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Community Participation as a Predictor of Depressive Symptoms Among Individuals with Serious Mental Illnesses

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Community Participation as a Predictor of Depressive Symptoms

Among Individuals with Serious Mental Illnesses

Introduction

Depression has been identified as the most common mental health condition in the general population (Kessler et al., 1994; Sinyor et al, 2016), and the leading contributor to disability adjusted life years (DALY) globally (Rehm & Shield, 2019). Among people with serious mental illnesses, regardless of diagnosis, depressive symptoms are experienced at a higher rate than the general population (Mechanic et al., 1994; Naslund et al., 2017). Depressive symptoms are associated with impairments in a number of functional areas and are apparent at any level, suggesting that it is more of a continuous rather than categorical phenomenon (Hwang et al., 2015; Meeks et al., 2011; Sandanger et al., 1999). Depressive symptoms are known to coincide with impaired social relationships and withdrawal from life activities (Kupferberg et al., 2016) that contribute to lower quality of life and subjective experiences of recovery (Conley et al., 2007; Resnick et al., 2004). Depressive symptoms among people with serious mental illness have also been found to be associated with higher healthcare utilization and more suicide attempts (Conley et al., 2007; Miller et al., 2014).

While effective psychosocial (e.g., psychotherapy) and pharmacological treatments for depressive symptoms exist, residual symptoms often remain, and some may not respond at all to these interventions (i.e., “treatment resistant”), enhancing the need for novel intervention targets. One such target has been an interest in understanding limited community participation as a possible contributor to depressive symptoms (Ahern & Hendryx, 2008; Fallahpour et al., 2011; Hao et al., 2017; BLINDED FOR REVIEW; Obembe et al., 2013; White et al., 2014). Community participation refers to the full engagement in valued domains of community life,

including employment, education, and leisure (World Health Organization, 2001). Previous research has demonstrated that individuals with serious mental illnesses and other disabilities do not participate as much as the general population (Bedell et al., 2013; Nagata, Townley, et al., 2020; Verdonschot et al., 2009). A number of factors have been identified as barriers to participation, including impairments, mobility issues, accessibility of opportunities for participation, and stigma (Ahern & Hendryx, 2008; Salzer, 2021; White et al., 2014). A lack of community participation in personally meaningful activities is associated with diminished recovery and quality of life among individuals with serious mental illnesses (Burns-Lynch et al., 2016) and with more depressive symptoms among segments of the general population, such as older adults (Ahern & Hendryx, 2008; Hao et al., 2017) and stroke survivors (Fallahpour et al., 2011; Khan, 2004; Obembe et al., 2013; White et al., 2014).

There are a number of theories that would predict a causal relationship between community participation and depressive symptoms among people with serious mental illnesses. The behavioral model of depression asserts that a lack of positive reinforcement from engaging in personally meaningful activities is responsible for depression (Lewinsohn, 1974). Community activities are personally meaningful and inspire goal-directed behaviors (Nagata, McCormick et al., 2020; Salzer & Baron, 2016), which are important factors in the experience of depression (Bergstad et al., 2012; Ettema et al., 2010; Marottoli et al., 1997). For example, through the pursuit of activities such as work, worship, and leisure, people experience increased vitality, engage in problem solving, and experience increased reward from successful engagements (Hooker et al., 2020; Turner et al., 2019). Community participation also typically requires some degree of physical activity (Snethen et al., 2021), which affects the brain regions that are responsible for cognition and affective processing (Schuch et al., 2016) that can be energizing.

Participation can also increase the frequency of in-person social interactions, which have been shown to reduce the probability of depressive symptoms (Teo et al., 2015). In sum, targeting community participation among people with serious mental illnesses may be an additional mechanism for addressing highly prevalent depressive symptoms.

