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Monitoring Psychiatric Patients' Preparedness for Hospital Discharge

Carrie Olsen Hennessy
Antioch University, New England

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by

Carrie Olsen Hennessy

A.B., Smith College
M.S., Antioch University New England

DISSERTATION

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by

Carrie Olsen Hennessy

Candidate for the degree of Doctor of Psychology
and hereby certify that it is accepted*.

Dissertation Committee Chairperson:
James Fauth, PhD

Dissertation Committee members:
Vincent Pignatiello, PsyD
Michelle Mattison, PsyD

Accepted by the
Department of Clinical Psychology Chairperson

George Tremblay, PhD
on **2/15/18**

* Signatures are on file with the Registrar's Office at Antioch University New England.

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Abstract

This mixed method study piloted a newly developed tool for monitoring preparedness among youth discharged from New Hampshire Hospital (NHH) and explored its influence on hospital discharge planning and follow-up care. This study spotlighted psychosocial variables in readmission risk for a psychiatric population and introduced a conceptualization of preparedness that included patient understanding of their discharge plan, as well as hope for change and supportive relationships. Quantitative methods were used to examine the relationship between aftercare and hospital readmission and further to explore the relationship between patient preparedness and readmission, as well as adverse events experienced post-discharge. Qualitative methods were used to explore the feasibility and utility of the preparedness tool. Chi-square results indicated that aftercare was associated with reduced readmission risk at 90-days. Regression analyses indicated preparedness scores did not contribute to the prediction of adverse events and hospital readmission. The Preparedness Assessment Tool's (PAT) three-point rating scale made it difficult to detect a statistically meaningful relationship between preparedness and these outcomes and to effectively track changes in preparedness over time. Overall, the Aftercare Coordinator (AC) considered the PAT to be an invaluable asset to her work with patients. The PAT was found to be user-friendly, modifiable, effective, and efficient. Further, it helped personalize care, guide interventions, increase patient and family collaboration and understanding, and help monitor progress and patient need.

Keywords: patient preparedness; preparedness tool; hospital discharge; post-discharge care; post-discharge follow-up; hospital readmission; readmission risk; psychiatric hospitalization

Monitoring Psychiatric Patients' Preparedness for Hospital Discharge

Psychiatric hospital readmission is a serious and growing public health concern. As much as 40–80% of patients are readmitted within two years of hospital discharge, with readmission risk being the highest in the first 30 days following discharge (Bowersox, Saunders, & Berger, 2012; Durbin, Lin, Layne, & Teed, 2007; James et al., 2010), particularly for those with previous admissions (Lorine et al., 2015). Psychiatric hospital readmission is not only disruptive and costly but signals a failure in patient care (Ascher-Svanum et al., 2010; Mark et al., 2013). While it remains unclear how and to what extent index hospitalization may contribute to readmission, researchers agree that variables such as lack of patient readiness for discharge and care management are specific areas in need of improvement (Durbin et al., 2007; Hamilton et al., 2015). Consequently, under the Affordable Care Act, hospitals are now being penalized and health care staff held accountable for excessive readmissions (Centers for Medicare and Medicaid Services, 2012). While hospital factors remain essential in understanding psychiatric readmission risk, a more comprehensive conceptualization that also includes an understanding of broader social and family contexts is needed at this time (Machado, Leonidas, Santos, & Souza, 2012; Mgutshini, 2010; Mojtabai et al., 2009).

Post-Discharge Period is Important in Understanding Readmission Risk

The extant literature suggests that the period immediately following hospital discharge is a highly vulnerable time for patients, when factors such as illness related symptoms (Gerson & Rose, 2012), unsupportive family relationships (Shean, 2009), and employment or housing problems (Schmutte, Dunn, & Sledge, 2010) can make it difficult for patients to manage their illness at home. For instance, it is not uncommon for patients to fail to pick up their prescriptions (Kripalani, Price, Vigil, & Epstein, 2008) and attend their first follow-up appointment following

hospital discharge (Bridge & Barbe, 2004; Nelson, Maruish, & Axler, 2000). Moreover, it is during this time that patients are at increased risk of substance use (Raven et al., 2010), illegal activity (Ackerson & Korr, 2006), and self-harm and attempted suicide (Links et al., 2012). Consequently, those hoping to improve patient and hospital outcomes have turned to hospital discharge as a lever for change, with discharge interventions that bridge inpatient and outpatient care the centerpiece of increasing patients' adherence to their discharge plan (Csernansky & Schuchart, 2002; Steffen, Kosters, Becker, & Puschner, 2009).

Interventions that Target Patient Preparedness Reduce General Hospital Readmissions

Re-engineered Discharge (RED) is an approach to hospital discharge that emphasizes care coordination, patient preparedness, and outreach. RED has been the most rigorously researched hospital discharge protocol; it has been linked to reduced readmission rates and healthcare costs in a general medical population (Jack et al, 2009). In a randomized clinical trial conducted at Boston Medical Center, RED reduced readmission to a general hospital by one-third, compared to care as usual (CAU), resulting in savings of $412 per patient on emergency department and readmission costs. Additionally, RED enhanced patients' self-perceived preparation for discharge and increased the frequency of follow-up primary care visits within 30 days of discharge (Jack et al., 2009).

Enhancing preparedness for discharge is a critical component of RED. RED achieves this through improving patient education and understanding of their discharge plan, thereby increasing self-management. At discharge, a detailed after-care plan is provided to patients, which includes important information regarding both their hospital stay and post-discharge care, in a format that is accessible even to patients with low health literacy. At that time, patient understanding is assessed by asking patients to state their diagnosis, medications, and other

elements of their discharge plan. Additionally, the discharge nurse confirms that patients know the location of their appointments and their transportation plan. Patient understanding is further assessed and promoted when the clinical pharmacist contacts patients several days after discharge and after 30 days, at which point patients are asked to identify their discharge diagnosis and the name of their PCP (Jack et al., 2009).

