RN attitudes towards, and likelihood of recommending, ECT can improve patient outcomes.

Future sustainability plans for this project would be to incorporate the ECT educational module into the yearly educational Web-Based Training (WBT) curriculum for current psychiatric RNs and standardized orientation materials for all newly hired psychiatric RNs. The educational material could eventually be incorporated into the standardized UK HealthCare yearly educational WBT refresher courses for all UK HealthCare RNs.

Implications

The outcomes of this DNP project suggests that providing ECT educational modules can improve psychiatric RNs' attitudes towards ECT and likelihood of recommending the procedure to patients. Providing psychiatric RNs with education on all current, first-line treatment options for psychiatric diagnoses is paramount in providing patients with proper education and support while undergoing treatment. Presenting the ECT educational module in its current PowerPoint form as part of an in-person training session or WBT is a convenient, effective means of dissemination to various target audiences. UK HealthCare may consider incorporating this educational module in all orientation coursework and refresher WBTs for incoming and established psychiatric RNs. The implications of providing the ECT educational module as a WBT, instead of being provided by one RN, are that more RNs will receive the education across UK HealthCare. An asynchronous method of distribution via WBT

would allow for more comprehensive and uniform ECT knowledge among psychiatric RNs caring for patients receiving the treatment. Finally, given the propensity for patients with psychiatric diagnoses and needs to present outside of behavioral health units, a WBT would allow the educational material to be made available to all UK HealthCare RNs to ensure high-quality, consistent patient care.

The relationship between providing healthcare workers with ECT education and improved attitudes and knowledge towards the procedure is well-established and reinforced by this DNP project, specifically psychiatric RNs. Moving forward, research should focus on how improvement in staff knowledge and attitudes concerning ECT affects its utilization within the healthcare system. Future research should also focus on identifying a link between improved staff knowledge and attitudes towards ECT and patient compliance rates throughout the treatment process. Future projects should include Advanced-Practice Registered Nurses to identify any change in post-intervention ECT referral frequencies.

Limitations

The limitations of this DNP project included design, sample size, time, and setting. The non-randomized, quasi-experimental design of this DNP project limited the impact because there existed no control group for comparison and every psychiatric RN had the opportunity to participate in the project. The setting of the project presented a limitation because the target sample population was located across multiple units and campuses, which made it difficult to deliver project information and interventions in a cohesive manner to maximize participation. Time presented multiple limitations for this DNP project. The time chosen for the presentation of the educational module was limited due to the disparate daytime 7 a.m. to 7 p.m. shift and nighttime 7 p.m. to 7 a.m. shifts worked by the target population. This shift time disparity made it difficult to reach all the psychiatric RNs at a time most

convenient to both groups which reduced overall sample size. The small sample size limits the project's generalizability to psychiatric RNs working in other healthcare facilities.

Conclusion

The DNP project educational module addresses the psychiatric ECT knowledge gap and negative attitudes towards the procedure identified in the literature. The findings of this DNP project suggest that psychiatric RNs who attend an ECT educational module improved their attitudes and knowledge towards ECT and increased their likelihood of recommending the procedure for patients under their care. Future projects may include an opportunity for the participants to watch the administration of ECT to become more familiar with the procedure. This could help determine if exposure to the administration of ECT affects psychiatric RN's likelihood of recommending the procedure to their patients. Additional research is needed to identify any correlations between psychiatric RN attitudes and knowledge towards ECT and its utilization within the healthcare system. Future projects should include Advanced-Practice Registered Nurses to identify any change in post-intervention ECT referral frequencies.

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List of Tables

Table 1.1: *Demographic Data: Age (n = 12)*

	Minimum	Maximum	Mean (SD)
Age	29	55	41 (8)

Table 1.2: *Demographic Data: Race/Ethnicity (n = 12)*

	Frequency	Percent
White	12	100
Not Hispanic or Latino	12	100

Table 1.3: *Demographic Data: Educational Level (n = 12)*

	Frequency	Percent	Valid Percent	Cumulative Percent
Associate Degree in Nursing (ADN)	2	16.7	16.7	16.7
Bachelor of Science in Nursing (BSN)	9	75.0	75.0	91.7
Master of Science in Nursing or higher (APRN)	1	8.3	8.3	100.0
Total	12	100.0	100.0	100.0

Table 2.1: *Evaluating Significance: Attitudes, Knowledge, and Likelihood (n = 12):*

	Potential range	Pre-education *mean* (SD)	Post-education *mean* (SD)	*p-value*
Attitudes	1-5	3.47 (0.63)	4.27 (0.38)	<.001
Knowledge (percent correct)	0-100	76.56 (9.28)	81.25 (9.23)	0.169
Likelihood to recommend ECT	1-5	3.42 (0.9)	4.33 (0.49)	<.005