Previous studies have found cross-sectional associations between depression and community participation among people with serious mental illnesses (Abdallah et al., 2009; Simonsen et al., 2010; BLINDED FOR REVIEW), but have not established the direction of causation (e.g., depression may limit participation and/or participation may decrease depression). Longitudinal studies can assist in identifying causal relationships between specific factors and outcomes (Van Belle et al., 2004). This study advances knowledge by using longitudinal data to explore whether changes in participation over time – either an increase or decrease, is associated with a corresponding decrease or increase in depression. The specific hypothesis is that changes in community participation over time – either increases or decreases, predicts a corresponding change in depression, after controlling for baseline levels of depression. The study also explores the relationship between various dimensions of participation, including changes in amount of participation, number of areas that are important to them, and degree to which they are participating in areas that are important to them, and depression. It is hypothesized, for example, that expanding the number of areas that are viewed as important over time may broaden opportunities for engagement in meaningful and pleasurable activities, which can decrease depression, and that increasing perceptions that one is participating "enough" in important areas may also lead to lower depression levels.

Method

Samples

The current study employed baseline and last-observation data from two randomized controlled trials of interventions that sought to enhance psychosocial outcomes among adults with serious mental illnesses (n=181). Study 1 (n=83) examined the effect of a 12-month peer-delivered independent living support and self-advocacy intervention with data collection at baseline and 6-, and 12-months post-baseline timepoints. Study 2 (n=98) examined the effect of a 24-month self-directed care intervention, involving participant-driven decision making on the types and the amount of mental health services with data collection at baseline and 12-, and 24-months post-baseline timepoints. Both studies enrolled adults (ages 18-65) with diagnoses of schizophrenia spectrum, bipolar disorder, or major depression receiving community mental health services. Both studies were approved by relevant municipal and academic institutional review boards and involved informed consent.

The current study used baseline data from all enrolled participants (i.e., experimental and control participants) and data from their last observation that occurred at least 12 months post-baseline. Participants in both conditions in both studies experienced increases, decreases, or no change in the hypothesized predictor variables – community participation, and the interventions under study produced no significant differences in those variables in between-group analyses. This study takes advantage of changes over time that occurred with the community participation variables, regardless of what produced them, and enhances statistical power to test the research hypothesis being tested in this study. Combining the two datasets enhances statistical power and generalizability.

Measures

Depressive symptoms. The 13-item depression subscale of Hopkins Symptoms Checklist (HSCL-D: Derogatis et al., 1974) was used to measure depressive symptoms. The instrument asked to what extent each depression-related symptom bothered during the past week. The symptoms include "feeling blue," "worthless feeling," and "feeling no interest in things." HSCL-D is known to be sensitive to clinical change (Williams et al., 2004). Participants were provided 4-point scale to respond (1=not at all to 4=extremely). Previous studies reported adequate internal consistency (α= .835; Williams et al., 2004), and the Cronbach alpha at baseline in this sample was .912.

Community Participation. The Temple University Community Participation Measure (TUCP) (Salzer et al., 2014) was utilized to quantify community participation. The TUCP includes 21 areas of community activities such as going to a park, going to watch a sports event, working for pay, volunteering, civic and political activities, and visiting family and friends. Participants were asked to indicate the number of days of independent participation in the past 30 days. Additionally, participants indicated whether the activity was important to them and whether they did the activity "enough," "not enough," or "too much." The TUCP has demonstrated good reliability and validity (Burns-Lynch et al., 2016; Salzer et al., 2014; Salzer et al., 2015; Snethen et al., 2021).

The current study focused on four indices: 1) total participation amount was calculated as the total days of participation across all areas; 2) total number of areas rated as important was calculated by counting how many of the 21 areas they reported as important to them; 3) breadth ratio was calculated as the proportion of important areas that the participant engaged in at least once (e.g., if 10 areas were rated as important and they participated at least one time in five of

those areas then the breadth ratio is 5/10 or 50%); and 4) sufficiency of participation, which is calculated as the proportion of important areas that the participant indicated that they engaged in "enough" (e.g., if 10 areas were rated as important and they indicated doing enough in three areas than sufficiency would be 3/10 or 30%).

