



Exploring the Relationship Between the Reverse the Cycle Model and Staff Attitudes Towards Patients with Opioid Use Disorder (A Pilot Study)

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Introduction

The goal of this pilot study was to assess the relationship between exposure and involvement in an Emergency Department-based treatment-initiation-and-referral model and staff attitudes towards patients with Opioid Use Disorder (OUD). The study was a collaboration between the University of Maryland, Baltimore, School of Medicine, Systems Evaluation Center, and Mosaic Group, a nationally recognized consulting firm. The University of Maryland, Baltimore, School of Social Work, funded the study through a National Institute on Drug Abuse (NIDA) Innovations in Recovery Through Infrastructure Support (IRIS) grant.

This report includes the analytical results, scientifically exploring the relationship between the Reverse the Cycle model and staff attitudes towards patients with OUD. Descriptive reports detailing the responses to the individual items of the two measures and the main themes of the open-ended questions have previously been distributed (one aggregated report for all sites; six hospital-level reports).

Background

The opioid-use epidemic and associated overdose crisis are well-documented. The 2021 National Survey on Drug Use and Health report shows that among people aged 12 or older, 14% used an illicit drug in the past month (1). Such use often has fatal consequences, particularly for those using opioids; 80,816 people in the US died from opioid-involved overdoses in 2021 (2). In Maryland, there were 2,499 opioid-related deaths in 2020, an increase of 18.7 percent from 2019 (3). To prevent such deaths, it is crucial to engage individuals with OUD into treatment.

Adding to the dire situation is that those who seek treatment may encounter stigma and discrimination in some treatment settings. Research indicates that health professionals generally have negative attitudes towards patients with substance use disorders (SUD) (4) and may have lower regard for patients with OUD than those with other medical conditions with behavioral components (5). Such attitudes tend to differ by professional discipline (6) and treatment setting, with staff in specialized addiction services having higher

regard for these patients (7). Greater familiarity with substance use problems, higher frequency of working with this population, and more confidence in substance abuse treatment have been positively associated with higher regard.

Health care professional attitudes towards patients with SUD are important because they can impact patient progress and recovery. Negative staff attitudes can diminish patients' feelings of empowerment and treatment outcomes (4) or may even cause patients with SUD to leave the hospital prematurely (8). Thus, any intervention designed to engage individuals with OUD into treatment may need to address negative health care professionals' attitudes as well.

To help combat the opioid crisis in Maryland, Mosaic Group has been working closely with hospitals to implement its Reverse the Cycle (RTC) model. This model focuses on treatment initiation and referrals for patients with OUD in hospital EDs. The model's major components include universal screening and peer intervention using SBIRT (screening, brief intervention, and referral to treatment), the overdose survivor outreach program targeting high risk patients with OUD, and buprenorphine initiation within the ED. The model provides the opportunity for ED staff to engage in a wide variety of activities related to the model. They receive training, technical assistance, and outcome data reports.

As Mosaic Group staff have worked with hundreds of ED staff over the years, they have observed that ED staff attitudes towards patients with OUD can be negative and staff may feel ill-prepared to help such patients. They have also heard anecdotally that implementation of the RTC model can be associated with a positive change in such staff attitudes. This observation is consistent with information derived from a qualitative program evaluation in Maryland (9) and with the contact hypothesis (10) suggesting that intergroup contact under appropriate conditions reduces prejudice. Thus, the primary aim of this pilot study was to explore the hypothesis that involvement in the RTC model by ED staff was associated with more positive attitudes toward OUD patients.

Methods

Participants: Study participants were ED staff in six hospitals in Maryland that had previously received SBIRT training (using the RTC model) through Mosaic. Four University of Maryland Medical System (UMMS) hospitals and two MedStar hospitals participated in the study.

Measures: The Drug and Drug Problems Perception Questionnaire (DDPPQ-20 item version, with minor modifications) was used to assess ED staff attitudes towards working with patients with OUD. The DDPPQ-20 uses a 7-point Likert scale with both positively and negatively worded items. The measure has been shown to be a valid and reliable tool. Minor adaptations were made to make the measure more relevant to the study. The word "drug" was changed to "opioid" and the words "drug users" changed to "patients with OUD" to be more specific to study goals. The DDPPQ includes five subscales: role adequacy, role support, job satisfaction, role-specific self-esteem, and role legitimacy. Role adequacy refers to the sense that an individual has sufficient knowledge of the causes and effects of drug use to enable them to carry out their professional role and to give appropriate information and advice over the short and longer term. Role support is related to the perception that practitioners can access advice readily to help them to perform their role effectively. Job satisfaction subscale includes items related to job fulfillment. The role related self-esteem subscale appears to be associated with a

sense of professional self-esteem in relation to practitioner performance when working with drug users. The role legitimacy subscale relates to the extent to which people regard particular aspects of their work as being their responsibility.