Table 2.2: *Likelihood Domain: Response Analysis (n = 12)*

	Potential range	Pre-education *mean* (SD)	Post-education *mean* (SD)	*p-value*
Likelihood to recommend ECT	1-5	3.42 (0.9)	4.33 (0.49)	<.005

Table 2.3: *Attitude Domain: Response Analysis (n = 12)*

	Pretest (n=12)	Posttest (n=12)	Difference (n=12)
Question	Mean (SD)	Mean (SD)	
Attitude 1	3 (1.04)	4.17 (0.6)	38%
Attitude 2	2.58 (1.51)	3.42 (1.51)	32%
Attitude 3	3.42 (0.86)	4.67 (0.49)	38%
Attitude 4	4 (0.71)	4.67 (0.49)	17%
Attitude 5	3.69 (0.63)	4.67 (0.49)	26%
Attitude 6	2.83 (1.03)	3.5 (0.9)	24%
Attitude 7	3.75 (1.05)	4.58 (0.51)	22%
Attitude 8	2.23 (1.42)	3.58 (0.99)	61%
Attitude 9	3.08 (1.0)	4.17 (1.34)	35%
Attitude 10	2.92 (1.16)	3.33 (1.5)	14%
Attitude 11	4 (1.13)	4.42 (.16)	10%
Attitude 12	3.08 (1.44)	3.75 (1.3)	22%
Attitude 13	4.08 (1.08)	4.92 (0.29)	20%
Attitude 14	4.33 (0.65)	4.67 (1.15)	8%
Attitude 15	4.08 (0.79)	4.75 (0.45)	16%
Attitude 16	4.42 (0.8)	5 (0)	13%

Table 2.4: *Knowledge Domain: Response Analysis (n = 12)*

	Pretest (n=12)	Posttest (n=12)	Difference (n=12)
Question	% Correct	% Correct	
Knowledge 1	75	83.3	11%
Knowledge 2	100	100	0%
Knowledge 3	83.3	75	-10%
Knowledge 4	91.7	100	8%
Knowledge 5	58.3	66.7	13%
Knowledge 6	91.7	83.3	-9%
Knowledge 7	83.3	91.7	-10%
Knowledge 8	100	100	0%
Knowledge 9	91.7	91.7	0%
Knowledge 10	66.7	75	12%
Knowledge 11	100	100	0%
Knowledge 12	100	100	0%
Knowledge 13	91.7	100	10%
Knowledge 14	33.3	50	50%
Knowledge 15	33.3	66.7	100%
Knowledge 16	25	33	32%

List of Appendices

Appendix A: *QuAKE Questionnaire*

	Likert Rating Scale (1-5)				
Survey Item	[1]	[2]	[3]	[4]	[5]
Attitude 1: Would you consider ECT as a treatment option for a friend/relative?	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Attitude 2: Major surgery is more dangerous than ECT?	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 3: ECT is more likely to be beneficial than harmful?	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Attitude 4: ECT is likely to cause brain damage	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 5: ECT is usually used appropriately	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Attitude 6: Psychiatrists take other members of staff's views into account when deciding on ECT	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Attitude 7: Patients are sufficiently informed about likely effects and side-effects	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Attitude 8: Imagining myself having ECT is more worrying than the thought of having surgery for appendicitis	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 9: ECT should only be used as a last resort	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 10: It is the induced seizure that I find most worrying about ECT	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 11: Psychiatrists use ECT because they do not know how else to treat the patient	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 12: I find the most disturbing aspect of ECT to be the use of electricity	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 13: ECT is a cruel treatment	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 14: There is no real proof that ECT works	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 15: Although the patient may recover from ECT, he/she/they will never be the same for having it	Very Likely	Likely	Neutral	Unlikely	Very Unlikely
Attitude 16: In this day of modern medicine ECT should be banned	Very Likely	Likely	Neutral	Unlikely	Very Unlikely