Control variables. Age in years, gender, race, education, and income were used as demographic control variables in the analyses. In addition, days since the baseline was used to control for possible differences in intervals between baseline and last observation.

Data Analysis

Bivariate correlation analyses were conducted using change scores in depression, amount of participation, number of important areas, breadth ratio, and sufficiency. Change scores were calculated by last observation score minus baseline score. Multiple regression analyses were conducted with the last reported depression score as the dependent variable and demographic control variables, baseline depression score, time interval between baseline and last observation, and, finally, change in each community participation variable over time in each analysis.

Results

Sample characteristics

Demographic characteristics of the sample are summarized in Table 1. There were 58 participants (32.0%) on the schizophrenia spectrum as a primary diagnosis, 62 participants (34.2%) with bipolar disorder, and 61 participants (33.7%) with major depressive disorder. The average age was 47.19 (SD=9.38), and average monthly income was $742 (SD=$379). More women were in the total sample (n=104, 57.5%) than men (n=76, 42.0%) and Transsexual/Transgender (n=1, 0.5%), and a majority of participants indicated Black as their race/ethnicity (n=100, 55.2%), which is consistent with the racial makeup of the community

where these studies were conducted. No significant differences in gender, education, age, and income were found between participants in Study 1 and Study 2, but Study 1 did have a higher proportion of non-white participants (χ^2=33.709, df=7, p<.001)[1].

Table 1 around here

Preliminary Analyses

Descriptive statistics and bivariate correlation coefficients are summarized in Table 2. Of most importance to this study is the variability in change over time on each variable, as indicated by the standard deviation, which will be useful for assessing how change on each participation variable may be associated with changes in depression. Depression increased with an increasing number of participation areas that were viewed as important (r=.242, p<.01) and decreased when respondents participated to some degree in more areas that were important to them (r=-.254, p<.01) and with increases in the number of important areas they participated in "enough" (r=-.170, p<.05).

Table 2 around here

Regression

Multiple regression analyses were conducted using the changes in the amount of participation (Model 1), the number of important areas (Model 2), breadth ratio (Model 3), and participation sufficiency (Model 4) as predictors (see Table 3). None of the demographic characteristics or length of time between assessments were associated with depression at the last time point in any of the models. As expected, baseline levels of depression were strongly predictive of depression at the last time point. In the Model 1, change in participation amount was not predictive of depression at the last time point (β=-.066, p=.257), but change in the other

[1] Multivariate analyses conducted on subsamples separately demonstrated a reduction in power, but no differences in patterns of relationships.

participation constructs were predictive. Consistent with the correlational results, an increase in the number of areas viewed as important predicted greater levels of depression (β=.146, p<.05), while an increase in the breadth of important activities that were engaged in (β=-.175, p<.01) and increase in sufficiency of participation (β=-.160, p<.01) were both predictive of decreased depression. These three participation constructs contributed between 2-2.9% of explanatory variance in depression after controlling for the other variables.

Table 3 around here

Discussion

The current study examined the relationship between changes in community participation over time and depressive symptoms. Overall, increases in three participation constructs were associated with depressive symptoms at the last observed point after controlling for the baseline level of depressive symptoms. These longitudinal findings provide supporting evidence of a participation-depression association beyond previously reported cross-sectional relationships (e.g., Abdallah et al., 2009; BLINDED FOR REVIEW). Specifically, changes in participation over time demonstrate significant, albeit modest, associations with depression. This is a sign that increased participation may be an additional target for treatment of depressive symptoms. It may also be particularly useful for those who experience residual symptoms or treatment resistance with typical depression treatments such as pharmacological treatment and psychotherapy, although this study is unable to identify subgroups based on whether individuals are being treated for depression and their responsiveness to such treatment.