Targeting Preparedness May Also Reduce Hospital Readmissions in a Psychiatric Context

Psychiatric readmission risk research, like research on RED, highlights the importance of improved discharge planning and care coordination (Boudreaux et al., 2011; Steffen et al., 2009; Yampolskaya, Mowery, & Dollard, 2013), enhanced communication between providers (Adams & Nielson, 2012), increased patient preparation (Durbin et al., 2007; Taylor et al., 2016), and post-discharge follow-up (Price 2007; Tomita & Herman, 2012). Though few studies have examined patient preparedness in a psychiatric context in depth, research on RED gives promise that assessing and enhancing preparedness may increase adherence to post-discharge care and help mitigate readmission risk. Toward these aims, a solid first step in better understanding the impact of psychiatric patient preparedness on both patient and hospital outcomes is to examine what constitutes preparedness for this population of patients specifically.

An Expanded Notion of Patient Preparedness is Needed for a Psychiatric Population

Psychiatric research emphasizes the importance of psychoeducation and promoting self-management in preventing relapse and hospital readmission for those diagnosed with depression and schizophrenia (Bridge & Barbe, 2004). Only one study, with a notably small sample size, examined patient education and understanding of their discharge plan, specifically, in reducing psychiatric readmission. Price (2007) conducted a pilot randomized control study to investigate the feasibility of a program to help individuals with schizophrenia better transition

from the hospital to the community. In the Price (2007) study, a discharge nurse conducted a structured interview within two to three days prior to discharge to assess patients' knowledge about the outpatient site at which their follow-up appointment was scheduled and to review medication therapies. Patients' plans for housing, employment, and education were clarified, and their concerns regarding discharge were also addressed. Follow-up contact was made on several occasions throughout a three-month period via a prepaid cellular phone that was given to patients at discharge. Patients in the experimental group were more likely to keep appointments and adhere to medication therapies and less likely to be readmitted to the hospital than the comparison group. The foregoing evidence, in addition to strong evidence that RED reduces readmission in a general hospital setting, suggests further examination of patient education and self-management as important aspects of preparedness is warranted in a psychiatric context.

In addition to patient understanding and self-management, researchers may also benefit from adopting a notion of preparedness that accounts for the unique vulnerabilities of, and challenges faced by this specific patient population in the days, weeks, and months following hospital discharge. Research indicates that recently discharged psychiatric patients struggle most with challenges of everyday living and stressors related to reentry into the community, such as adjustment to residential living and interpersonal stress or concerns related to social activities (Kimhy, Harkavy-Freidman, & Nelson, 2004). Moreover, it is not uncommon for patients to be discharged into discriminatory social contexts resulting in limited access to care as well as difficulties with employment, housing, and education opportunities. Martinez, Piff, Mendoza-Denton, and Hinshaw (2011) contend that stigma for those with chronic mental illness is associated with perceptions of dangerousness, which triggers dehumanizing responses in others, often resulting in negative social responses not always associated with chronic physical

illness.

Recently discharged psychiatric patients are highly susceptible to unsupportive family and social environments (Shean, 2009). Moreover, these unsupportive environments and associated stigma can lead to additional problems such as decreased social adaptation (Perlick et al., 2001) and self-esteem (Link, Struening, Neese-Todd, Asmussen & Phelan, 2001), thereby influencing the course of illness, treatment engagement, and hospital utilization (Livingston & Boyd, 2010; Shean, 2009; Sirey et al., 2001). In light of these scholarly findings, it may prove useful and perhaps necessary to expand the current conceptualization of preparedness for psychiatric patients to include aspects of their social contexts.

Hope and Supportive Relationships May Improve Patient Preparedness

Renewed hope and positive connections with family, friends, and the community are considered key components of treatment and recovery for those with severe and persistent mental illness (Corrigan & Ralph, 2005). Hope—feeling that change is possible, the future is worth living, and events will turn out for the best—keeps patients engaged in their care and committed to change during lifelong management of mental illness and subjugation to difficult family and social contexts (Jacobsen & Greenley, 2001; Noordsy et al., 2002). Because of its importance to recovery, effectively measuring hope is considered essential in psychiatric settings (Choe, 2014). Further, building and maintaining hope is a critical goal for those supporting individuals with serious mental illness (Mancini, Linhorst, Menditto & Coleman, 2013; Waynor, Gao, Dolce, Haytas, & Reilly, 2012; Wyder & Bland, 2014).

A supportive and positive home environment with family members who are engaged in the patient's care can also enhance adherence to post-discharge services and reduce readmission risk (Mgutshini, 2010; Shean, 2009; Tomita, Lukens, & Herman, 2014). Individuals challenged

by serious mental illness who report supportive relationships with friends, family, and healthcare providers tend to be more future-oriented and motivated to recover (Corrigan & Ralph, 2005). Moreover, supportive relationships mitigate the effects of stigma, reduce conflict, enhance coping and skill building, promote opportunity and growth, improve social functioning, and build positive self-esteem (Chronister, Chou & Liao, 2013).

Given the evidence, psychiatric patient preparedness should undoubtedly be expanded to include hope and supportive relationships, in addition to patient understanding of their diagnoses, medications, and post-discharge plan. Together, these factors may protect against adverse events, including problems with medication, self-harm or other risky and impulsive behaviors, and encounters with law enforcement that, in turn, lead to poor outcomes and a likely return to the hospital.

Monitoring Preparedness May Help Guide Discharge Interventions

At the patient level, a preparedness assessment tool that encompasses patient understanding of their discharge plan, as well as hope and supportive relationships, may serve to better identify those most at risk of readmission and more effectively inform post-discharge care coordination and follow-up. A preparedness assessment tool could highlight specific areas of risk as well as protective factors for patients, families, and staff, alike. That information, in turn, may inform individualized discharge planning, follow-up, and supports. Ongoing use of such a tool could also provide critical feedback on progress—or set backs—in preparedness over time. At a program or population level, a preparedness rating tool could also monitor the proximal effectiveness of discharge interventions, thereby informing practice-based learning and quality improvement.

We Know Little About How to Monitor Patient Preparedness in a Psychiatric Setting

Despite the potential benefit of monitoring patient preparedness for discharge, no tool for assessing patient preparedness in a psychiatric context exists. Further, preparedness assessment tools, like RED, that exist in a general hospital setting, are not appropriate for psychiatric settings because they are not designed to capture psychiatric patients' unique social and contextual needs (Graumlich, Novotny, & Aldag, 2008; Jack et al., 2009; Weiss & Piacentine, 2006; Weiss, Costa, Yakusheva, & Bobay, 2014).