Knowledge 1: ECT should only be given to a patient who can eat and drink adequately	T	F
Knowledge 2: Patients must stop all medications before they can be given ECT	T	F
Knowledge 3: Relatives need to give consent before ECT can be given	T	F
Knowledge 4: Conclusive evidence exists for the efficacy of ECT in the treatment of depression	T	F
Knowledge 5: Patients cannot be given ECT against their will	T	F
Knowledge 6: Patients need to have nil by mouth from the night before ECT	T	F
Knowledge 7: Voltage used in in the order of 500 volts	T	F
Knowledge 8: ECT is indicated in the treatment of Depression	T	F
Knowledge 9: ECT is indicated in the treatment of Anorexia Nervosa	T	F
Knowledge 10: Permanent memory impairment is a common side effect of ECT	T	F
Knowledge 11: Headache is a common side effect of ECT	T	F
Knowledge 12: Broken bones are a common side effect of ECT	T	F
Knowledge 13: Brain damage is a common side effect of ECT	T	F
Knowledge 14: ECT is contraindicated in patients with Dementia	T	F
Knowledge 15: ECT is contraindicated in patients with a known pregnancy	T	F
Knowledge 16: ECT is contraindicated in patients with brain tumors	T	F

Appendix B: *Pretest Cover Letter*

To XXXXX:

Researchers at the University of Kentucky are inviting you to take part in an educational session and survey about how psychiatric RNs knowledge and attitudes concerning Electroconvulsive Therapy (ECT) is affected by participating in an educational module about the indications for ECT and its outcomes, safety, and efficacy. The study title is "Electroconvulsive Therapy: Assessing Change in Psychiatric RN Knowledge and Attitudes Using an Educational Module" and is being conducted by Garrett Payne RN, BSN, PMH-BC as a DNP project for the University of Kentucky's College of Nursing. You are being contacted because a review of staffing records indicates that you are a full-time psychiatric RN working for UK HealthCare on the either the adult unit at Good Samaritan Hospital or the child and adolescent unit at UK's Kentucky Children's Hospital or a Behavioral Health Specialist.

The project consists of a pretest and posttest survey and an educational module consisting of a PowerPoint presentation that will be delivered in person by the project PI. The pretest and posttest will take approximately 10 minutes each to complete, and the educational module session will last approximately 20 minutes. The timeframe for your involvement in the project if you choose to complete all surveys and the educational module, will be approximately one month from the receipt of this email. The total estimated time to complete all aspects of this project is estimated to be around 40 minutes (one hour).

The pretest is comprised of the following components: [1] basic demographic questions, [2] the creation of a unique identifier (mother's birthday [day and month only]) to track difference in questionnaire responses from pretest to posttest for data analysis, and [3] the QuAKE questionnaire (a tool used to measure psychiatric RN knowledge and attitudes of ECT.

A link to the pretest survey will be attached to the email containing this cover letter. You will receive an additional email outlining the dates and times of the educational module sessions you can choose to attend if you continue to participate in the study beyond the pretest.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about psychiatric RN knowledge and attitudes concerning ECT. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future.

If you do not want to be in the study, there are no other choices except not to take part in the study. There are no known risks to participating in this study.

The survey/questionnaire will take about 15 minutes to complete. Your response to the survey is anonymous which means no names, IP addresses, email addresses, or any other identifiable information will be collected with the survey responses. We will not know which responses are yours if you choose to participate.

We hope to receive completed questionnaires from about 25 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the survey/questionnaire, but if you do participate, you are free to skip any questions or discontinue at any time. You will not be penalized in any way for skipping or discontinuing the survey.

Please be aware, while we make every effort to safeguard your data once received on our servers via REDCap, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still en route to us.

If you have questions about the study, please feel free to ask; my contact information is given below. Thank you in advance for your assistance with this important project.

To ensure your responses/opinions will be included, please complete, and submit the online REDCap survey within 2- weeks of receiving this email.

Sincerely,

Principal Investigator:
Garrett Payne RN, BSN, PMH-BC
University of Kentucky
College of Nursing
751 Rose St
Lexington, KY 40536
PHONE: 859-699-0278
E-MAIL: gwpayn2@uky.edu

DNP Project Faculty Advisor:
Andrew Makowski, DNP, APRN, PMHNP-BC
Psychiatric Mental Health Nurse Practitioner Track Coordinator
University of Kentucky
College of Nursing 417
751 Rose St
Lexington, KY 40536
859-323-5030 (O)
ama235@uky.edu

If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428

Appendix C: *Permission to Use QuAKE Questionnaire*

From: Payne, Garrett W. <gwpayn2@uky.edu>
Sent: 25 April 2023 14:05
To: Martin Orrell (staff) <mszmwo@exmail.nottingham.ac.uk>
Subject: Permission to use QuAKE questionnaire

