Assessing Motivation and Readiness for Treatment for Substance Use Disorders

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Abstract

Background: Patients who complete inpatient treatment and receive appropriate aftercare such as follow-up doctor appointments and referral to outpatient therapy, have better sobriety rates and health outcomes. Patients who chose to leave a substance abuse treatment center against medical advice experienced worse health outcomes and re-admissions compared to those who were successfully discharged after thirty-day in-patient program completion. Patients who were discharged against medical advice were seven times more likely to be admitted or readmitted within fifteen days.

Local Problem: Over the last three years a substance abuse treatment center experienced a significant increase of patients leaving treatment against medical advice. The against medical advice discharge rate at this facility increased almost ten percent over this timeframe. A designated team complete a quality improvement project, using a self-reporting assessment tool to determine if readiness for treatment improved retention rates.

Interventions The purpose of this quality improvement project was to assess the circumstances, motivation and readiness for treatment of newly admitted substance use disorder patients at a Mid Atlantic substance abuse treatment center. The Circumstances, Motivation Readiness (CMR) scale was used for these purposes.

Results: The majority of the patients scored in the moderately high to high for the CMR subscales and total scale, indicating lower risk of leaving against medical advice. Yet, there was no significant difference between the total scores of those who remained in treatment for the full 30-day requirement or left AMA. However, there were positive correlations between LOS and the readiness subscale ($p= 0.047$) and total scores ($p= 0.0346$). There was no significant difference scores for either gender, ethnicity or drug of choice.

Conclusion The CMR scale presented a feasible mechanism to identify substance use disorder patients' readiness for treatment and risk for dropping out. The CMR scale may be of greater use in assessing risk for AMA discharges by counselors during initial intake into the facility by focusing on the individual statements to specifically identify characteristics that would place patients at higher risk for AMA.

Background

Substance use disorder (SUD) is a growing problem in the United States. Many individuals with substance abuse disorders seek treatment in hospitals, in-patient and outpatient settings. Studies have demonstrated patients who complete inpatient treatment and receive appropriate aftercare such as follow-up doctor appointments and referral to outpatient therapy, have better sobriety rates and health outcomes (Proctor & Phillip, 2014). For several reasons, large numbers of these individuals leave treatment before its recommended (Krestin & Schmidt, 2007). Estimated costs of inpatient treatment can exceed more than 20 times the cost of other types of SUD treatment. Given the limited access to inpatient treatment and the cost implications, it is crucial to ensure patients complete their treatment (Hogan, Jabeen, Race, & Rettie, 2018).

Fifty percent of patients who left against medical advice (AMA) were under the influences of drugs, alcohol or other illegal substances (Clark, Abbott, & Adyanthaya, 2014) Researchers from Canada found that patients who left inpatient treatment AMA experienced worse health outcomes and more readmissions compared to those who were discharged at the completion of substance use treatment program (Kraut, Fransoo, Olafson, Ramsey, Yogendran, & Garland, 2013). A study indicated 35.8% of AMA discharges returned to the hospital within 30 days, and 16% was admitted within 30 days (Stearns, Bakamjian, Sattar, & Ritterman-Weintraub, 2017).

Over the last three years, a suburban Mid Atlantic substance abuse treatment center experienced a growing trend of patients leaving treatment against medical advice. The AMA rate at this facility increased from just under 15% two years ago, up to a recent rate of 23%. The population at this facility consisted of both adult males and females with multiple substance use

disorders. With many possible variables that could influence AMA, the administrators in the facility recommended assessing for the lack of motivation and readiness for treatment as possible causative agents for the increased AMA.

Knight et al. (2016) indicated motivation or readiness for patients with SUD influenced their engagement with treatment, consistently predicted retention, and increased the likelihood of sustained recovery. There has been some research on how to best assess motivation and readiness in the population. De Leon, Melnick, Kressel, and Jainchill (1997) developed a Circumstances, Motivation, Readiness, and Suitability (CMRS) scale to assess how patient motivation and readiness for treatment affected retention in recovery drug treatment programs. They found a positive relationship between high scorers and retention, using the scale. The researchers indicated 30-day retention rates for the high scorers exceeded those of the low scorers by two to one. Similar findings were reported in another study in which the scale was used (Melnick, De Leon, Hawke, Jainchill, & Kressel, 1997). They also found that assessing SUD patients at the time of admissions for motivation and readiness was helpful for identifying adolescent patients at risk for not completing treatment (Melnick et al., 1997).

A study completed by Rapp et al. (2007) indicated identifying personal characterizes such age and gender had minimal influences on readiness factors, but the same study indicated personal factors such perception of drug use and treatment had influences on readiness.