One intriguing finding was the association between an increase in important areas identified by participants and increased depression. According to the broaden and build theory of positive emotions (Garland et al., 2010), increased number of important activities (i.e., broaden

interests in activities) can provide opportunities to befriend with people in different venues or learn different coping skills through these activities (i.e., building resources), which can result in decreased depression; however, the current study found otherwise. A potential reason for this counterintuitive finding may be the limited resources that individuals with serious mental illnesses may have to engage in a broader range of areas due to poverty (Sylvestre et al., 2018), which was experienced by most individuals in this study. An increased number of important activities may require more resources, time, skills, and energy to fully engage in these new areas of interest. For example, a person who had two important activities in the past and five important activities now will likely need more of these resources to do the three new activities, including money to buy supplies or equipment or money for transportation to get to the venues. The lack of resources, time, or skills may exacerbate feelings of personal inadequacy (i.e., "I do not have resources to engage in activity, and this reflect that I am a person of no worth").

Consistent with this notion, this study did find that increased breadth ratio over time, which represents participation in a greater percentage of activities that are important, was associated with fewer depressive symptoms. Increased participation in important areas plausibly is associated with positive emotions during engagement in meaningful activities. Engagement in personally meaningful activities have long been thought to be rewarding and provide a sense of pleasure and overall positive affect (Lewinsohn, 1974), and increased rewards from engagement in daily life has been linked to decreased depression (Dimidjian et al., 2011). For example, a person can prevent or inhibit a negative spiral of depressive thoughts with participation that lifts their mood in daily life. Moreover, participation in important areas can create a sense of purpose and achievement, and goal-directedness that is associated with decreased depression (Feldman & Snyder, 2005). The pursuit of meaningful activities, even if not done as much as one would like,

can lead to a positive self-assessment, such as "I am at least approaching my ultimate goal, so I am doing okay". Indeed, the current study validates goal-directed thinking and behavior that have been discussed in the context recovery from mental illness (e.g., Anthony, 1993; Cook et al., 2012).

Doing "enough" in more areas that are important to respondents over time was also found to be predictive of decreased depression. These results suggest that participation to a satisfying extent in more areas over time also has positive psychological benefits. Cognitive theories of depression seem to best explain these findings (Beck, 2002). The cognitive theory of depression suggests that increased satisfaction with one's engagement in the community results in more positive self-assessments, which in turn alleviate depression (Butler et al., 2006; Zahn et al., 2015). For example, increased participation to a degree that is more satisfying can lead to a self-assessment such as, "I am doing important activities as much as I want, *thus I am worthy*," and such positive self-evaluations can provide relief from depression.

The one unexpected null finding in this study was that there was no significant relationship between changes in amount of participation and depressive symptoms, which is inconsistent with previous findings (Abdallah et al., 2009; Simonsen et al., 2010). Our results suggest that a simple increase in volume of participation over time is not by itself associated with depressive symptoms, consistent with the adage that "more is not always better." As discussed earlier, engaging in activities "enough" seems to be important in depression, and how much participation is needed to conclude that one has done "enough" has been found to differ across individuals (Thomas et al., 2017), so amount by itself may be less important than whether what one is doing is satisfying. For example, person A may feel that working only one day in the past 30 days is enough, while person B may have a desire to work at least 10 days before feeling that

they have done enough. Participation beyond what is needed to conclude that they have done enough may have diminishing returns in terms of impacting depression, and too much participation could theoretically be harmful.

While the relationship between participation and depression was significant even after controlling for the various covariates, the variance accounted for by changes in participation should not be overstated, as the effects are modest. To further the understanding of the relationship between participation and depression, further investigation of potential mediators is needed. Unfortunately, the current study could not examine potential mediators such as positive self-evaluation and psychological pressure, which can be examined in future research to elucidate these as potential mechanisms of action in the relationship between participation and depression.