A 21-item questionnaire Exposure/Involvement in Reverse the Cycle (EI-RTC) measuring the level of exposure/involvement of ED staff with RTC model was created by the study researchers specifically for this pilot study. The tool is designed to assess key areas of exposure (awareness, training, involvement) across the RTC model components (universal screening, peer intervention, overdose survivor outreach program, Medication-Assisted Treatment [MAT] initiation in the ED, and infrastructure supports). Respondents were asked to indicate the extent to which they agree or disagree along a 5-point Likert scale with 21 statements related to their exposure/involvement in RTC model implementation. A “Not Applicable” answer option was also available. (The tool was not piloted prior to the project, nor has it undergone psychometric testing although it had face validity.)

In addition to these two measures, several demographic and job- related items were included in the survey.

Procedures: After obtaining the necessary IRB permissions, six hospitals in Maryland were selected and approached for inclusion in the study. Once the sites agreed to participate, an email invitation to ED staff to participate in the study was sent via the hospital liaison. The invitation included a link to the online survey and was followed by three reminders over several weeks. Data collection lasted approximately 8 weeks. Participation was anonymous, and the survey did not register IP addresses.

Data Analysis: All data was screened for outliers and scales assessed for normality. The relationship between RTC exposure and attitudes toward working with patients with OUD was assessed with Pearson Product Moment correlations coefficients. The five subscales of the DDPPQ were included in these initial correlations. In addition, for a deeper understanding of the relationship, linear regressions were also generated with RTC exposure as the predictor and DDPPQ subscales as the outcomes while controlling the demographic and role-related covariates.

Results

A total of 130 individuals submitted online surveys. Peers (n=11) and respondents answering “Not Applicable” to any EI-RTC items (n=27) were excluded from the analysis. Of the remaining sample, 66 participants answered all of the DDPPQ and EI-RTC items and could therefore be included in the correlation and regression analyses.

Sample Characteristics: Most participants in the analysis were between the ages of 25-54 (79%), female (79.3%), and college educated (80%) with 44.1% having master’s level or professional degrees. The majority (63.8%) had worked in the ED for at least six years. Approximately 62% of the participants were nurses, 33.3% were providers (physicians, residents, nurse practitioners, or physician assistants) and the remaining 5% were in other roles.

Relationship between RTC exposure and attitudes towards patients with OUD: To address this study aim, Pearson product moment correlations were calculated to probe univariate relationships between RTC exposure and attitudes towards working with patients with OUD. As Table 1 shows, the initial correlations suggest that RTC exposure was positively related to overall attitudes

towards patients with OUD ($r= 0.29$, $p<.05$). This effect seemed to be driven by positive relationships between RTC exposure and two DDPPQ subscales: job satisfaction ($r= 0.46$, $p<.01$) and role adequacy ($r= 0.26$, $p<.05$). RTC exposure did not significantly relate to the remainder of the DDPPQ subscales.

Table 1
Correlations Between EI-RTC Measure and DDPPQ Subscales (n = 66).

DDPPQ – Attitudes Towards Working with Patients with OUD					
	Total	Job Satisfaction	Role-related Self Esteem	Role Support	Role Legitimacy
RTC Exposure	0.29*	0.46**	0.16	0.20	0.04

Note. * $p<0.05$, ** $p<0.01$

To further understand the relationship between RTC exposure and attitudes towards patients with OUD, linear regressions were generated with RTC exposure as the predictor and DDPPQ subscales as the outcomes, controlling for demographic and role related covariates (i.e., age, gender, level of education, professional experience, and role in the ED). The results of these regressions are detailed in Table 2. Based on these analyses, RTC exposure significantly predicted positive changes in overall attitudes towards patients with OUD, job satisfaction, and role support. Additionally, there was a trend level ($p=0.071$) relationship between RTC exposure and role adequacy.

Table 2
Regression Coefficients for RTC Exposure Predicting DDPPQ Subscales (n=66)

RTC Exposure	B	SE	95% CI		p
			LL	UL	
DDPPQ Attitudes					
Total	0.57	0.22	0.14	1.01	0.011*
Job Satisfaction	0.19	0.05	0.10	0.29	0.001**
Role Self Esteem	0.09	0.06	-0.03	0.21	0.145
Role Support	0.11	0.05	0.01	0.20	0.027*
Role Legitimacy	-0.01	0.04	-0.07	0.10	0.746
Role Adequacy	0.18	0.10	0.04	0.42	0.071+

Note. * $p<0.05$, ** $p<0.01$, +trend level significance

Discussion

The primary goal of this pilot study was to explore the relationship between Emergency Department (ED) staff members' exposure/involvement during ongoing Mosaic Group Reverse The Cycle (RTC) model implementation and their attitudes toward patients with Opioid Use Disorder (OUD).