In a recently published study, Taylor et al., (2016) implemented a one-time recovery-focused interview prior to hospital discharge to patients identified as high risk for readmission to better prepare them for discharge and increase engagement in aftercare. The interview aimed to: (a) increase self-management through exploring barriers to increasing community tenure, (b) identify how these barriers may be overcome, (c) formulate a crisis plan, and (d) identify individual needs and goals. Additionally, the interview aimed to build rapport and increase hope, willingness, and responsible action. Following the interview, the care manager made some care coordination efforts. The approach taken by Taylor et al. supports the need for clinical assessment of preparedness for discharge and subsequent efforts to increase self-management and attend to the psychosocial aspects of recovery. The ways in which a preparedness tool can potentially guide discharge planning and follow-up care, however, remains unclear. The current pilot study addressed these evaluation and research gaps in an effort to expand the current understanding of transitional care for a psychiatric population and clinical practice moving forward.

The Current Study Piloted a Tool for Monitoring and Enhancing Preparedness

This study expands upon previous research by spotlighting psychosocial variables in psychiatric readmission risk and, consequently, the need to include hope for change and supportive relationships in a conceptualization of patient preparedness for hospital discharge. This study explored the utility of a preparedness assessment tool created to measure and monitor preparedness and inform post-discharge care coordination for a psychiatric population at New Hampshire Hospital (NHH). More broadly, this study examined how the new preparedness tool predicted adverse events and hospital readmission.

Five research questions guided this study:

1. Does aftercare relate to readmission for a psychiatric population?

2. Does patient preparedness relate to adverse events experienced by a psychiatric population post discharge?

3. Does patient preparedness relate to readmission for a psychiatric population?

4. Is monitoring the expanded notion of preparedness feasible in a naturalistic psychiatric discharge setting?

5. How does monitoring preparedness inform post-discharge care coordination?

Method

Research Design

This pilot study utilized a mixed method design, in which the qualitative data helped contextualize, ground, and give meaning to the quantitative data, thereby enhancing the overall understanding of research findings. The quantitative design was correlational; the independent variables were aftercare and patient preparedness; the dependent variables were adverse events and hospital readmission. The qualitative method was a case study, to address feasibility and

utility of monitoring patient preparedness in a naturalistic setting.

Research Setting

This study was part of a project funded by the Substance Abuse and Mental Health Services Administration to reduce youth suicide in New Hampshire. One part of that project focused on reducing suicide risk, other adverse events, and hospital readmissions at New Hampshire Hospital (NHH; NH's primary inpatient psychiatric facility) through enhanced discharge planning and post-discharge support and continuity of care. New Hampshire Hospital is located in Concord, New Hampshire. The hospital is a state operated, publicly funded hospital providing a range of specialized psychiatric services. Most patients are admitted to the hospital on an involuntary basis because they have been found to be dangerous to themselves or to others. Because NHH's 30- and 180-day readmission rates remain above the national average, NHH stakeholders are highly invested in efforts aimed at reducing readmissions (Substance Abuse and Mental Health Services Administration, 2015).

Discharge Intervention

The NHH portion of the project included implementing a new discharge coordination intervention. Central to this intervention was a newly hired Aftercare Coordinator (AC) whose primary tasks were to (a) educate all patients and their families about mental illness and resources available to them through NAMI-NHH, including support groups and classes; (b) reinforce the work of the NHH treatment team by educating patients and families about symptoms and treatment, including medication benefit and usage; (c) coordinate care with other providers; (d) meet with the treatment team to regularly identify high-risk patients and to offer these patients and their support system the option of additional information and follow up contact for up to one year post discharge; and (e) collect, enter, and utilize patient data for assessment

and evaluation purposes in to obtain patient consent to use their information for research.

The current study explored the AC's contact with high-risk patients and her use of the newly developed Preparedness Assessment Tool (PAT) to monitor progress, identify barriers to discharge planning and access to treatment, and inform patient-specific interventions and follow-up. Study participants were referred to the AC based on their level of need/readiness for enhanced discharge support, as determined by NHH clinical staff. The AC then assessed the patient's baseline preparedness for discharge. Additionally, the AC developed a safety plan with patients and their support system. This included (a) reviewing warning signs, (b) identifying triggers and contingency plans, (c) defining coping skills, (d) conducting an environmental safety check of their home and surroundings, (e) delineating how to avoid risky settings, (f) specifying who the patient can call upon for help when needed, (g) exploring wellness options (i.e., groups, classes), and (h) obtaining releases of information.

Post-discharge care was initiated and scheduled (two face-to-face and two phone contacts in each of the first two months post-discharge) during index hospitalization. At each meeting, the safety plan was reviewed and patients were given an information sheet of the services and support they would receive. At each follow-up and at every other contact with the patient, the AC assessed the patient's level of preparedness to further monitor their hope and personal resources; social strife and support; and self-management and understanding of the conditions, circumstances, and precipitants that could lead to readmission. In addition, information regarding adverse events was obtained.

Based on the PAT and other information, patients and their families were provided with information regarding suicide risk and community-based resources available to them through the grant-funded project, including suicide prevention training and connecting with family support

and educational programs offered by NAMI-NHH. Additional interventions may have included
(a) problem solving and psychoeducation with the patient and their family, (b) facilitating
natural/indigenous supports, (c) enhanced referral or care-coordination with professional
supports and services, (d) activating an urgent or emergency response, (e) consulting with or
obtaining technical assistance with another professional, and (f) communicating with additional
parties. Patients and their families were provided with a summary of their progress and follow-up
plan.

Quantitative Design

  Quantitative participants. To compare rates of readmission between those who
received aftercare and those who did not, participants included all patients who were referred to
the Aftercare Coordinator (AC). To examine the relationship between patient preparedness and
adverse events and hospital readmission, participants consisted of patients at NHH who (a) were
10 to 24 years old, (b) were referred to work with the AC by NHH staff (primarily the social
worker on their clinical team) based on their level of risk and readiness to engage in follow-up
interventions, and (c) agreed to participate in the program. Exclusion criteria were (a) patients
already enrolled or eligible for programs in which they would receive similar post-discharge care
services and (b) those not interested in participating or having follow up contact with the AC.
Institutional Review Board (IRB) approval was obtained prior to data collection. There was no
personal health information (PHI) included in this data. Additionally, this data was stored on an
encrypted, password protected flash drive and was never transferred or saved to any electronic
devices.