The purpose of this quality improvement project was to assess the circumstances, motivation and readiness for treatment of newly admitted substance use disorder patients at a Mid Atlantic substance abuse treatment center. At the completion of this project, it was expected the assessment would help identify patients at risk for AMA discharges and be informative in selecting and providing the most appropriate treatment.

Theoretical Framework

The theoretical framework that was used is the theory of goal attainment developed by King (2007). This framework has three systems that interact to assist staff and patients in setting and attaining goals. Those systems include the personal system, the interpersonal system, and the social system. Each system has individually defined concepts.

One of the concepts for the personal system is perception. Perception is defined as a process of organizing, interpreting, and transforming information from data and memory that gives meaning to one's experience, represents one's image of reality, and influences one's behavior (King, 2007). For this project, the focus will be on the perceptions of patients with substance use disorders, who are initiating treatment. These patients' perceptions may include their views as a substance abuser, the value of treatment, and their self-thoughts of addiction.

The second system is the interpersonal phase which has concepts, such as interaction communication, and transaction. Interactions and/or transactions are defined as the act of two or more persons in neutral presents with a sequence of verbal and nonverbal behaviors that are goal directed. The staff and patient interacting in the process of explaining, administering and collecting the assessment tools could be perceived as transactions. This transaction must include clear verbal and nonverbal communication. If the transaction is successful, the goal of assessing readiness may be reached

The social system phase is the final system of the described theory. An important concept in this system is decision making, which may be useful for patients to identify their role and set individual goals. Having the patient participate in the assessment of their motivation and

readiness for treatment may give them a since of empowerment to make decisions and to set goals, thus potentially lowering the incidence of AMA discharges.

Literature Review

The need for patients with substance use disorders to complete treatment without being discharged against medical advice is an important factor to assure the best possible health outcomes for this targeted population. The literature was reviewed for the best instruments available to evaluate for motivation and readiness to engage in treatment to increase retention and decrease discharges against medical advice. Appendix A is a summary of the findings and level of evidence from studies included in this review.

Gelberg et al. (2015) evaluated the use of the World Health Organization's Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) to detect risky drug use (RDU) in patients at risk for health and other problems because of their drug use. The sample included 334 adult primary care patients. The study took place in five federally qualified health centers in Los Angeles County. Clinic selection was based on large patient encounter volumes and areas most affected by drug use. The purpose of the screening was to categorize risky drug use in patients. The screening instrument consisted of 8 questions to assess tobacco, alcohol, marijuana, cocaine, methamphetamine/amphetamine, inhalants, sedatives, hallucinogens, and opioids use. The ASSIST screening was easy to administer, only took on average 4.9 minutes in the study to use, that it was given in the waiting room. It was used to determine the type of treatment to give to patients. While screening for risky drug used may be an important factor in substance use treatment, the ASSIST screening instrument had little use for this project. The most significant limitation was the screening instrument did not indicate any findings that influenced motivation, readiness, or retention.

Zemore & Ajzen (2014) conducted a descriptive study determine if using a 9-item questionnaire based on the Theory of Planned Behavior (TPB) would be effective in predicting the number of patients, who would complete treatment for a substance abuse disorder. The questionnaire measured attitude, subjective norm, perceived control, and intention to complete treatment. The sample size included 200 participants in a public outpatient program for clients beginning treatment. The results of the questionnaire were compared to three other standard tools which measure readiness for treatment: The University of Rhode Island Change Assessment Scale (URICA), the Treatment Research Experiences and Attitudes Task (TREAT), and the Treatment Motivation Questionnaire (TMQ). While the URICA was designed to measure general readiness to change, the TREAT has been used to assess readiness to seek help for an alcohol and/or drug problem specifically. The Treatment Motivation Questionnaire (TMQ) has been used to assess attitudes and perceived control regarding treatment. Results indicated the TPB questionnaire was predictive of control and intention to complete treatment. In contrast, they found that none of the other standard tools, which measured readiness for treatment were predictive of retention, except for one subscale in the TMQ. A limitation of the study included the representation of a single treatment program. Concerns with the study indicated a need for further studies in more settings to accurately predict usefulness of the TPB questionnaire. While the tool does help predict control and intent to complete treatment, it did not assess the circumstances that contributed to the person entering and remaining in treatment or the motivational factors that may be helpful to understand and determine treatment options. A significant limitation of this study was the instruments utilized only assessed either motivation or readiness. Another limitation was the study indicated only one screening tool positively influenced retention. Assessing for circumstances, motivation and readiness made the CMRS

instrument a better selection for this project because it provided a more specific and detailed assessment of circumstances than screenings used in this study and positively improved retention.

