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FRED E. MARKOWITZ

Northern Illinois University

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Building on modified labeling theory, I examine the relationships between stigma, psychological well-being, and life satisfaction among persons with mental illness. The study uses longitudinal data from 610 individuals in self-help groups and outpatient treatment. Results from cross-sectional and lagged regression models show adverse effects of stigma on the outcomes considered. However, much of the effects of anticipated rejection are due to discriminatory experiences. The results also indicate that stigma is related to depressive-anxiety types of symptoms but not psychotic symptoms. Although the findings show that the negative effect of stigma on life satisfaction is partly mediated by self-concept, reciprocal effects models indicate that the relationship between self-concept and life satisfaction is bi-directional. The study suggests ways in which stigma processes need to be explored in greater detail.

Persons with mental illness are more likely to be unemployed, have less income, experience a diminished sense of self, and have fewer social supports (Link and Cullen 1990). Labeling theory attributes these deficits partly to the stigma of mental illness (Link et al. 1989). Recent research has shown how stigma affects psychological and social outcomes (Link 1987; Link et al. 1989; Link, Mirotznik, and Cullen 1991; Rosenfield 1997; Wright and Gronfein 1996). In these studies, *stigma* refers to undesirable characteristics linked to mental illness and the adverse cognitive and behavioral consequences (Goffman 1963; Link et al. 1997). This study further investigates the relationship between stigma and important elements in the process of recovery, including symptoms, self-concept, and life satisfaction (Anthony 1993; Davidson and Strauss 1992; Lehmann 1988; Nelson et al. 1995).

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THEORY AND RESEARCH ON STIGMA

In the initial version of labeling theory, persons exhibiting behaviors not easily defined (residual deviance) may become labeled as mentally ill by treatment professionals. Persons who are labeled are rejected and discriminated against when attempting to resume normative roles, and they are relegated to playing the role of patient (Scheff 1966). As a result, a person's identity is altered, leading to behavior consistent with the expectations for the role of "mentally ill." In this version of the theory, labeling and the reactions of others are causes of sustained residual deviance.

Critics of the theory argued that the stigma associated with mental illness is minimal and does not affect the lives of persons diagnosed as mentally ill. Rather, they contend that rejection and negative outcomes are due primarily to the symptoms of mental illness. Critics also argued that labels allow persons to receive services and benefits which help improve their

condition (Gove 1982; Gove and Fain 1973; Huffine and Clausen 1979; Weinstein 1983).

In a recent, "modified" version of the theory (Link 1987; Link et al. 1989), the strong claim that labeling *causes* "careers in residual deviance" is replaced by a subtle approach to how stigma affects the course of illness. In this version, stereotypical attitudes about the mentally ill, (e.g. as incompetent and dangerous) become personally relevant to an individual diagnosed with a mental illness. Because of these attitudes, those labeled expect to be devalued and discriminated against. These beliefs act as self-fulfilling prophecies, leading to lowered esteem and demoralization. Moreover, in order to avoid rejection, persons who are labeled engage in coping strategies, such as secrecy, disclosure, or social withdrawal, which may constrict social networks, leading to unemployment and lowered income. Drawing on stress research, the theory further predicts that a low sense of self and reduced social and material resources increases stress, placing persons at greater risk for continued symptoms (Pearlin et al. 1981; Turner 1981). Thus, labeling and stigma indirectly leads to sustained illness.

Tests of this theory have focused on how stigma affects certain outcomes, operationalizing stigma using Link's (1987) Devaluation-Discrimination Beliefs Scale, which measures *anticipated* social rejection (Link 1987; Link et al. 1989, 1991; Rosenfield 1997; Wright and Gronfein 1996). These studies, using community and patient samples, show that anticipated stigma is related to demoralization (a composite measure of low self-esteem and symptoms of sadness, anxiety, and confused thinking (Dohrenwend et al. 1980)), lower income, unemployment, and restricted social networks (Link 1987; Link et al. 1989, 1991).

Two studies using longitudinal data include both anticipated and *experienced* rejection. In a study of 84 men in treatment for mental illness and substance addiction, Link et al. (1997) found that, while depressive symptoms improved over a one-year period, level of stigma remained about the same. Lagged regression models showed that stigma increased symptoms over the study period, suggesting that although treatment may help improve symptoms, the adverse effects of stigma remain. In another study of 88 persons released from a psychiatric hospital, Wright and Gronfein (1996) reported a negative effect of anticipated and experienced stigma on change in self-esteem over a one-year period. In Wright and Gronfein's study, the effects of expected and experienced stigma on self-esteem were similar in magnitude. However, in the Link et al. (1997) study, the effect of anticipated stigma was no longer significant when stigmatizing experiences were controlled. Because of a small sample Link and colleagues were hesitant to draw the conclusion that persons with mental illness anticipate rejection because of their experiences.