  Measures.

  Patient preparedness. Patient preparedness was the primary independent variable and

was measured with the Preparedness Assessment Tool (PAT). This tool was created in service of patient monitoring and intervention decision support, as well as evaluation, in the context of the NHH post-discharge coordination intervention. It was hypothesized that assessing a psychiatric patient's level of preparedness for discharge would enhance post-discharge care coordination by orienting the AC to any deficits in the areas of hope, support, and illness management, thereby informing patient specific interventions and subsequent courses of action. The tool was also designed to be a proximal measure of intervention impact, that is to say, whether enhanced care improved patient preparedness over time. In addition, this tool was designed to be a potential predictor of adverse events and psychiatric hospital readmission.

Development of the PAT was a collaborative effort between my dissertation advisor, NAMI and NHH staff, and me, beginning with a review of extant research that indicated that patient education and understanding may increase self-management and mitigate readmission risk (Bridge & Barbe, 2004; Jack et al., 2009; Price 2007). Literature findings also illuminated the importance of hope and meaningful relationships in preventing relapse (Corrigan & Ralph, 2005; Shean, 2009).

The tool that emerged from this development process was an observer-reported assessment with three domains: (a) hope, (b) support, and (c) self-management. Hope is generally defined as a feeling that change is possible, the future is worth living, and that events will turn out for the best. Support includes the number of people with whom the patient interacts and the quality of those relationships. Self-management is understood as the patient and family's understanding of the discharge plan, as well as their ability and confidence in managing the patient's illness at home.

The preparedness domains are rated on an anchored three-point scale (1=*no/low*,

2=*moderate*, 3=*high*). Instructions that included criteria for rating preparedness within each of

the three domains were included (see Appendix A). Criteria were first derived from relevant

literature and fine-tuned through ongoing consultations with NHH's clinical staff. In addition to

the patient's perspective, collateral information from the patient's family, educators, clinical

staff, and patient records was considered in the assessment process. Questions and prompts for

patients and their family were also included to assist the Aftercare Coordinator (AC) in her

assessment (see Appendix B). Ultimately, the rater, in this case the AC, determined the score

based on her overall impression of all the data, as well as her own observations and experience of

the patient.

Average patient preparedness scores from relevant time points (i.e., first visit with the

AC) were calculated by adding each of the three domain scores, which ranged from 1-3, and

dividing by three.

Aftercare. Aftercare was another independent variable. This variable was categorical

with two levels: (a) received aftercare and (b) did not receive aftercare. Those in the aftercare

group (*n*=34) received at least one follow-up visit with the AC following hospital discharge.

Those who did not receive aftercare (*n*=36) declined services, were not eligible, or did not

engage in the program following their first visit with the AC prior to discharge. Four patients

were also excluded because they were discharged to another state and one was excluded because

they remained in the hospital. This information was documented at first contact with the AC (or

later for those who agreed to participate in the program but disengaged after some time).

Follow-up contact. Number of follow-up meetings with the AC was a predictor variable.

This variable was continuous and represented the level of engagement between each patient and

the AC.

Adverse events. Patient-reported adverse events served as a dependent variable. This was a continuous variable, reflecting the total number of adverse events experienced by each patient during the participation period. Adverse events included the following: (a) medication error or significant side effects, (b) school or occupational disciplinary action, (c) self-harm or other risky and impulsive behaviors, (d) encounters with law enforcement (e) and visits to the emergency department. This information was obtained by the AC at each post-discharge follow-up meeting.

Hospital readmission. Hospital readmission was the second dependent variable. For the chi-square analysis, this variable was categorical with two levels: (a) readmitted and (b) not readmitted within (1) 30- and (2) 90-days post-discharge. For the multivariate regression analyses, this variable was continuous, reflecting the total number of readmissions during the study period. Readmission rates are typically calculated at 30-, 60-, and 90-days post-discharge, with most patients being readmitted within 30-days post-discharge (Durbin et al., 2007; James et al., 2010).

Analytic approach. To prepare for the analyses, patients were grouped into those who worked with the AC (receiving at least one follow-up visit following hospital discharge) and those who did not receive aftercare (for which only readmission data was obtained). Preliminary data screening was used to identify and remedy problems with the data (i.e., missing data, data discrepancies, preparedness score calculations). Statistical Package for the Social Sciences (SPSS) was then used to obtain descriptive statistics and frequencies, ensure relevant assumptions had not been violated, and to perform subsequent analyses. A chi-square t-test was conducted to compare the frequency of readmission between those who received aftercare and those who did not. The goal of determining preparedness to predict adverse events and hospital readmission was explored by performing a step-wise regression analysis.

Qualitative Design

Qualitative participant. The Aftercare Coordinator (AC) was interviewed about the utility of the PAT for monitoring and supporting preparedness. Institutional Review Board (IRB) approval was obtained and her informed consent was obtained prior to the interview.

Qualitative interview. An interview with the AC was conducted. The AC was provided with the context of the study and reminded of the functions of the PAT. She was then asked several open-ended questions related to the utility and feasibility of the PAT and how it could be used in the future: (1) How did the PAT inform your work? (2) What role did the PAT play in your discharge care coordination? (3) Did you feel that the PAT gave you an accurate picture of progress and patient need? How so? (4) What, if anything, was helpful about the tool? (5) What, if anything was unhelpful about the tool? (6) How easy or difficult was it to use the tool and why? (7) What could make the tool better or more useful?

Data analysis. Thematic analysis (Braun & Clarke, 2006) of the AC's responses to interview questions was used to answer research questions pertaining to the PAT. The analysis began with interview transcription. Each statement was then coded and placed into the two overarching themes of utility and feasibility. Meaningful or interesting patterns were identified and codes were collated into potential subthemes. Once collated, subthemes were reviewed and given names.

Procedure

This pilot study began with the development of the Preparedness Assessment Tool (PAT). This tool was then integrated into the Aftercare Program at NHH (described above). Quantitative data was collected for a three-year period. For the quantitative portion of the study, I obtained the de-identified patient data following IRB approval. Using SPSS, I later performed

the statistical analyses.