A study completed by De Leon, Melnick, Kressel and Jainchill (1994) was reviewed to assess how factors such as circumstances, readiness and motivation improved retention with patients in substance use treatment facilities. The sample size included 1458 subjects; the setting was a large New York residential treatment center. The Circumstances, Readiness, Motivation and Suitability (CMRS) self-reporting scales were used to gather information the instrument consisted of four scales. The first scale was circumstances (C), which contained items to assess the external pressures that influence patients to seek treatment. These included the feared loss of social supports such as family, children, and jobs. The second scale, motivation (M), contained items which assessed internal reasons for change. Positive reasons included the desire for a better life, while negative factors included feelings of guilt and self-hatred associated with the drug-related lifestyle. The third scale was readiness (R), which contained items that assessed the perceived need for treatment in order to change. The fourth scale was suitability (S), which refers to an individual perception of one's treatment setting. Each item was rated on a five-point Likert scale from strongly disagree to strongly agree.

The researchers analyzed the validity and reliability of the scale. Factor analyses confirmed the internal consistency and reliability of the total scale with a Chronbach alpha coefficient of .87. According to De Leon et al. (1994), all but the C Scale fell within an acceptable Chronbach range. The low reliability of the C Scale reflects its multidimensionality. Predictive validity of the CMRS instrument was established by correlation the scores with retention and was found to be significant. Three cross-validation analysis confirmed a linear

relationship between the CMRS scores and short-term retention in three cohorts. Furthermore, the instrument provided clinically useful distinction among high scoring patients. Those patients remained in 30-day treatment almost twice the percentage of low scorers. An 18-item CMR was derived from the original 42-item CMRS, in which the Suitability scale was eliminated, and the other scales were shortened (De Leon, 1993). Screening for motivation and readiness to identify patients at risk for not completing substance use treatment may be beneficial in increasing retention.

Several screening tools that have been used to predict retention in treatment programs were reviewed. Gelberg et al. (2014) used the ASSIST as a screening tool to determine categories of readiness for treatment, but the tool was limited in reporting biases based on patients not accurately reporting drug use, and a small sample size**.** While the ASSIST screening tool reviewed risky drug, there was no evaluation process to assess motivation, readiness or retention. Zemora & Azjen (2014) compared the use of a questionnaire based on the Theory of Planned Behavior to several other standard screening tools to predict for retention. While the TPB questionnaire was predictive of control and intention to complete treatment, it failed in all but one to support motivation or readiness. Finally, the CMRS and modified CMR have been used to measure motivation and readiness for treatment (De Leon, 2000; De Leon et al., 1997). The CMR scale assessed both motivation and readiness, and study results supported positive influence on 30-day treatment retention. The predictive validity of the CMR scale indicates a foundation to introduce client specific interventions, which could lead to lower AMA rates. Based on the evidence provided, it was determined that the CMR would be the best instrument to use for the proposed quality improvement project.

Implementation Plan

Design, Sample and Setting

This quality improvement project was implemented at a suburban Mid Atlantic substance use treatment center. The sample consisted of adult patients, who were new admission, ages 18 years and older, able to understand and speak English, and with no mental or cognitive disabilities. The estimated sample size was 140 patients. This was based on the previous 3-month average of daily admissions.

Procedures

The implementation process began in September 2018 and concluded in December 2018. The project was initiated with the training of three administrative secretaries by the project manager on how to administer and store the CMR scale. Three administrative secretaries were trained in order to cover different shifts on the weekdays and weekends. They were instructed to hand out the CMR scale to patients on admission with a summary letter, explaining purpose of the scale and instructions how to complete the scale (see Appendix B). They were also told to place the last four digits of the Medical Record Number (MRN) on the first page of the scale in order to later compare scores with the patient's length of stay and discharge status, and to place the complete scales in a secure folder. The patient was made aware the administrative secretary was available for assistance if needed, and to return to the front desk with the completed scales.

Data Collection

The CMR scale was the primary data collection instrument used to assess patients' readiness and motivation for treatment (De Leon, 1993). This instrument consisted of 18 items placed into three categories: circumstances, motivation, and readiness. Each statement was accompanied by a 5-point Likert scale, ranging from zero to five (strongly agree to strongly

disagree). There was also an option to select "not applicable" for each item. The first page of the scale included the following demographic information: gender, ethnicity, age and drug of choice

Data Analysis

The data for the CMR sale was analyzed through descriptive statistics, coded, and compiled on Microsoft excel spreadsheets. Descriptive statistics were utilized for analysis of demographic information. The relationship between the CMR scale data and demographics, AMA, and LOS was explored through t-tests, AMOVA, Chi square and Pearson correlation.