A recent study using cross-sectional data from 157 persons in a psychosocial rehabilitation program (Rosenfield 1997) found that anticipated rejection had negative effects on life satisfaction, while aspects of the program had positive effects on life satisfaction, controlling for symptoms. Furthermore, drawing on self-concept theory, Rosenfield found that the effects of stigma and service use on life satisfaction were largely mediated by self-efficacy. Although her findings imply that self-concept may have a beneficial effect on life satisfaction, there is also reason to expect a reverse effect. Self-perception theory suggests that life satisfaction could also affect self-concept because persons are likely to infer their sense of self from their circumstances (Bem 1972).

Present Study

This study builds upon the above research in several ways. Since it is often difficult to obtain data from mentally ill persons, generalizability is an important issue in stigma research (Cook and Wright 1995; Dworkin 1992). According to modified labeling theory, persons who are currently in treatment, and especially those recently hospitalized, may be subject to greater stigma and difficulty in community adjustment (Link 1987; Link et al. 1989). Most tests of the theory rely on the same data set, which includes community respondents meeting the criteria for psychiatric disorder and persons in treatment (Link 1982, 1987; Link et al. 1989). While the larger community samples offer confidence in the generalizability of results, the most recent studies discussed above, which investigate stigma processes in greater detail (e.g., effects of stigma over time, role of self-concept, effects of discriminatory experiences), use

smaller samples from specific treatment settings (Link et al. 1997; Rosenfield 1997; Wright and Gronfein 1996). This study examines whether these effects are similar in two samples of persons with mental illness one from outpatient clinics, the other from self-help groups who may be more likely to accept the label of mentally ill and respond by reaching out to similar others. Results that are similar across the two groups, and consistent with recent studies, will offer additional support for modified labeling theory.

With the exception of the Link et al. (1997) and Wright and Gronfein (1996) studies, most of the recent research on stigma has relied on cross-sectional data, which leaves authors tentative about conclusions regarding causal direction. Since critics of labeling theory argue that deficits in psychological functioning lead to rejection and lower levels of well-being, longitudinal data is needed in order to isolate the effects of stigma. The present analysis uses data from a longitudinal study, permitting a more stringent test of the effects of stigma on certain outcomes (Finkel 1995).

Previous research has focused primarily on affective states as dependent variables. In this study, in addition to depression and anxiety symptoms, the relationship between stigma and more severe, psychotic symptoms is examined. Psychotic symptoms may reflect biologically-rooted causes and are perhaps less influenced by social processes. Comparing the relationship between stigma and both types of symptoms is also useful in addressing an important criticism of labeling theory—that social rejection is due more to symptomatic behavior than to stigma. Since psychotic symptoms are more likely to induce behaviors which lead to social rejection (Farina, Fisher, and Fischer 1992), if persons are stigmatized because of their symptoms, the bivariate relationship between stigma and symptoms should be stronger for psychotic, compared to depression-anxiety types of symptoms.

In addition to self-esteem, an efficacy-beliefs measure is included that is specifically related to mental health. Self-efficacy is increasingly considered an important psychological resource in dealing with mental illness (Anthony 1993; Gecas 1989; Rosenfield 1992, 1997). This measure allows examination of whether stigma is related to a more specific dimension of self-concept in the same way that it is related to general self-esteem. Some research implies that more specific aspects of self-concept may have a greater impact on behavior than global self-esteem (Rosenberg et al. 1995).

Another important issue I address is whether the effects of anticipated rejection on well-being are comparable to, or perhaps accounted for, by experienced rejection. The findings from the above studies that included both types of stigma are mixed. I estimate a series of models for the effects of anticipated stigma on well-being, with and without stigma experiences included.

Finally, following Rosenfield (1997), I examine the extent to which the relationship between stigma and life satisfaction is mediated by self-concept and also consider the possible reciprocal nature of this relationship. As mentioned above, it is quite likely that part of the relationship between self-concept and life satisfaction is due to the effect of life satisfaction on self-concept. Taking advantage of longitudinal data, I estimate reciprocal effects between self-concept and life satisfaction.

I expect that both anticipated and experienced stigma will have adverse effects on symptoms, self-esteem, self-efficacy, and life satisfaction. However, the effect of stigma on psychotic symptoms may be less than its effect on depression and anxiety symptoms. I further predict that a portion of the relationship between anticipated stigma and the dependent variables will be explained by stigma experiences. While I expect that some of the effects of stigma on life satisfaction will be mediated by self-esteem and efficacy, I also explore the possibility that these variables are reciprocally related.