For the qualitative portion of this study, I obtained informed consent from the Aftercare Coordinator (AC). I then conducted a one-hour qualitative interview with her regarding her use of the PAT and subsequently performed thematic analysis. Lastly, I used the results of both the qualitative and quantitative data for my interpretation of study findings, discussion, and future directions.

Results

Quantitative Results

Descriptive results. Descriptive results are provided for each of the study variables. Though not a direct test of research hypotheses, a correlation analysis is also provided for descriptive purposes.

Preparedness. Most patients who received aftercare (24 of 34 patients) obtained a baseline preparedness score of 2.00 or 2.33, producing a nonnormal frequency distribution (see Table 1). A closer look at the PAT items indicated that the supportive relationships item was more evenly distributed, whereas the hope item was negatively skewed and the self-management was positively skewed.

Follow-up contact. Patients in the aftercare group received approximately two follow-up visits in the first 30 days following discharge with subsequent follow-ups occurring approximately once every 30 days. Ten patients either disengaged or no longer needed services after 30 days. Twenty-one of the 34 patients worked with the AC beyond the initial 90-day period with an average of two additional follow-ups. The distribution of total follow-ups was positively skewed; two patients received 12 and 21 total follow-ups within one year of discharge, whereas the rest of the study sample received an average of four follow-up visits within this

same time period.

Adverse events. The distribution for adverse events was positively skewed as more

patients reported zero, one, or two adverse events than any other category. Two patients had

extreme numbers of adverse events compared to the rest of the sample.

Readmission. As shown in Table 1 and Table 2, those who received at least one

follow-up visit with the Aftercare Coordinator (AC) were readmitted fewer times within the

study period as well as within 30 and 90 days post-discharge than those who declined or were

not eligible for aftercare services. Of those patients at New Hampshire Hospital (NHH) who

were referred to the AC and either declined or accepted aftercare services (N=70), 30% were

readmitted. Of those patients readmitted, roughly 4% were readmitted within 30 days following

hospital discharge, 14% were readmitted within 90 days following discharge, and 33% were

readmitted more than once. Departing from previous research indicating that most psychiatric

readmissions occur within the first 30 days of discharge (Durbin et al., 2007), in this study, most

readmissions (86%) occurred beyond this 30-day period.

Correlation summary. A correlation analysis was conducted to examine relationships

between study variables (see Table 3). Violation of the assumption of normality was addressed

by using Spearman's rank correlation. No results involving patient preparedness were

statistically significant; further, effect sizes were very small. Results did, however, reveal a

significant positive relationship between number of follow-up visits and number of adverse

events ($r = .641, p < .05$).

Does aftercare relate to psychiatric hospital readmission? A chi-square test of

independence was conducted to compare the frequency of readmission within 90 days post

discharge for those who received aftercare and those who did not (N=70). There were too few

readmissions within 30 days post discharge to warrant further analysis for this time period.

Results indicated a significant relationship between aftercare and readmission within 90 days, X^2 (1) = 4.07, p = .044, r = .23. The likelihood ratio was used to determine significance for this particular analysis because one of the cells had an expected count less than five. Patients who received aftercare were readmitted fewer times within 90 days than those who did not. Of the patients who were readmitted, 20% received aftercare and 80% did not. Of the patients who were not readmitted, 53% received aftercare and 46% did not.

Does psychiatric patient preparedness relate to adverse events and readmission? Step-wise regression analyses were conducted to determine the degree to which preparedness scores contributed to the prediction of adverse events and hospital readmission beyond the contribution of number of follow-ups. Preliminary analyses were performed to ensure there was no violation of the assumption of normality, linearity, and multicollinearity. In the regression analyses, number of follow-ups was entered in the first step to determine the percentage of the variance in the criterion variable explained by this variable alone, and baseline preparedness was entered in the second step to determine the percentage of the variance explained by both variables. Thus, the main test of the preparedness hypotheses was the change in variance accounted for in step one and two.

The first regression assessed the degree to which baseline preparedness predicted number of adverse events, above and beyond the variance accounted for by number of follow-ups. The first step of the regression model, with just number of follow-ups entered, was statistically significant ($F[1,19]$ = 11.006, p = .004), with a medium effect size (R^2 = .367; see Table 4). The second step of the model, with both number of follow-ups and preparedness scores entered, was also statistically significant ($F(2, 18)$ = 5.468, p = .014); again, the effect size was medium, (R^2 = .378). The change in variance accounted for between step one and two, the main test of the

preparedness hypothesis, was not statistically significant. Preparedness scores accounted for only 1.1% of the variance in readmissions beyond the variance accounted for by number of follow-ups ($F(1,18) = .322$, $p = .577$).

The second regression assessed the degree to which baseline preparedness predicted number of readmissions, above and beyond the variance accounted for by number of follow-ups. The first step of the regression model, with just number of follow-ups entered, was statistically significant ($F(1,6) = 8.299$, $p = .028$), with a large effect size (R^2 of .580; see Table 5). The second step of the model, with both number of follow-ups and preparedness scores entered, was not statistically significant, ($F(2, 5) = 3.549$, $p = .110$). Again, the change in variance accounted for between step one and two was not statistically significant. Preparedness scores accounted for only 0.6% of the variance in readmissions beyond the variance accounted for by number of follow-ups ($F(1,5) = .076$, $p = .793$).

Qualitative Results

Thematic analysis indicated that the Preparedness Assessment Tool (PAT) was both feasible within the psychiatric inpatient hospital setting at New Hampshire Hospital (NHH) and helpful to the Aftercare Coordinator's (AC) work with patients and their families. Two overarching themes emerged from the interview data: (a) feasibility and (b) utility (see Figure 1).

PAT feasibility. The feasibility theme had to do with how convenient it was for the AC to incorporate the PAT into her work with patients and their families. Four subthemes related to feasibility of the PAT were identified: (a) user friendly, (b) modifiable, (c) effective, and (d) efficient.

User-friendly and modifiable. The PAT "provided a basic framework for working with clients and ensured the [AC] was asking the right questions and effectively answering those

questions." The assessment guide was "paramount to using the tool," and the AC found it to be straightforward and a "good rule of thumb." Additionally, the AC felt that, once familiar with the guide, she was able to modify the questions to avoid interactions with patients and their families becoming dull or routine. For example, she provided helpful analogies, asked the questions in a different way with her personal "spin on it," or modified them to be more open-ended. She also used the self-management domain to explore issues of safety with the family, which she considered essential in working with these youth at risk of suicide.