Implications

These findings offer the strongest longitudinal evidence to date for the potential impact of targeting community participation among individuals with serious mental illnesses as a mechanism for addressing the high levels of depression that they tend to experience. Community participation, which some may typically view as an intervention target after depression is managed, should instead be viewed as an intervention target that can possibly directly ameliorate depression.

It would behoove service providers to gain a clear picture of each consumer's participation interests and then support them in moving forward in engaging in activities that are important to them, especially if they are experiencing high levels of depression. Assessment tools such as the Temple University Community Participation measure (Salzer et al., 2014), that was used in this study, covers a broad-range of community-based activities and may be

particularly useful in this endeavor. Consumers should be encouraged and supported in pursuing those activities that are meaningful to them and where they feel they do not do enough. The results of the current study suggest that having many interest areas, but not engaging in those activities, may exacerbate depression. Efforts should especially be made to support participation in important areas where they are not engaged at all. Some engagement in these areas, even if it is not as much as they would like, could be beneficial, although participation to a degree that is perceived to be "enough" is the ultimate goal. This means, for example, supporting someone to work one day and get together with friends two or three times a month, if those are important to them, is still potentially beneficial, even though they really want to work 10 days and get together seven days a month with friends.

Another implication is the need to refer interested consumers to current participation-oriented rehabilitation services, such as supported employment, education, housing, and other programs, and ensure that additional supports are available in a broader-range of areas, such as leisure and recreation, faith and spiritual activities, voting, volunteering, parenting, dating, and other areas where individuals with serious mental illnesses indicate are important to them, but where they are not participating as much as they would like. Advocating for adequate funding of such programs may also be necessary, as well as encouraging providers to fully utilize these services for individuals they are supporting. In a related vein, creating positions for recreational therapists and occupational therapists, in addition to psychiatric rehabilitation specialists, may be especially important for enhancing awareness and commitment to the importance of participation in the lives of people with serious mental illnesses.

The ability to access community resources is also important. Transportation to work, school, libraries, recreation centers, gyms, etc., may be necessary, and efforts to increase access

to, for example, public transportation through reduced fees for monthly passes, might help tremendously. Finally, addressing other environmental barriers, such as discouragement regarding participation from others (e.g., "You can't do that. You might embarrass yourself.") and prejudice and discrimination in various settings people want to engage in, need to be addressed. Additional financial resources for individuals would allow them to participate in activities they value, and anti-stigma campaigns would help consumers to participate without hesitation.

Limitations

While this study's findings are informative, there are some limitations to be considered when interpreting the results and conclusions. First, the current study involves individuals from primarily urban settings in the Mid-Atlantic region of the United States. While it is unclear how this might impact the relationship between participation and depression, replicating this study elsewhere would be important to increase confidence in the generalizability of results. Second, while the study involved a majority of Black participants, representation from other non-white groups was limited. Future studies with, for example, Asian, Hispanic, and Native American populations would be useful. Finally, while prospective designs can identify changes over time, they are still observational in nature. Although there is evidence from reviews of behavioral activation interventions supporting that changes in activation, such as through community participation, are causative of changes in depressive symptoms (Cuijpers et al., 2019), the direction of causality remains an open question in observational studies such as this one.

Conclusion

The current study found that changes in community participation predict changes in depression among individuals with serious mental illnesses over time, over and above initial

level of depression. While an increase in the amount of participation was not associated with the change in depression, increased engagement in a broader-range of important activities and satisfaction with the amount of participation in an increased percentage of important areas was predictive of lessened depression. A focus on participation appears to be a plausible, unique, additional mechanism for partially addressing depression among individuals with serious mental illnesses, which is consistent with both behavioral and cognitive theories. Identifying consumers' activity interests and providing targeted supports in engaging in these activities are recommended.