METHODS

Sample

I use data from a two-wave study of persons with mental illness in consumer-run self-help groups and outpatient settings in upstate New York (Carpinello et al. 1995). The first wave of data was obtained by identifying self-help groups throughout the state and asking group leaders to distribute questionnaires to their members. Similarly, service providers were asked to distribute surveys to their current clients, but this was done only in one county. Eighty-two percent of the group leaders and 52

percent of the treatment providers agreed to participate. A total of 875 persons from the self-help sample and 190 from the outpatient sample completed and returned the questionnaires (an estimated 60% response rate for both groups). Eighty-four percent of these respondents agreed to have their names and addresses retained and were mailed a follow-up survey 18 months later. My analysis is based on the 610 respondents (520 from the self-help sample and 90 from the outpatient sample) who completed surveys in both waves (overall, 57% of the respondents were retained).

As is the case in several recent studies, the subjects do not constitute a random sample of persons with mental illness, but include individuals selected into service settings. Despite the difficulties associated with obtaining survey data from persons with mental illness (Cook and Wright 1995; Dworkin 1992), the samples are well-suited to examining stigma processes. According to labeling theory, persons who are currently or recently involved in treatment are most likely to experience the effects of stigma (Link 1987; Link et al. 1989). Most of the respondents in this study have been hospitalized for psychiatric problems at some time in their lives (72% in the self-help and 82% in the outpatient sample; the difference is significant, $p < .05$) and about 50% of those in the self-help sample were hospitalized within the past five years (61% in the outpatient sample; $p < .05$). About 11 percent in both groups were hospitalized at least once during the last six months. On average, respondents in both groups visited a therapist about eight times in the last six months. About 75 percent of the respondents were taking psychiatric medication at the time of the survey. A range of diagnoses are represented (63% depression; 19% schizophrenia; 19% personality; 37% panic/anxiety; 19% post-traumatic stress; and 6% substance abuse disorder).[1]

Demographically, the self-help members are somewhat different than the outpatient sample. They are older (46.2 vs. 43.2 years) and more likely to be white (92% vs. 77%), married (31% vs. 10%), employed (41% vs. 28%), and living in a private residence (75% vs. 55%). Differences were significant at the .05 level. No significant differences in gender or education were found. For the samples combined, 38 percent were male and, on average, have a high-school education.

To determine whether those retained in the second wave of the study differed from those who attrited, the log odds of remaining in the sample was regressed on the outcome and control variables measured in the first wave (Menard 1991). The only difference was that respondents not retained were more likely to be residing in group-type settings with higher turnover. About 7 percent of the respondents were unable to be contacted in the second wave due to the lack of forwarding address information.

Measures

Anticipated stigma was measured using eight items from Link's (1987) Devaluation-Discrimination Beliefs Scale, which asks respondents to indicate the extent that mental patients in general will be rejected by most persons in the community, with responses coded on a scale from 1 ("strongly disagree") to 4 ("strongly agree"), so that higher scores indicate greater expected rejection (alpha = .78).[2] *Stigma experiences* were measured by asking respondents the following question: "During the last six months, do you feel you have been discriminated against or stigmatized because of your mental illness diagnosis?" This item was coded on a scale from 0 to 4 ("no, not at all," "rarely," "often," "very often," "all the time"). Although having only a single question to measure stigma experiences limits the ability to assess reliability, a follow-up question asking respondents to describe a recent instance provided evidence of the item's validity.[3] Examples of such experiences involve employment or work difficulties (17%), social exclusion (14%), verbal derogation (14%), denial of rights (6%), and adverse treatment by service providers (3%).

Symptoms were measured using the Colorado Symptom Index (Shern, Wilson, and Coen 1994), a 14-item scale with depression-anxiety and psychotic subscales. Each item was coded from 0 to 4 ("not at all," "once or twice a month," "several times a month," "several times a week," "at least every day") (alpha = .91 and .68 for the respective subscales). *Self-esteem* was measured using the Rosenberg (1965) scale. The 10 items were each coded on a scale from 1 to 5, with higher scores indicating a greater level of self-esteem (alpha = .90).[4] *Self-efficacy* was measured

using a set of items from the Mental Health Confidence Scale (Carpinello, Knight, and Markowitz 1994), designed to measure how confident persons are in their ability to manage a variety of circumstances related to mental illness. Each item was coded from 1 ("not at all confident") to 6 ("very confident") (alpha = .94). Item wording for the psychological measures are given in the Appendix.

Interpersonal life satisfaction was measured by two items asking respondents how satisfied they are with the amount of time spent with their family and friends (alpha = .60). Similarly, three items were used as measures of *economic life satisfaction*: satisfaction with job status, the amount of money they have to live on, and where they are living (alpha = .61). These items were coded from 1 ("unhappy") to 5 ("pleased").[5] To reduce the number of missing cases, the average score for a minimum number of items answered on each of the above multiple-item scales were used.