Effective and efficient. The tool assisted the AC in efficiently and effectively assessing patient preparedness. The questions were "concise, logical, and relevant to what [the AC] was doing." The method of scoring was "uncomplicated and straightforward." However, the AC found that, at times, the scoring made it difficult to capture subtle but real distinctions within and between patients' level of preparedness. For instance, if a patient's responses did not align completely with a score of 1, 2, or 3, this impacted her ability to chart progress or to "[see] progress when [she] knew it was there." The AC found the PAT's three components (hope, support, and self-management) to be key barometers of the assessment. They were "concise, relevant, and to the point." She noted, "they are exactly what we need and adding anything more would be too much."

PAT utility. The utility theme had to do with how helpful the PAT was in informing post-discharge care coordination. As presented in Figure 1, four subthemes related to the utility of the PAT were identified: (a) Personalize Care, (b) Guide Interventions, (c) Increase Collaboration and Understanding, and (d) Monitor Progress.

Personalize care. Because questions outlined in the Preparedness Assessment Guide elicited personal responses from patients in the areas of hope, support, and self-management and

were also used to obtain family perspectives on the patient's strengths and challenges, the AC considered the preparedness assessment and subsequent interventions to be highly individualized. She stated, "PAT scores told me what each patient needed and what they could benefit from to be successful in staying out of NHH."

       Guide interventions. Hope, support, and self-management were important "markers and indicators" for assessing preparedness. These preparedness components "captured the picture [the AC] needed to determine services, connections, and treatment and [the assessment] informed the [AC's] work in its entirety." For example, a patient's overall level of preparedness helped the AC determine how often to meet with each patient and their family and whether to continue working with them after the initial 90-day period. Additionally, by illuminating deficits in preparedness, the PAT helped the AC determine what she could do to best support the youth and their family. For example, if there were deficits in the area of self-management, the AC might provide education to the youth and the family on their diagnosis and medications. If there was a deficit in supportive relationships, the AC might help the patient identify other supports in the community or increase the support of the patient's family through problem-solving or reviewing triggers or signs related to symptoms.

       Increase collaboration and understanding. The AC felt that use of the PAT helped increase collaboration with the patient's family and their understanding of the patient's illness and post-discharge care. By using the PAT assessment guide and asking parents, for instance, to explain their child's triggers or early signs of symptoms or problematic behavior, the PAT helped ensure that everybody was on the same page regarding the patient's diagnosis, how symptoms of the diagnosis are best managed, and the importance of medications. The AC also noted that the tool "provided a self-assessment for youth and [their] families about areas they

didn't have support or something needed to be addressed that wasn't." They could then work together to discuss any problems and how best to address them.

> [The PAT] provided a personalized assessment of themselves. As I was asking the questions from the assessment guide, I could sometimes see light bulbs going off with the youth's family or the youth as I was asking the question. Like ya know, "hey, maybe this is an area that we don't have the best support in so maybe we should do something about it."

Monitor progress. The PAT "provided an all-encompassing representation of the youth, their family and support, and became a marker for progress or lack thereof." The tool "oriented the [AC] to what needed improvement or what was going well." In addition, preparedness scores helped the AC "pin-point trends related to progress or if there was a shift in progress." The AC explained that this also allowed her to look back and better understand an adverse event or period of improvement, which helped inform her next steps.

Discussion

In this pilot study, the frequency of psychiatric hospital readmissions between patients who received aftercare and those who did not was significant for 90-day readmissions. Further, the number of follow-ups predicted adverse events. The positive relationship between adverse events and number of follow-ups suggests that the AC's response to the presence of adverse events was to schedule additional follow-ups. In turn, increased follow-ups predicted a reduced likelihood of readmission, further supporting the need for transitional care as identified in the scholarly literature (Bridge & Barbe, 2004; Mgutshini, 2010). When considered collectively, these results indicate that the discharge coordination intervention may have been effective in

mitigating readmission risk for this study's high-risk psychiatric patients. These findings are different from those of Cuffel, Held, and Goldman (2002), that indicated higher-risk patients may be less responsive to follow-up care, with personal risk factors interfering with engagement. This interpretation should be regarded as tentative, however, due to methodological weaknesses described below (see Limitations).

Patient preparedness was not associated with adverse events or hospital readmission. Null results may be attributed to problems with the Preparedness Assessment Tool's (PAT) three-point rating scale, which provided limited variance in preparedness scores, thereby greatly reducing the opportunity to detect a relationship between preparedness and related outcomes. The AC confirmed that the truncated PAT rating scale was problematic, obscuring what she perceived to be discernable differences among patients and across time periods. Changing from a three- to five-point rating scale would help capture more nuance while potentially improving the psychometrics of the tool.

Despite the aforementioned limitation of the PAT, the tool was clearly an asset to the aftercare coordinator (AC). The PAT guided and informed the AC's work in myriad ways. Most importantly, it gave the AC essential information she needed to provide each patient with what she considered to be the most appropriate and effective follow-up care.

Self-harm, substance use, and lack of medication adherence were those most commonly reported adverse events amongst this high-risk psychiatric sample. Additionally, patient preparedness scores within the different domains indicated that patients were least prepared in the area of self-management. These findings support previous research implicating self-harm (McCarthy, Pullen, Savage, & Cayce, 2017), substance use, (Raven et al., 2010), and medication errors (Kripalani et al., 2008) in psychiatric relapse and the importance of promoting

self-management through psychoeducation and ensuring patient understanding (Bridge & Barbe, 2004; Mgutshini, 2010). These findings indicate that the Aftercare Coordinator's additional efforts to educate families on impulsive behaviors and safety, specifically, was warranted and should be emphasized as a component of self-management in the PAT.

One of the PAT's strengths was promoting patient and family perspectives as a way of guiding individualized care. Research has emphasized the importance of patient perspectives and indicated, specifically, that self-report measures of progress can be predictive of readmission (Byrne, Hooke, & Page, 2010; Machado et al., 2012). Medication adherence has also been predicted by patient perceptions of illness and perceived stigma (Sirey et al., 2001). Further, research suggests that patients and their providers hold different perspectives regarding treatment engagement (Smith, Easter, Pollock, Pope, & Wisdom, 2013). In light of these findings, the PAT may prove useful as a way of obtaining patient and family perspectives in other clinical settings and circumstances. For example, using the PAT upon readmission to explore what patients and their families attribute to their return to the hospital or disengagement from services may better illuminate patient need and more effectively inform subsequent care.