To address the main goal of the study, ED staff from six hospitals in Maryland were invited to participate in an online survey regarding their experience with the RTC model and attitudes towards working with patients with OUD. Surveys were received from 130 participants. After eliminating surveys from Peers and missing and "Not Applicable" responses, 66 complete surveys were eligible for the analysis. Both correlation and regression analyses were performed to test the hypotheses.

The correlation results indicate that the ED staff overall attitudes towards working with patients with OUD were positively associated with their exposure to the RTC model. This seemed to be driven by the subscales of "role adequacy" and "job satisfaction." The more ED staff were exposed to the RTC model, the more likely they were to feel knowledgeable about OUD and felt able to advise patients. In addition, they were satisfied with their ability to perform their jobs.

Even when controlling for demographic and role related covariates, RTC exposure significantly predicted positive overall attitudes towards working with patients with OUD. In addition to predicting "job satisfaction," RTC exposure predicted "role support" which is participant perceptions that they can access advice from others to perform their own role effectively. A third subscale, "role adequacy" showed trend level significance.

Thus, the results confirm the study hypothesis that exposure to the RTC model positively affects ED staff attitudes towards working with OUD patients. Further, the findings indicate that RTC model exposure is specifically related to job satisfaction, role adequacy, and role support. The relationship exists when ED staff member characteristics and experience are taken into account.

Although these results are very promising, there were limitations in this pilot study that should be taken into consideration. The EI-RTC tool has not been psychometrically tested and therefore may not be measuring RTC exposure as adequately as hoped. The lack of experience with using the tool made scoring and interpretation of the "Not Applicable (NA)" responses challenging. Ultimately the choice to remove questionnaires with "Not Applicable" responses resulted in the elimination of a large number of surveys from the analysis sample. Had those questionnaires been included or had no "NA" answer option been available in the questionnaire, the sample characteristics and data may have been quite different. Another consideration is the small sample size itself, although it is unclear how much of a negative impact this had. While it would have been ideal to have a larger sample available for analysis, the significant results found suggest that there was significant power to detect relationships. Finally, the sample is not necessarily representative of all hospitals or ED staff members; a small number of hospitals participated and response rates for each ranged from 14.7% to 38.8%.

Future Directions

This pilot study provides preliminary evidence that involvement in the Mosaic Group RTC model predicts more positive attitudes towards working with patients with OUD, enhancing role adequacy, job satisfaction, and role support in the process. Mosaic Group can use this information to promote its work; this may be particularly useful when first engaging with a new hospital and outlining the benefits of implementing the RTC model. Understanding this complex relationship might also assist in refining modules for the training or boosters. For example, in this study the RTC model did not have a significant effect on role self-esteem, which in the DDPPQ tool is defined as a sense of one's performance when working with those with OUD. There may be aspects of the existing training or consultation which could be modified to specifically address this, if desired.

In terms of research, there are several recommendations for future study. Revising and testing the EI-RTC tool should be a priority. Considerations should include how to collect information from those with varying or no involvement in different RTC components. Either the "NA" response should be more clearly defined, eliminated altogether, skip patterns used, and/or a more refined scoring formula created. Once revised, pilot testing the tool with several individuals with different roles would be useful. More formal psychometric testing could then follow. Once the EI-RTC tool is found to have acceptable reliability and validity, then subsequent research studies should be conducted with a broader range of hospitals and other medical settings to determine generalizability of these pilot study findings. Such work would also provide a deeper understanding of medical staff attitudes towards individuals with OUD, allowing assessment by setting, professional discipline, and professional experience. Creating such a baseline of those attitudes lays the first stone for future interventions reducing stigma and biases in healthcare communities. Further, using more direct recruitment strategies (posting flyers in the ED break room, appearing briefly at staff meetings to provide an overview of the project) may help boost response rates and therefore generalizability. Finally, pre-post studies with comparison or control groups should be used to scientifically explore the cause-effect impact of RTC model involvement on attitudes towards patients with OUD. The results of these research endeavors will enable Mosaic Group to continually refine their training and implementation model, can contribute to the scientific understanding of how implementation impacts staff attitudes and perceived professional competence, and will help promote health equity by helping to ensure that patients with this potentially stigmatized condition receive optimal care.

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