Control variables included age (in years), education (on a 7-point scale), gender (male), race (white), marital status (married), employment status (working in a paying job), residence (private residence), self-reported diagnoses (mood, schizophrenia, personality, posttraumatic stress, panic-anxiety, and substance abuse), psychiatric hospitalization in the last five years, and hospitalization in the last six months.

Analytic Strategy

First, I estimated a series of cross-sectional ordinary least squares regression models for the effects of stigma on each of the dependent variables at time two. The second wave is used because that was when the stigma variables were measured. Two models are estimated, one with just anticipated stigma, and the second with experienced stigma added. I then re-estimate the models, including each lagged dependent variable as an independent variable, indicating the effects of stigma on the change in each dependent variable across the 18-month interval. Next, for both sets of models, I include self-esteem and efficacy in the life satisfaction models in order to examine their mediating effects. Lastly, I use the maximum likelihood method in LISREL 8 (Jöreskog and Sörbom 1993) to estimate a series of models for the reciprocal effects between self-concept and life satisfaction. The lagged (wave 1) values are employed as instrumental variables to identify the equations (Kessler and Greenberg 1981; Finkel 1995). Both cross-lagged and simultaneous models are estimated, with differences across both sets of models noted.[6]

RESULTS

Descriptive statistics for the main variables are presented in Table 1. Consistent with previous studies, on average, 72 percent of respondents either "agree" or "strongly agree" to items indicating that persons with a mental illness—like themselves—will be devalued and discriminated against. However, only about half of the respondents indicated they had experienced discrimination in the past six months. No significant differences in the level of stigma, symptoms, or life satisfaction were found between the self-help and outpatient samples, nor were any mean differences found between variables measured at time one and two.

Tests were performed to see whether any of the coefficients from the series of models varied between the self-help and outpatient sample groups.[7] No significant differences were found, suggesting the results are similar for the two groups. Thus, I present the findings from

TABLE 1. Descriptive Statistics For Main Variables

Variables	Range	Means	
		Time 1	Time 2
Stigma			
Anticipated[a]	1–4	—	2.703
			(.545)
Experienced[a]	0–4	—	.808
			(1.706)
Symptoms			
Depression-Anxiety	0–4	1.684	1.580
		(1.028)	(1.041)
Psychotic	0–4	.549	.477
		(.708)	(.684)
Self-Concept			
Esteem	1–5	3.385	3.446
		(.899)	(.887)
Efficacy	1–6	4.544	4.484
		(.928)	(1.111)
Life Satisfaction			
Interpersonal	1–5	3.574	3.538
		(.993)	(.944)
Economic	1–5	3.214	3.249
		(1.002)	(.991)

Note: Standard deviations in parentheses.
[a]Stigma variables not measured in wave 1.

TABLE 2. Unstandardized Cross-Sectional OLS Estimates for the Effects of Stigma on Psychological Well-Being and Life Satisfaction at Time 2.