The CMR scales were scored as described above under data collection. If an item was marked as "not applicable" the average score from that section was then coded for the item. An example would be if the average score in the circumstances section was 3 and an item was left unanswered or marked "not applicable", 3 would be coded. This process was limited to just one item in the circumstances and motivation section but two items in the readiness section. In the circumstances section items 4 through 6 and in the readiness section item 12 were tabulated with inverted scoring. The scores from each category were then combined to compute a score for each subscale and a total score. To identify those patients at greatest risk for early dropout, a mean (X) and standard deviation (SD) were calculated for each scale and the total score (De Leon & Melnick, n.d.). Then the respondents were divided into four categories: low scorers (1 SD < X), moderately low scorers (between the X - 1 SD), moderately high scorers (between the X + 1 SD), and high scorers (1 SD > X).

Measures to Protect Human Subjects

To protect human subjects the CMR scales upon completion were placed in a secure folder. At the end of the day, they were removed to a locked file cabinet. When the information was converted to electronic data, it was kept in password protected computer, and the MRN was

deleted and the paper forms were shredded. A project summary was reviewed by both the University of Maryland Baltimore and the organizational site's Institutional Review Board and approved with a Non-Human Subject's Research determination.

Results

The sample consisted of 130 patients being admitted to the drug treatment facility. Although 130 CMR scales were completed, 25 (19.2%) patients were excluded because of insufficient data for analysis. The sample (n=105) consisted of mostly white males of an average age of 36.67 years, whose primary drug of choice was opiates (see Table 1).

The CMR scores were used to divide the patients into four categories in order to identify those at risk for early dropout from treatment. The scores were determined for each of the subscales and the total scale (see Table 2). The higher the overall score, the higher the retention and less risk of dropout. Percentages were then calculated for the number and percentage of patients is each category (see Table 3). The majority of the patients scored in the moderately high to high for the subscales and total scale. A t-test was conducted to compare total CMR scores with gender and ethnicity. There was no significant difference in CMR scores for either gender ($p=0.26$) or ethnicity ($p=0.61$). A one-way ANOVA was conducted to compare drug of choice with the circumstances, motivation, readiness sub scores and total score. The results indicated there was not a significant effect of DOC on the total CMR scores [$F(3,101) = 1.17$, $p = 0.323$] or any of the subscales.

The drug of choice was analyzed with a chi square test of independence to see if there was a relationship between it and treatment completion or leaving AMA (see Table 4). The relationship between these variables was not significant X^2 T=1.22:3, p=0.98, this is indicative DOC has no effect on treatment completion. This finding is suggests DOC had no effect on

treatment completion. A t-test was also used to compare the total CMR scores with leaving AMA. There was no significant difference between the total scores of those who remained in treatment for the full 30-day requirement or left AMA. A Pearson's correlation was conducted to assess the relationship between the CMR scores and length of stay. There was no correlation between the circumstances (p= 0.068) and motivation subscales (p=-0.086) and LOS. However, there were positive correlations between LOS and the readiness subscale (p= 0.047) and total scores (p= 0.0346).

One unexpected barrier arose early in the planning of the project in terms of who would administer the scale. The original plan was to have the scale administered during the intake process by the counselors. This method was later deemed as not the best option because of the already time-consuming intake process. To save time, it was determined that the administrative secretaries would administer the scales on admission.

Discussion

Almost 20% of the CMR scales were excluded from analysis due to lack of completion. Some of the factors that could have influenced the exclusions may have been the physical condition of the patients at the time of admissions. Many came to treatment still under the influence of drugs and or alcohol, which may have left the patient unable to complete the scale. Since literacy was not evaluated prior to administration, some of the patients may not have been able to read and comprehend the instructions or the scale. The decision not to have counselors administer the scale may have adversely impacted the completion of the CMR scales. The counselors could have reviewed the patients' responses with them and assisted those in need to complete the scales. The scale might have been helpful in discussing with the patients their motivation and readiness for treatment.

The sample of this project may have been influenced first by location of the treatment center, since the county where the project took place is mostly Caucasian. Opiate use being the primary drug of choice may be the result of the county facing a similar opiate crisis throughout the nation. The lack of diversity regarding ethnicity was also noted in the project. When observing this disparity economically, African Americans and other minorities often lack finances and insurance to pay for substance abuse treatment. Those who have sufficient insurance may not be able afford the lost time at work. The sample in this project was gathered from a voluntary in-patient substance abuse treatment center, whereas a similar study in which the CMR was used included a sample from a correctional facility (De Leon, 2000).