Dr. Orrell,

Good morning, my name is Garrett Payne, and I am a Psychiatric Doctor of Nursing Practice student at the University of Kentucky in Lexington, KY. I am currently developing my doctoral project. My project consists of creating an ECT educational module for dissemination among the hospital's Psychiatric RNs. The aim of the project is to increase psychiatric RN knowledge of ECT's uses, efficacy, and safety as a treatment for psychiatric conditions. The hospital system that I work for has started treating patients using ECT more often and I was able to identify that the psychiatric RN staff have little knowledge of the procedure and hold various stigma and biases against it. I conducted a literature review to identify any evidence-based interventions previously used to improve healthcare workers' knowledge of ECT and its corresponding effect on ECT bias and stigma. During the literature review, I found the QuAKE questionnaire which has been used to assess attitudes toward and knowledge of ECT in several studies that share an aim with my project. I searched for the QuAKE questionnaire online to request permission to use it but was unable to find anything or anyone to contact. During my literature review, I found a paper that mentioned corresponding with you directly to ask for permission to use the QuAKE questionnaire in their study. The QuAKE questionnaire is exactly the validated tool my project needs to assess the efficacy of my ECT educational module.

Can I have your permission to use the QuAKE questionnaire? Or is there another channel that I need to use to obtain permission? I apologize for reaching out to you directly if this is not the correct etiquette. The QuAKE questionnaire is perfect for this study. I believe that the educational module born out of this project will help the medical staff and patients within my hospital system to better understand ECT and ultimately lead to improved patient education and compliance with the treatment.

Please let me know via email about your decision or if there is someone else that I need to reach out to for permission. The paper that I am referencing with you as an author is the following:

Lutchman, R.D., Steven, T., Bashir, A., Orrell, M. (2001). Mental health professionals' attitudes towards and knowledge of electroconvulsive therapy. 10(2), 141-150. https://doi.org/10.1080/09638230124779

Respectfully,

Garrett W. Payne, BSN, RN, PMH-BC
Chandler Hospital Behavioral Health Specialist
University of Kentucky Chandler Hospital
gwpayn2@uky.edu

Re: Permission to use QuAKE questionnaire

Martin Orrell <M.Orrell@nottingham.ac.uk>

Wed 4/26/2023 9:38 AM

To:Payne, Garrett W. <gwpayn2@uky.edu>

Dear Garrett,

It is fine to use the Quake thanks

I don't think I have Word copy of questionnaire but as I recall it can be reconstructed from the paper as all the questions and scoring system is in it

all good wishes

Prof Martin Orrell

Appendix D: *Posttest Cover Letter*

To XXXXX:

Researchers at the University of Kentucky are inviting you to continue your participation in the study titled, "Electroconvulsive Therapy: Assessing Change in Psychiatric RN Knowledge and Attitudes Using an Educational Module" conducted by Garrett Payne RN, BSN, PMH-BC as a DNP project for the University of Kentucky's College of Nursing. The project is concerned with how psychiatric RNs knowledge and attitudes concerning Electroconvulsive Therapy (ECT) is affected by participating in an educational module about the indications for ECT and its outcomes, safety, and efficacy. You were initially contacted because a review of staffing records indicates that you are a full-time psychiatric RN working for UK HealthCare on the either the adult unit at Good Samaritan Hospital or the child and adolescent unit at UK's Kentucky Children's Hospital or a Behavioral Health Specialist.

The project consists of a pretest and posttest survey and an educational module consisting of a PowerPoint presentation that will be delivered in person by the project PI. The pretest and posttest will take approximately 10 minutes each to complete, and the educational module session will last approximately 20 minutes. The timeframe for your involvement in the project if you choose to complete all surveys and the educational module, will be approximately one month from the receipt of this email. The total estimated time to complete all aspects of this project is estimated to be around 40 minutes (one hour).

The posttest is comprised of the following components: [1] basic demographic questions, [2] entering your previously provided unique identifier (mother's birthday [day and month only]) to track difference in questionnaire responses from pretest to posttest for data analysis, and [3] the QuAKE questionnaire (a tool used to measure psychiatric RN knowledge and attitudes of ECT.

A link to the posttest survey will be attached to the email containing this cover letter. Please complete the survey only if you participated in one of the educational module sessions provided by the PI. Upon completion of the posttest survey your participation in this project will be concluded.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about psychiatric RN knowledge and attitudes concerning ECT. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future.

If you do not want to be in the study, there are no other choices except not to take part in the study. There are no known risks to participating in this study.

The survey/questionnaire will take about 15 minutes to complete. Your response to the survey is anonymous which means no names, IP addresses, email addresses, or any other identifiable information will be collected with the survey responses. We will not know which responses are yours if you choose to participate.

We hope to receive completed questionnaires from about 25 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the survey/questionnaire, but if you do participate, you are free to skip any questions or discontinue at any time. You will not be penalized in any way for skipping or discontinuing the survey.

Please be aware, while we make every effort to safeguard your data once received on our servers via REDCap, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still en route to us.

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Sincerely,
Principal Investigator:
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