	Symptoms				Self-Concept				Life Satisfaction					
	Depression-Anxiety		Psychotic		Esteem		Efficacy		Interpersonal			Economic		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Stigma														
Anticipated	.186**	.109	−.007	−.046	−.167**	−.136*	−.117	−.073	−.135*	−.095	−.044	−.273***	−.193**	−.163*
	(.079)	(.079)	(.052)	(.053)	(.070)	(.071)	(.090)	(.092)	(.080)	(.073)	(.078)	(.080)	(.080)	(.079)
Experienced	—	.199***	—	.101***	—	−.081*	—	−.116**	—	−.103**	−.070*	—	−.207***	−.191***
		(.042)		(.028)		(.038)		(.049)		(.043)	(.041)		(.042)	(.042)
Self-Concept														
Esteem	—	—	—	—	—	—	—	—	—	—	.364***	—	—	.238**
											(.057)			(.058)
Efficacy	—	—	—	—	—	—	—	—	—	—	.026	—	—	.027
											(.044)			(.045)
Controls														
Age	−.012***	−.012***	−.007**	−.007**	.007*	.007*	.005	.006	.007*	.007*	.004	.012***	.012***	.011
	(.004)	(.033)	(.002)	(.002)	(.003)	(.003)	(.004)	(.004)	(.004)	(.004)	(.003)	(.004)	(.004)	(.003)
Male	.091	.116	.118*	.131*	−.117	−.127*	−.201*	−.216*	−.090	−.103	−.051	.051	.024	.048
	(.086)	(.084)	(.057)	(.056)	(.077)	(.077)	(.098)	(.098)	(.088)	(.088)	(.083)	(.088)	(.086)	(.085)
White	−.014	.004	−.063	−.054	.086	.079	−.071	−.081	−.238*	−.247*	−.273*	.004	−.015	−.036
	(.139)	(.136)	(.092)	(.090)	(.123)	(.123)	(.159)	(.158)	(.141)	(.141)	(.133)	(.141)	(.138)	(.136)
Education	.035	.033	.006	.005	.002	.002	.029	.030	−.033	−.032	−.033	.026	.028	.029
	(.031)	(.030)	(.020)	(.020)	(.027)	(.027)	(.035)	(.035)	(.031)	(.031)	(.029)	(.031)	(.030)	(.030)
Married	−.083	−.048	−.071	−.053	.063	.048	.238*	.217*	.160	.141	.118	.357***	.319**	.314**
	(.099)	(.097)	(.065)	(.065)	(.088)	(.088)	(.113)	(.113)	(.101)	(.100)	(.095)	(.100)	(.098)	(.097)
Employed	−.264**	−.213**	−.195***	−.170**	.151*	.131*	.277**	.247**	−.020	−.046	−.100	.319***	.265**	.241**
	(.088)	(.087)	(.058)	(.058)	(.078)	(.079)	(.101)	(.101)	(.090)	(.090)	(.086)	(.090)	(.088)	(.087)
Private	−.023	.061	−.047	−.003	.025	−.010	.123	.072	.017	−.027	−.026	−.031	−.121	−.116
Residence	(.098)	(.097)	(.065)	(.065)	(.087)	(.088)	(.112)	(.113)	(.100)	(.101)	(.095)	(.100)	(.099)	(.097)
Mood Disorder	.196*	.178*	.054	.045	−.142*	−.135*	.024	.034	−.076	−.066	−.018	−.176*	−.157*	−.124
	(.092)	(.090)	(.061)	(.060)	(.082)	(.081)	(.105)	(.105)	(.094)	(.093)	(.088)	(.093)	(.091)	(.090)
Schizophrenia	.007	−.053	.159*	.128*	−.012	−.013	−.104	−.068	−.011	.020	.017	.086	.149	.144
	(.110)	(.108)	(.073)	(.072)	(.099)	(.098)	(.126)	(.126)	(.112)	(.112)	(.106)	(.112)	(.110)	(.108)
Personality	.181	.108	.275***	.238**	−.236**	−.206*	−.118	−.076	−.279**	−.241*	−.164	−.088	−.012	.035
Disorder	(.112)	(.110)	(.074)	(.074)	(.099)	(.100)	(.128)	(.129)	(.114)	(.115)	(.109)	(.114)	(.112)	(.111)
Post-Traumatic	.358**	.298**	.150*	.119	−.157	−.133	−.282*	−.245*	−.059	−.028	.027	−.268*	−.205*	−.180
Stress	(.113)	(.112)	(.075)	(.074)	(.101)	(.101)	(.130)	(.130)	(.116)	(.116)	(.110)	(.115)	(.113)	(.112)
Panic-Anxiety	.545***	.516***	.151**	.135**	−.358***	−.345***	−.220*	−.202*	−.097	−.082	.049	−.092	−.060	.016
Disorder	(.090)	(.089)	(.060)	(.059)	(.080)	(.080)	(.103)	(.103)	(.092)	(.092)	(.089)	(.092)	(.090)	(.090)

TABLE 2. Continued.

	Symptoms				Self-Concept				Life Satisfaction					
	Depression-Anxiety		Psychotic		Esteem		Efficacy		Interpersonal				Economic	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Substance Abuse	.395*	.404*	.256*	.260*	−.125	−.129	−.019	−.024	.082	.078	.125	.101	.092	.122
Disorder	(.181)	(.177)	(.119)	(.118)	(.161)	(.160)	(.207)	(.206)	(.184)	(.184)	(.174)	(.184)	(.180)	(.177)
Hospitalized	.016	−.019	−.013	−.031	−.115	.100	−.171	−.151	−.043	−.025	.016	−.028	.008	.028
last 5 years	(.091)	(.089)	(.060)	(.060)	(.081)	(.081)	(.104)	(.104)	(.093)	(.093)	(.088)	(.093)	(.091)	(.099)
Hospitalized	.235*	.225	.444***	.439***	−.319**	−.315**	−.451**	−.445**	−.069	−.064	.062	−.015	−.005	.058
last 6 months	(.140)	(.137)	(.093)	(.091)	(.125)	(.124)	(.161)	(.160)	(.143)	(.142)	(.136)	(.143)	(.139)	(.138)
R^2	.266	.299	.259	.279	.202	.209	.156	.166	.072	.083	.185	.163	.202	.233

*$p < .05$; **$p < .01$; ***$p < .001$ (one-tailed tests)
Note: standard errors in parentheses.

the combined sample. The results shown are those using pairwise deletion of missing data. The results using listwise deletion were substantively identical.