While the higher readiness and total CMR scores were associated with longer length of stays, there was no significant difference in patients CMR scores for those who were discharged AMA or remained in treatment. The moderately high group also accounted for 43% of all AMA discharges. According to De Leon et al. (2000), the predicted trend should have been the reverse with lower CMR scores associated with dropouts. The findings in this project may be attributed to some of the patients being cognitively impaired while trying to complete the scale due to current substance abuse or detoxification. The patient's physical health and low literacy may have also played a role in inaccurate completion of the scale.

The difference in findings between this project and the De Leon et al. (2000) study may have also been related to the difference in setting and sample. The De Leon (2000) study took place with a prison-based population. In that environment prisoners may have been more motivated to complete treatment, which could lead to other benefits such as better job details in the prison and less restrictive activities. The prison program was also administered in three phases over 120 days, in which patients gradually developed skills and provided incentives to

facilitate treatment completion. In this community-based treatment facility, patients were going to be discharged at 30 days regardless of their participation in the treatment, which may have affected their decision to leave AMA. A portion of the population in this project was participating in treatment for reasons such as court orders, living situations, or family pressures, which may have also impacted their readiness and motivation for treatment and resulted in less retention. The De Leon (2000) study sample was also different in that it did not include women, was a more ethnically diverse sample, and the primary drugs of choice were methamphetamines (25.5%) and opiates (24.9%).

Most of the AMA discharges occurred during the detoxification stages (7-10 days) in this project. De Leon (1997) suggested that close attention should be directed during the first week to reduce AMA discharges. That same study found that early AMA discharges most often occur with-in the first weeks. Result from this project were similar. Just under 75 percent of the AMA discharges occurred within the first week. De Leon (1997) found that interventions to recognize motivation and readiness significantly reduced the likelihood of early dropout compared with controls.

There were some limitations with this QI project. A noted limitation was the administration of the scale without assessing for literacy. According to De Leon (2000) the scale was developed on a third grade reading level. Even at that low level, it does not ensure that all patients were able to read and understand it. Substance abuse can also often leave patients impaired, which may also hinder their ability to understand the scale. The administrative secretaries who administered the scales may have benefited from training on how to assess literacy and assist the patients with completing unanswered items. Having substance abuse counselors administer the tool during intake may have even been a better approach, since it may

have helped them with immediate recognition of patients at risk for dropout and the contributing factors. Some items on the scale were very specific regarding the patient's legal affairs, family life, finances, and recognition of substance use, and may have been a more direct reflection of patient's readiness for treatment. De Leon (2000) also suggested reevaluating patients after initial assessment.

Lastly, the most important limitation was not providing patients with an immediate intervention after screening. Although scores were determined on admission, no interventions directly following the screening. Because there were no standard scores published on how to evaluate the CMR scores for circumstances, motivation and readiness for treatment, the project focused on collecting this data to determine them. Once they were established, more time could have been used to identify the risk level of patients from dropout and implement a practice change to reduce that risk.

Conclusion

In conclusion, the CMR scale presented a feasible mechanism to identify substance use disorder patients' readiness for treatment and risk for dropping out of substance use treatment. Although the results did not support an association between the patients' CMR scores and risk for being discharged AMA, they did support a relationship with CMR scores and length of stay. The CMR scale may be of greater use in assessing risk for AMA discharges by the counselors during initial intake into the facility by focusing on the individual statements to specifically identify characteristics that would place patients at higher risk for AMA. With the greater number of AMA discharges occurring within the first week, this would likely be the most opportunistic time for interventions.

The implications for future practice would include implementing a future QI project in which CMR scores were determined on admission by the counselors, and if the patient were identified as being at a higher risk for dropout, other interventions such as a Treatment Readiness Induction Program (TRIP) be implemented (Knight et al., 2015). TRIP was an 8-session program delivered in the first weeks of treatment focused on patients' cognitive indicators and treatment engagement. Although this intervention was utilized on youths it may prove beneficial with adult populations.

References

Cherpitel, C., & Ye, Y. (2018). Drug use and problem drinking associated with primary care and emergency room utilization in the general population: Data from the 2005 National alcohol survey. *Drug and Alcohol Dependency* 97(3) 226-230. doi:10.1016/j.drugalcdep.2008.03.033 Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3007592/

Clark, M., Abbott, J., & Adyanthaya, T. (2014). Ethics seminars: A best practice approach to navigating the against medical advice discharge. *Academic Emergency* Medicine. *21*(9). doi: org/10.1111/acem.12461 Retrieved from https://onlinelibrary.wiley.com/doi/full/10.1111/acem.12461

De Leon, G. (1993). Circumstances, motivation, and readiness scales for substance abuse treatment. (Measurement Instrument). Retrieved from http://www.emcdda.europa.eu/attachements.cfm/att_4083_EN_tcmr.pdf

De Leon, G. (2000). *The therapeutic community*: Theory, model, and method. New York: Springer Publishers.