Limitations

As previously mentioned, the PAT's three-point rating scale proved problematic for this study. Further, this study's small sample size, along with variability in patient engagement, made it difficult to conduct more interesting and informative analyses related to the relationship between study variables within the rubric of the AC's assessment of patient need and subsequent interventions. Because of variability in patient engagement and lengths of time between follow-up contact with the AC, as well as common concerns regarding self-reported measures, adverse events reporting inaccuracies may have occurred. Additionally, readmissions were

tracked only for those who were readmitted to NHH or that were reported to the AC. As such, it

is quite possible that readmissions at other hospitals within the study period went undocumented.

Certainly, a larger randomized sample would have afforded greater statistical power and better

controlled for confounding variables. Lastly, having taken place at one rural psychiatric hospital,

results of this study may not be generalizable or replicable at other psychiatric hospitals with

population and clinical differences.

Future Research

Future studies adopting a similar research design with larger samples would benefit from

the use of multilevel modeling (MLM) given the nested nature of these data (patients nested

within aftercare coordination, preparedness and adverse events nested within patients) and

differing time periods between data points across time and patients. MLM would also allow for

looking at PAT change trajectories in relation to adverse events and readmission. For instance,

do PAT change trajectories predict adverse events and readmissions? Future research may better

answer the question of which aspects of follow-up care more directly mitigate readmission risk

by varying the frequency and type of follow-up offered and comparing outcomes. For example,

looking at follow-up contact, care coordination, and providing additional patient and family

support separately. In addition to adverse events and hospital readmission, patient adherence to

certain aspects of the discharge plan, for instance whether or not outpatient appointments were

kept, which has been found to mitigate readmission risk, may be an outcome also worth

examining (Nelson et al., 2000).

Conclusion

Those who received aftercare were readmitted at lower rates than those who did not.

Further, the number of post-discharge follow-ups in the aftercare group predicted adverse events

and readmission. Patient preparedness scores were not associated with these outcomes. The PAT itself was an asset to the Aftercare Coordinator (AC) but proved limited as a research and evaluation tool, due to its three-point rating scale. Changing the rating scale from a three- to a five-point scale would help improve future use of the PAT for both clinical and research purposes.

Personal Reflection

This study, along with my clinical work in community mental health, has led me to believe that efforts to bridge inpatient and outpatient care, of which enhancing patient preparedness is just one part, is a great beginning to finding real solutions to the problem of hospital readmission. The importance of bridging care supports the view that excessive hospital readmissions are a systems problem that requires intervention and change on multiple levels. In this pilot study, my goal was to provide some practical support to those left with the difficult task of ensuring patients are provided with the tools they need upon hospital discharge to succeed in a society that rarely makes recovery easy or, in some instances, even possible.

I regret that with my focus on feasibility, the PAT fell short as a research tool. I sense there was more to discover and learn and I look forward to future research following changes to the tool's rating scale. As a proponent of Corrigan and Ralph's (2005) recovery model, I remain personally interested in knowing more about the clinical value of adding hope and supportive relationships to the PAT and to what extent these aspects of preparedness serve psychiatric patients in their recovery process.

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Appendix A

Preparedness Assessment Tool

HOPE		
1=No/Low Hope	**2 = Moderate Hope**	**3= High Hope**
Patient *cannot identify* any spiritual, educational, familial, or personal resources Patient cannot identify any goals or something to look forward to Patient has made hopeless comments	Patient can identify *one or two* spiritual, educational, familial, or personal resources Patient can identify something to look forward to upon leaving the hospital OR can identify a personal goal	Patient can identify *more than two* spiritual, educational, familial, or personal resources Patient expresses enthusiasm for some event in the future and can identify any short or long-term goal Patient has made hopeful comments

Hope=

SUPPORT		
1=No/low Support	**2=Moderate Support**	**3=High Support**
Pervasive interpersonal problems, family dysfunction, no close friends or meaningful relationships, problems at school and with peers, tendency to withdraw and/or become isolated, reported stigmatization and inability to identify any sources of support.	Multiple problem areas and few connections/support	One or two problem areas and strong connections/support. Patient's family is engaged and participates in treatment plan. The patient has one or two friends regarded as close and is engaged in activities.

Support=

SELF MANAGEMENT		
1=No/Low Self Manage	**2= Moderate Self Manage**	**3= High Self Manage**
Patient and family does not know the patient's diagnosis, symptoms, and medications Patient and family cannot identify early warning signs and triggers or describe crisis plan Patient and family are not confident in their ability to manage at home	Patient and family's understanding is minimal Patient and family are somewhat confident in their ability to manage at home	Patient and family knows the patient's diagnosis, symptoms, and medications Patient and family can identify early warning signs and triggers, and describe crisis plan Patient and family are confident in their ability to manage at home

Self Manage=

Total Preparedness Score (Hope+Support+ Self Management)/3=

Appendix B

Preparedness Assessment Guide
_____

Hope: A feeling that change is possible, the future is worth living, and that events will turn out for the best

Assessment is informed by patient responses regarding his/her experience of hope. The following questions can be used as a guide. Feel free to use unsolicited comments from the patient regarding hopelessness/hopefulness.

1. Tell me about any sources of strength or support, whether spiritual, educational, familial, or personal? [The focus of this assessment question is the patient's ability to identify these things, though the information can also be used in the assessment of connections/support].

2. What are you looking forward to upon leaving the hospital?

3. What are your future wishes and goals?
_____

Connections/Support: The number of people with whom the patient interacts and the quality of those relationships

Assessment is informed by your experience of the patient, collateral information obtained through the patient's family, educators and other relevant parties, as well as patient records. Please consider interpersonal problems, family dysfunction (i.e. over- or under-involvement, conflict, abuse, stability of living situation), size and quality of support network, problems at school or with peers, whether the patient has a history of being withdrawn and/or isolated, and any indication that the patient feels stigmatized because of his/her mental illness. The following questions can be used as a guide:

For patient:
1. What are your relationships like with family and friends?
2. In what ways are your friends and family supportive?
3. In what ways can your friends and family be more supportive?
4. How do you feel judged by others because of your mental health challenges?