Cross-Sectional Models

Table 2, presents the results from the cross-sectional models for the relationship between stigma and outcomes. The estimates in columns 1, 5, 7, 9, and 12 show that anticipated stigma is related to depressive-anxiety symptoms, self-esteem, and life satisfaction. However, as is evident in column 3, psychotic symptoms are unrelated to anticipated stigma. From the estimates in columns 2, 4, 6, 8, 10, and 13, experienced stigma is significantly related to all of the outcomes considered. The relationship between discriminatory experiences and psychotic symptoms is less than it is for depression-anxiety symptoms. Once rejection experiences are included, the initially significant coefficients for anticipated rejection are reduced by about 30 percent on average, suggesting that a substantial part of the effect of expected rejection may be due to stigma experiences.[8]

Lagged Regression Models

As shown in Table 3, there is a considerable degree of stability in each of the dependent variables across the 18-month interval. Comparing the estimates in columns 1, 3, 5, 7, 9, and 12 to those from the cross-sectional models in Table 2, the effect of anticipated rejection is substantially lower and significant only for economic life satisfaction (column 12).

Since the measure of anticipated rejection is not time-dependent (in contrast to the discriminatory experience measure), including it in the lagged models may be an overly conservative test. Its effect on outcomes might have already occurred earlier and thus may not affect changes across the 18-month period. By controlling for time 1 levels of each variable, some of the initial effects of discriminatory beliefs on each of the dependent variables may have already been partialled out.

Discriminatory experiences are significantly related to all of the dependent variables except for self-concept. The effect of stigma experiences on self-esteem approaches significance ($p < .10$). Discriminatory experiences have fairly consistent adverse effects on each of the outcomes considered, but those effects are substantially reduced in the lagged models. In general, the results in Table 3

TABLE 3. Unstandardized OLS Estimates for the Effects of Stigma on Psychological Well-Being and Life Satisfaction With Lagged Dependent Variables

	Symptoms				Self-Concept				Life Satisfaction					
	Depression-Anxiety		Psychotic		Esteem		Efficacy		Interpersonal			Economic		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Dependent Variable (T1)	.697*** (.033)	.681*** (.033)	.510*** (.037)	.497*** (.037)	.644*** (.035)	.640*** (.035)	.581*** (.047)	.574*** (.048)	.360*** (.041)	.353*** (.041)	.281*** (.042)	.468*** (.040)	.448*** (.040)	.426*** (.041)
Stigma														
Anticipated	.046 (.057)	.007 (.057)	−.057 (.044)	−.077 (.045)	−.046 (.054)	−.033 (.055)	−.034 (.079)	−.018 (.081)	−.071 (.075)	−.045 (.076)	−.018 (.074)	−.210** (.071)	−.154* (.072)	−.140* (.071)
Experienced	—	.110*** (.030)	—	.055* (.024)	—	−.037 (.029)	—	−.044 (.043)	—	−.071* (.040)	−.052 (.039)	—	−.153*** (.038)	−.146*** (.038)
Self-Concept														
Esteem	—	—	—	—	—	—	—	—	—	—	.254*** (.057)	—	—	.116* (.054)
Efficacy	—	—	—	—	—	—	—	—	—	—	.035 (.042)	—	—	.001 (.041)
Controls														
Age	−.001 (.003)	−.001 (.003)	−.002 (.002)	−.003 (.002)	−.001 (.002)	−.001 (.002)	.004 (.004)	.004 (.004)	.004 (.003)	.004 (.003)	.002 (.003)	.004 (.003)	.005 (.003)	.004 (.003)
Male	.014 (.062)	.030 (.061)	.043 (.048)	.052 (.048)	−.069 (.059)	−.074 (.059)	−.196** (.086)	−.202** (.086)	−.102 (.082)	−.111 (.082)	−.069 (.080)	.095 (.078)	.073 (.077)	.086 (.077)
White	−.015 (.099)	−.005 (.098)	.044 (.078)	.046 (.078)	.126 (.094)	.122 (.094)	−.118 (.139)	−.121 (.139)	−.175 (.132)	−.183 (.131)	−.213* (.128)	−.009 (.125)	−.022 (.123)	−.031 (.123)
Education	.040* (.022)	.039* (.022)	.007 (.017)	.007 (.017)	−.012 (.021)	−.012 (.021)	.030 (.031)	.030 (.031)	−.024 (.029)	−.023 (.029)	−.027 (.028)	.043 (.028)	.044 (.028)	.043 (.027)
Married	.032 (.071)	.049 (.070)	−.019 (.055)	−.011 (.055)	.038 (.067)	.032 (.067)	.097 (.099)	.091 (.100)	.065 (.094)	.054 (.094)	.052 (.092)	.196* (.090)	.175* (.089)	.177* (.089)
Employed	−.111* (.064)	−.086 (.063)	−.089* (.050)	−.077 (.050)	−.016 (.060)	−.024 (.061)	.045 (.090)	.037 (.091)	−.065 (.084)	−.083 (.084)	−.117 (.082)	.229** (.080)	.193** (.079)	.181* (.079)
Private Residence	−.142* (.070)	−.091 (.071)	−.033 (.055)	−.009 (.055)	.116* (.067)	.099 (.068)	.133 (.098)	.114 (.100)	.055 (.093)	.023 (.094)	.013 (.092)	.030 (.088)	−.039 (.089)	−.042 (.088)
Mood Disorder	.145* (.066)	.136* (.065)	.059 (.051)	.054 (.051)	−.117* (.062)	−.113* (.063)	.018 (.092)	.022 (.092)	.020 (.088)	.025 (.087)	.039 (.085)	−.060 (.083)	−.051 (.082)	−.040 (.082)
Schizophrenia	.045 (.079)	.010 (.079)	.130* (.062)	.114* (.062)	−.023 (.075)	−.011 (.075)	−.064 (.110)	−.051 (.111)	−.039 (.104)	−.017 (.105)	−.010 (.102)	.045 (.099)	.093 (.098)	.095 (.098)
Personality Disorder	.042 (.080)	.004 (.080)	.138* (.063)	.121* (.063)	−.056 (.076)	−.045 (.077)	−.065 (.112)	−.049 (.113)	−.189* (.106)	−.165 (.107)	−.125 (.104)	−.049 (.101)	.005 (.100)	.028 (.100)
Post-Traumatic Stress	.154* (.082)	.125 (.081)	.004 (.064)	−.009 (.064)	−.004 (.077)	.006 (.078)	−.170 (.114)	−.158 (.114)	−.056 (.107)	−.034 (.108)	.009 (.105)	−.204* (.102)	−.161 (.101)	−.147 (.101)
Panic-Anxiety Disorder	.235*** (.066)	.225*** (.066)	.127** (.051)	.119** (.050)	−.165** (.062)	−.160** (.062)	−.074 (.091)	−.069 (.091)	−.054 (.066)	−.044 (.086)	.043 (.085)	.003 (.082)	.022 (.081)	.059 (.082)