De Leon, G., & Melnick, G. (n.d.). CMR overview. Retrieved from www.ndri.org/manuals-instruments/cmrover.doc

De Leon, G., Melnick, G., Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among cocaine and other drug abusers. *American Journal of Drug and Alcohol Abuse*, *23(*2), 485-506. Retrieved from https://www.researchgate.net/publication/14074089_Motivation_and_Readiness_for_Therapeutic_Community_Treatment_among_Cocaine_and_Other_Drug_Abusers

De Leon, G., Melnick, G., Kressel, D. & Jainchill, N. (1994). Circumstances, motivation, readiness and suitability (The CMRS scales):predicting retention n therapeutic community treatment centers. *American Journal of Drug and Alcohol Abuse,* 20(4), Retrieved from: file:///C:/Users/meldotsco/Downloads/CMRSScalesPredictingRetentioninTCTreatment_AmJDrugAlcoholAbuse_1994%20(1).pdf

De Leon, G., Melnick, G., Thomas, G., Kressel, D. & Wexler, H.K. (2000). Motivation for treatment in a prison based therapeutic community. *The American Journal of Drug and Alcohol Abuse 26*(1):33-46. doi:10.1081/ADA-100100589. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/10718162

Gelberg, L., Andersen, R., Afifi, A., Leake, D., Arangua, L., Vahidi, M.… Baumeister, S. (2015). Project quit: A randomized controlled trial of primary care based multi-component brief interventions to reduce risky behavior. *Addictions. 110*(11) 1777-1790. doi: 10.1111/add.12993 Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4948983/

Hogan, L.M., Jabeen, Q., Race, J. and Rettie, H. (2018). Inpatient detoxification: examining factors leading to early discharge, *Alcoholism Treatment Quarterly, 363,* 366-372, doi: 10.1080/07347324.2018.1424591. Retrieved from https://www.tandfonline.com/eprint/3ebnci4zMCAjSjTkQWSv/full

Keene, D., Boros., A., Fischbein, R. (2013). Characteristics of opiate users leaving detoxification treatment against medical advice. *BMC Health Service Research 29*. 383-394. doi.org/10.1080/10550887.2010.489452 Retrieved from

https://www.tandfonline.com/doi/full/10.1080/10550887.2010.489452?scroll=top&needAccess=true

King, I. M. (2007). Middle range theory development using king's conceptual system. New York: Springer Pub.

Knight, D.K., Joe, G.W., Crawley, R.D., Becan, J.E., Dansereau, D.F, & Flynn, P.M. (2015). The Effectiveness of the Treatment Readiness and Induction Program (TRIP) for Improving During-Treatment Outcomes. *Journal of Substance Abuse Treatment. 62*, 20–27. doi:10.1016/j.jsat.2015.11.007 Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4724560/

Kraut, A., Fransoo, R., Olafson, K., Ramsey, C., Yogendran, M., Garland, A., (2013). A Population based analysis of leaving the hospital against medical advice: Incidence and association. *Canadian Medical Association Journal 13(*415) 1-9. doi:/10.1186/1472-6963-13-415 Retrieved from https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-13-415

Krestin, U, & Schmidt, M. (2009). The dilemma of the patient who wishes to leave the hospital AMA. *Seminars in Medical Practice, 10*(9). Retrieved from https://pdfs.semanticscholar.org/19c1/f8174901c2bfb6cf4b7a833804d7fd13753f.pdf

Melnick, G., De Leon, G., Hawke, J., Jainchill, N. & Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among adolescents and adult substance abusers. *American Journal of Drug and Alcohol abuse 23*(4) 485-506

Lianping, T., Buxton, J., Dobrer, S. Hayashi, Kerr T., McNeil, R.H., Kerr T. … Milloy, M.J, (2015). Factors associated with leaving hospital against medical advice among people who use illicit drugs. *PLOS One, 10*(10), e0141594. doi:10.1371/journal. pone.0141594

Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4624845/pdf/pone.0141594.pdf

Proctor, S., & Phillip, L.H. (2014). The Continuing care model of substance use treatment What works and when is enough is enough? *Psychiatric Journal 1*(11). doi.org/10.1155/2014/692423 Retrieved from https://www.hindawi.com/journals/psychiatry/2014/692423/

Rapp, R., Jiangmin, X., Carey, C., Lane, T., Redko, C., Wang, J., and Carlson, R. (2007). Understanding treatment readiness in recently assessed, pretreatment substance abusers. *Journal of Substance Abuse.* 28(1) 605-618. 11–23. doi:10.1300/J465v28n01_03.Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2174265/pdf/nihms31052.pdf

Saltz, K., Tibor, P., & Cheng, D. (2015). Screenings and brief interventions for drug use in primary care. *JAMA 312*(5), 502-513, doi:10.1001/jama.2014.7862 Retrieved from https://jamanetwork.com/journals/jama/fullarticle/1892250.