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Table 1

Summary of the characteristics of the study samples

	Total (n=181)		*Study 1 (n=83)*		*Study 2 (n=98)*		Statistics		
	n	*%*	*n*	*%*	*n*	*%*	χ^2	*df*	*p*
Gender							4.918	2	.086
Female	104	57.5	41	49.4	63	64.3			
Male	76	42.0	41	49.4	35	35.7			
Transsexual/Transgender	1	0.6	1	1.2	0	0			
Race							33.709	7	<.001
White Alone	61	33.7	15	18.1	46	46.9			
Black Alone	100	55.2	64	77.1	36	36.7			
Asian Alone	1	0.6	0	0	1	1.0			
Hispanic/Latino Alone	5	2.8	3	3.6	2	2.0			
Native American Alone	1	0.6	0	0	1	1.0			
Pacific Islander Alone	1	0.6	0	0	1	1.0			
Other Race Alone	5	2.8	1	1.2	4	4.1			
Multiracial	6	3.3	0	0	6	6.1			
Missing	1	0.6	0	0	1	1.0			
Education							2.409	2	.300
Less than High School	37	20.4	21	25.3	16	16.3			
High School or GED	76	42.0	34	41.0	42	42.9			
More than High School	68	37.6	28	33.7	40	40.8			
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*t*	*df*	*p*
Age in years	47.19	9.38	48.27	8.36	46.26	10.14	1.449	176.629	.149
Income	742	379	729	359	753	397	-.421	174	.674

Note. GED = general education development.

Table 2

Bivariate correlations among variables (n = 181)

	M	*SD*	DEP	AMO	IMP	BRT	SUF
Change in Depression	−.122	.565	-				
Change in Participation Amount	−6.09	31.45	−.088	-			
Change in the Number of Important Areas	−.92	4.15	.242**	.213**	-		
Change in Breadth Ratio	.011	.216	−.254**	.377**	−.319**	-	
Change in Sufficiency	.092	.237	−.170*	.176*	−.243**	.462**	-

Note. *p <.05, **p <.01. DEP=depression. AMO= amount. IMP=importance. BRT= breadth ratio. SUF=sufficiency

Table 3

Summary of multiple regression results: Predicting Last Observation of Depressive symptoms

Variable	Model 1			Model 2			Model 3			Model 4		
	B	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*
Covariates												
Age	-.005	.004	-.075	-.007	.004	-.095	-.006	.004	-.091	-.007	.004	-.096
Gender†	.038	.081	.029	.061	.080	.047	.051	.079	.039	.055	.080	.042
White Race	-.022	.084	-.016	-.026	.083	-.019	-.018	.082	-.013	-.024	.083	-.018
Income	.000	.000	.059	.000	.000	.062	.000	.000	.079	.000	.000	.066
Education††												
Less than HS	-.021	.108	-.013	-.026	.106	-.016	-.018	.105	-.011	.034	.108	.021
HS or GED	.148	.084	.112	.119	.084	.090	.126	.083	.096	.162	.083	.123
Baseline Depression	.594	.057	.635**	.608	.057	.651**	.615	.056	.658**	.596	.056	.638**
Interval between baseline and last observation	.000	.000	.066	.000	.000	.057	.000	.000	.079	.000	.000	.049
Participation Constructs												
Change in Amount	-.001	.001	-.066									
Change in Important Areas				.023	.009	.146*						
Change in Breadth Ratio							-.522	.173	-.175**			
Change in Sufficiency										-.433	.160	-.160**
Total R^2	.459			.475			.484			.478		
F	15.469			16.463			17.074			16.698		
R^2 of a Participation Construct	.004			.020			.029			.023		
F Change (df)	1.293 (1, 164)			6.167 (1, 164) *			9.168 (1, 164) **			7.323 (1, 164) **		

Note. *p <.05, **p <.01. †Transgender case was not included in the analysis as it was an extremely rare case (n=1). ††Dummy variable, "some college or above" as reference. HS= high school. GED= general education development.