For family:
1. Does your child tend to be withdrawn?
2. Have there been any recent stressors or significant changes in the family?
3. How would you rate the quality of your child's friendships?
4. How would you describe the atmosphere of your home?
_____

Self-Management: The patient and family's ability to manage at home

Assessment is informed by the patient and family's ability to convey an understanding of his/her diagnosis, triggers, and early warning signs of symptoms and harmful behavior, medications, and crisis plan, as well as the patient and family's level of confidence in managing at home.

1. Ask the patient and family to name the patient's diagnosis and symptoms of that diagnosis

2. Ask the patient and family to name the patient's medications, the dosage and purpose of each medication, and what time of day the medications are to be taken.

3. Ask the patient and family to explain triggers or early warning signs of symptoms and harmful behaviors, and explain in their own words the details of the patient's crisis plan.

4. Self-efficacy can be assessed by asking the following questions:

- Are you confident in your ability to…take your medications regularly?...ask for help?...refrain from problem behaviors [insert specific behaviors]?
- Did you find the structure you were provided at the hospital helpful? What might get in the way of you creating this structure at home?
- What else have you learned from being in the hospital that might help you better manage at home?

Table 1

Descriptive Results for Study Variables

Variable	*N*	*M*	*SD*	*Range*
Preparedness	34	2.03	.44	1 – 3
Hope	34	2.15	.50	1 – 3
Support	34	2.00	.60	1 – 3
Management	34	1.88	.54	1 – 3
Total Follow-ups	34	5.00	3.85	1 – 21
Total Adverse Events	34	1.79	2.60	0 – 11
AC Total Readmissions	34	.41	.99	0 – 4
No AC Total Readmissions	36	.75	1.65	0 – 9
Total Readmissions	70	.59	1.37	0 – 9

Note. AC = aftercare.

Table 2

Frequency of Readmission Within Categories

Category	Frequency	Percent
Aftercare 30	1	2.9
No Aftercare 30	2	5.6
Aftercare 90	2	5.9
No Aftercare 90	8	22.2
Aftercare Total	8	23.5
No Aftercare Total	13	36.1

Note. Aftercare, N=34; No aftercare, N=36; 30, 90 = days following discharge

Table 3

Correlations Among Study Variables

Measure	*1*	*2*	*3*	*4*
1. Preparedness	1			
Sig. (2-tailed)				
2. Follow-ups	-.321	1		
Sig. (2-tailed)	.064			
3. Adverse Events	-.030	.641*	1	
Sig. (2-tailed)	.867	.000		
4. Readmissions	-.128	-.034	-.102	1
Sig. (2-tailed)	.471	.848	.565	

Note. * correlation is considered significant at the .05 level (2-tailed); N=34.

Table 4

Step-wise Regression Table with Adverse Events as Criterion Variable

	Predictor	*b*	*SE*	*t*	*p*	R^2	$(\Delta) R^2$
Model 1	Follow-ups	.636	.192	3.318	.004*	.367	.367
Model 2	Follow-ups	.577	.221	2.610	.018*	.378	.011
	Preparedness	-.337	.594	-.567	.577		

Note. * predictor variable is considered significant at the .05 level

Table 5

Step-wise Regression Table with Hospital Readmission as Criterion Variable

	Predictor	b	SE	t	p	R^2	$(\Delta)\ R^2$
Model 1	Follow-ups	-.523	.182	-2.881	.028*	.580	.580
Model 2	Follow-ups	-.523	.197	-2.652	.045*	.587	.006
	Preparedness	.278	1.01	.276	.793		

Note. * predictor variable is considered significant at the .05 level

Feasibility
- User-friendly
- Modifiable
- Effective
- Efficient

Utility
- Personalize Care
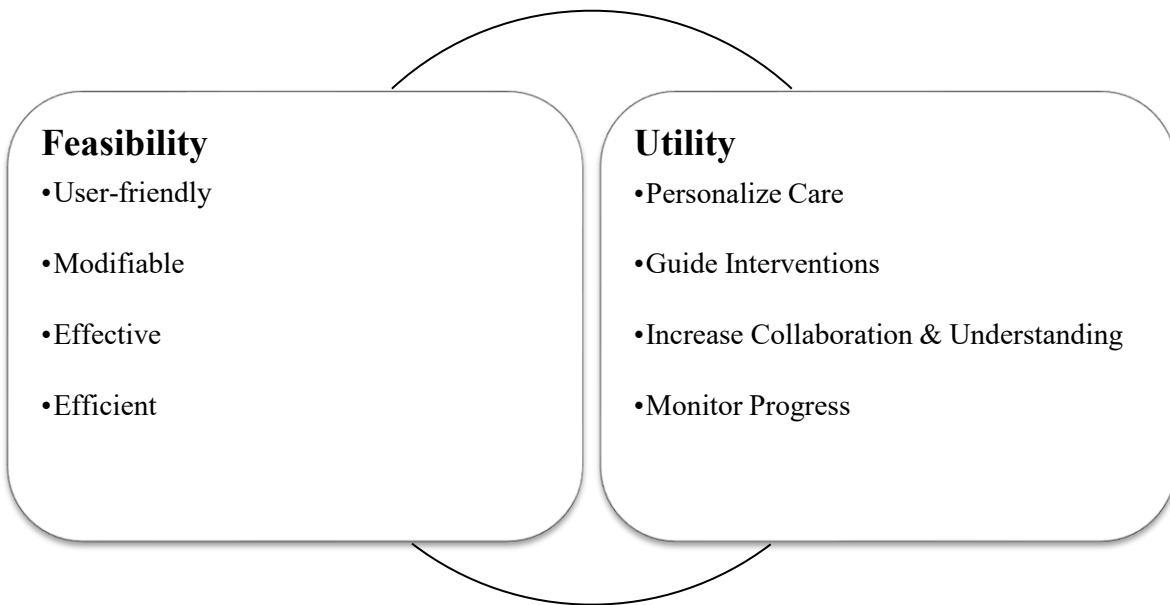- Guide Interventions
- Increase Collaboration & Understanding
- Monitor Progress

Figure 1. Display of PAT Feasibility and Utility Subthemes.