Staiger, P., Kyrios, M., Williams, J., Kambouropoulos, N., Howard, A., Gruenert, S. (2014). Improving the retention rate for residential treatment of substance abuse by sequential interventions for social anxiety. *BMC Psychiatry 14*(43). 1-11, Retrieved from https://bmcpsychiatry.biomedcentral.com/articles/10.1186/1471-244X-14-43

Stearns, C., Bakamjian, A., Sattar, S., & Ritterman Weintraub, M. (2017). Discharges against medical advice. *Journal of Hospital Medicne.12*(1):*11-17.* Retrieved from https://www.journalofhospitalmedicine.com/jhospmed/article/128718/hospital-medicine/discharges-against-medical-advice

Ti, L. (2015). Leaving the hospital against medical advice among people who use illicit drugs: A systematic review. *American Journal of Public Health, 105*(12), 53-59.

Vallersnes, I. Jacobsen, D., Eckberg, O., & Brekke, M. (2016). Follow up after acute poisoning by substance abuse: a prospective cohort study. *Scandinavian Journal of Primary Health. 34*(3), 309-316. Doi:10.1080/02813432.2016.1207152 Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5036022/

Zemore, S., & Ajzen, I. (2014). Predicting substance abuse treatment completion using a new scale based on the theory of planned behavior. *Journal of Substance Treatment. 46*(2).174-182. doi: 10.1016/j.jsat.2013.06.011 Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3840042/

Table 1. Demographics

Age Range	20-62
Age (Mean ± S.D.)	36.67 ± 10.9
	n (%)
Gender	
Male	84 (80%)
Female	21 (20%)
Ethnicity	
African American	13 (12.4)
Hispanic	6 (5.7)
White	83 (79.1)
Other	3 (2.8)
Primary Drug	
Crack/Cocaine	11 (10.5)
Opiates	42 (40.0)
Alcohol	21 (20.0)
Poly-drug	31 (29.5)

Table 2. Scores calculated for risk or early dropout

	Circumstances	Motivation	Readiness	Total Score
High	> 25	> 25	> 34	>83
Moderately High	20-25	22-24	30-34	72-83
Moderately Low	15-19	19-21	25-29	62-71
Low	< 15	< 19	< 25	<62
Mean ± SD	20.24 ± 5.03	22.53 ± 3.18	30.36 ± 4.81	

Table 3. Number and percentages in each category of circumstances, readiness and motivation for treatment

	Circumstances subscale	Motivation subscale	Readiness subscale	CMR Total Score *n* (%)
High	17 (16.2%)	40 (38.1%)	30 (28.6%)	15 (14.3)
Moderately High	40 (38.1%)	35 (33.3%)	39 (37.1%)	48 (45.7)
Moderately Low	38 (36.2%)	18 (17.1)	14 13.3%)	27 (25.7)
Low	10 (9.5%)	12 (11.5)	22 (21%)	15 (14.3)
Total	105	105	105	105 (100)

Table 4. Comparison of drug of choice with number (percentage) of patients who left Against Medical Advice (AMA) or completed treatment.

	cocaine/crack	opiates	alcohol	polysubstance	
AMA	1 (0.09%)	7 (0.06%)	2 (0.02%)	6 (5.7%)	16 (15.2%)
Complete	10 (9.5%)	34 (32.3%)	19 (18%)	26 (24.7%)	89 (84.8%)
Total	11	41	21	32	105

Appendix A

Evidence Review Table

Author, year	Study objective/intervention or exposures compared	Design	Sample (N)	Outcomes studied (how measured)	Results	*Level and Quality Rating
Cherpitel, C. et al. 2008	Drug and alcohol use effect on emergency room utilization	Randomized Control Trail	N=6919	Self-reported data through interviews in emergency rooms and primary care offices	The results identified emergency rooms and primary care offices as important sites to identify substance use disorders and provide initial brief interventions	2B
Gelberg, L. et al. 2015	Primary care based multi component interventions to reduce risky drug use	Randomized control trial	N=334	Reported data was measure thru patient self-reported highest drug score and how many patients completed follow up care after interventions thru a linear regression model Scores ranging between 4 and 26 on the World Health Organization (WHO) alcohol smoke and substance involvement screening test (ASSIST).	The results show a high number of patients who completed treatment and received referrals completed follow up care after discharge The studies were completed in a primary care waiting room of five federally qualified health centers in Los Angeles California.	2B