TABLE 3. Continued.

	Symptoms				Self-Concept				Life Satisfaction					
	Depression-Anxiety		Psychotic		Esteem		Efficacy		Interpersonal			Economic		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Substance Abuse	.339**	.345**	.220*	.223*	−.126	−.128	−.170	−.042	.051	.049	.088	.104	.097	.112
Disorder	(.130)	(.128)	(.101)	(.101)	(.123)	(.123)	(.114)	(.181)	(.171)	(.179)	(.166)	(.163)	(.160)	(.160)
Hospitalized	−.045	−.063	−.048	−.056	−.014	−.008	−.076	−.069	−.041	−.029	.003	.048	.072	.081
last 5 years	(.065)	(.065)	(.051)	(.051)	(.062)	(.062)	(.092)	(.092)	(.086)	(.086)	(.084)	(.082)	(.081)	(.081)
Hospitalized	−.029	−.029	.318***	.318***	−.200*	−.199*	−.429**	−.427**	−.072	−.069	.028	−.032	−.024	.014
last 6 months	(.101)	(.100)	(.079)	(.079)	(.095)	(.095)	(.140)	(.140)	(.133)	(.133)	(.130)	(.132)	(.124)	(.125)
R^2	.623	.633	.469	.475	.536	.537	.356	.358	.201	.206	.255	.346	.367	.375

*$p < .05$; **$p < .01$; ***$p < .001$ (one-tailed tests)
Note: standard errors in parentheses.

indicate that stigma experiences have a small adverse effect on change in symptoms and life satisfaction across the 18-month interval. Moreover, the effects of stigma are smaller than the cross-sectional associations, suggesting that part of the relationship between stigma and each dependent variable may be due to an effect of initial levels of each variable on anticipated and experienced stigma.

In analyses not shown, I considered the possibility that the effects of stigma on the dependent variables differed by hospitalization experience or demographic factors. Interaction terms for these effects were entered into each of the regression models. F-tests suggest that the effects of anticipated stigma on change in economic life satisfaction is somewhat higher for those who have been hospitalized in the last six months ($p < .05$).

Mediating Effects of Self-Concept

In the cross-sectional models (Table 2), self-esteem is found to be significantly related to both dimensions of life satisfaction[9] When the self-concept variables are included, the coefficients for the relationship between experienced stigma and life satisfaction are reduced by about 32 percent (interpersonal) and 8 percent (economic) but remain significant. Similarly, in the lagged regression models (Table 3, columns 11 and 14), self-esteem affects the change in both dimensions of life satisfaction across the 18-month interval, but the effect of stigma experiences on interpersonal life satisfaction is no longer significant. The effects of stigma on economic life satisfaction are reduced somewhat (by 9% for anticipated rejection and by 5% for experienced rejection) when the self-concept variables are included. In general, the pattern of findings indicates that part of the reason stigma is related to life satisfaction is because of its effect on self-concept.