Kraus, A, et al. 2015	Analysis of leaving hospital AMA: incidence and associations	Systemic review using cluster data	N=21,417	Data was measured with the use of data analysis thru a data entry software. Data such as age, sex, fiscal year of admissions, reason for discharge, substance abuse and length of stay was measured.	The study shows those who used illicit drugs was more likely to leave AMA than other discharges. Other findings indicated the same subjects often had subsequent admissions and future AMA discharges. Demographics such as younger in age, male and lower social economic status were other variables that influenced AMA in this population.	1B
Keene, et al. 2013	Identifying patient characteristics useful in predicting against medical advice	Retrospective cohort	N=89	Data measured with binomial regression to determine likelihood illicit drug user would leave against medical advice or permission from physician.	Results indicated a strong association of opiate drug use and increased AMA discharge. Other predictors included poor or little education while in the hospital.	3B
Knight, D	Identifying if treatment readiness will improve treatment engagement	Cross sectional	N=1288	The outcomes measured was to see if treatment engagement was influenced by readiness	After approximately one month in treatment, youth receiving standard practice plus TRIP groups had higher problem recognition, higher decision making, and were more engaged in treatment compared to youth receiving standard practice alone. The	2B

					present research suggests that the effects of the TRIP curriculum can occur within the first month of residential treatment, indicating that the curriculum can serve as an early induction tool.	
Lianping et al. 2011	How illicit drug use lead to against medical is associated with increased health related harm, readmissions, future AMA, and cost.	Prospective cohort	N=488	Patients AMA was measured as any participants who was designated as leaving the hospital without physician's permission and did not return with in six hours.	Studies show 43% of AMA discharges was compromised by illicit drug users. This group had other variable that significantly impacted AMA discharges. Those included young males, daily heroin use, withdrawals from heroin, recent incarceration, and inadequate pain management	4A
Rapp, R et al. 2014	The efficacy of case management with persons who have substance abuse disorders	Meta-Analysis	N= 31 trials	Data was measured thru standardized means showed patients with case management	The study indicated there was improvement in outcomes with the targeted population when using case management compared the normal standard of care.	1A
Saltz, R. et al. (2014)	Screening and brief interventions for drug user in primary care.	Randomized control	N=528	Two interventions were tested. The first was a 25-minute structured interview conducted by health educators. The second was a 30-40 minutes interventions based on motivational	Study show that both interventions had a weak correlation on outcomes on decreasing drug use, does not support widespread implementation of the two identified interventions	2B

				interviewing, followed up by 20-minute booster conducted by master's level counselor.		
Ti, L. (2015).		Retrospective Cohort	N=387	Analysis of studies complied from data base. Only clients with self-reported daily heroin/opiates use was included. The measurements criteria included any patient who was documented as leaving the hospital prior to completion of treatment and without physician consent or without notifying staff.	This systemic review found substance misuse as a significate predictor of against medical advice discharges. The study showed unemployment, and criminal records was a key predictor of AMA discharges. I'm	
Staiger, K, et al. (2014)	Screening for social anxiety disorder prior to residential treatment for substance abuse disorder	Randomized Controlled	N=2035	Screening was used to assess for social anxiety disorder to identify factors that may lead to decreased retention with inpatient treatment	Studies may suggest screening for co morbidities to substance abuse may lead to early departure from treatment and continued drug use	1B
Vallersnes, O, et al. 2016	Follow up after acute poisoning by substance of abuse	Observational cohort study	N=2343	Follow up care initiated at the time of discharge. Proportion of cases in which referred attended follow or general	Studies indicate if given referrals prior to discharge, over 80% will complete follow up appointment.	4A

				practitioner within three months.		
Zemore, S. and Ajzen. I., 2014	Predicting substance abuse treatment completion using a scale based on the Theory of planned behavior	Observation Cohort	N=200	Can use of a behavioral model screening tool be successfully be applied to predicting and explaining treatment dropout rates	Results suggest use of the TFB screening tool can be useful in predicting treatment completion	4A

Appendix B

Dear Patient,

Our top priority at [Name of Organization] is to provide our patients with the highest quality healthcare services. To accomplish this, we need your help. By sharing your thoughts, you can help improve our care.

Please take a few minutes to complete the attached Circumstances, Motivation and Readiness Scales questionnaire. This questionnaire usually takes less than 5 minutes to complete. We appreciate your answering every question as best you can. Assistance is available if needed from the front desk. To ensure that all information remains confidential, please do not include your name.

Thank you for choosing [Name of Organization], and please accept our best wishes for your treatment experience.

In good health,

[Name]
Senior Director of Nursing – Behavioral Health