Reciprocal Effects Models

I estimated eight models involving each possible combination of the two dimensions of life satisfaction (interpersonal and economic) and self-concept (esteem and efficacy). Including the control variables did not alter the pattern of findings, therefore I present the results of the trimmed models. As shown in Table 4, the results for both the cross-lagged and simultaneous models are similar, although the simultaneous effects are

somewhat larger. This suggests that self-concept and life satisfaction are likely to affect each other in a more contemporaneous manner. Both dimensions of self-concept are found to influence both dimensions of life satisfaction, although the effect of the more specific efficacy measure on economic life satisfaction is somewhat larger than the effect of esteem. When the reverse effects are considered, both dimensions of life satisfaction are found to affect self-esteem but not self-efficacy. In general, the results suggest that the association between self-esteem and life satisfaction can be partitioned into reciprocal effects, but the relationship between self-efficacy and life satisfaction is largely due to the influence of the former on the latter.

DISCUSSION

In general, the findings are consistent with those of recent studies. The results were also very similar across two sample groups, providing further evidence for the generalizability of the adverse consequences of stigma predicted by modified labeling theory. However, the study suggests some important considerations in the stigma process.

A stronger relationship between stigma and symptoms of depression and anxiety was found compared to psychotic symptoms. While more affective types of symptoms may be influenced by stigma, certain types of symptoms, such as hallucinations, may be less affected. Also, if symptoms lead to rejection, as critics of labeling theory have argued, a much stronger relationship between stigma experiences and more severe symptoms (which are likely to entail more disturbing behavior) should have existed in the cross-sectional models.

Using lagged regression models, the study examined the effect of stigma on outcomes while considering the possibility that symptomatic (non-normative) behavior may make social interaction and role performance difficult, leading to rejection and a lowered sense of self and life satisfaction (Farina et al. 1992). The results indicate that recent discriminatory experiences still have an adverse effect on life satisfaction. Consistent with the study by Link (1987), the findings also suggest that stigma affects life satisfaction in the areas of employment, income, and housing. However, the associations of stigma with the dependent variables in the cross-sectional models were less than those found in the lagged models, suggesting that some of the relationship between stigma and the outcomes considered may be due to the effects of psychological well-being and life satisfaction on stigma. Mentally ill persons may expect and experience rejection in part because they think less of themselves, have limited social opportunities and resources, and because of the severity of their illness. What is needed are measures of both stigma experiences and outcomes at several points in time, in order to gain a more detailed understanding of how stigma both affects and is affected by psychological and social variables.

The results show that the effects of anticipated stigma depend on whether stigma experiences are controlled. In both the cross-sectional and lagged models, when discriminatory experiences were included the effect of anticipated rejection was substantially reduced, suggesting that when only anticipated rejection is included its effect may be overestimated to some extent.

Consistent with Rosenfield's (1997) study, the findings indicate that stigma affects social outcomes, in part through its effect on the self-concept. However, the estimates from the non-recursive models are consistent with both self-esteem and attribution theories, as self-esteem is also affected by satisfaction with one's life circumstances; this suggests that studies that do not consider the bidirectional nature of the relationship may overestimate the extent to which the self-concept influences certain outcomes. While longitudinal data allowed for the examination of these reciprocal relationships, because the study design was limited to two waves across an 18-month interval, I could not estimate models which included effects across different intervals (Finkel 1995; Kessler and Greenberg 1981).

Like previous studies, this research focused on *evaluative* dimensions of self-concept from the respondents' perspective. However, examination of how stigma and symptomatic behavior affect the *identity* component of self-concept, taking into consideration the reactions of social others, has been absent in recent research on stigma and mental illness. An example of the relationship between labeling and identity is found in Matsueda's (1992) study of juveniles, which shows how deviant

TABLE 4. Unstandardized Maximum Likelihood Estimates for the Reciprocal Relationships Between Self-Concept and Life Satisfaction

	Dependent Variables							
	Life Satisfaction				Self-Concept			
	Interpersonal		Economic		Esteem		Efficacy	
Independent Variables	XL	S	XL	S	XL	S	XL	S
Self-Concept								
Esteem	.132***	.198**	.098**	.147**	—	—	—	—
	(.043)	(.063)	(.040)	(.060)				
Efficacy	.111**	.171**	.146***	.227***	—	—	—	—
	(.039)	(.060)	(.037)	(.059)				
Life Satisfaction								
Interpersonal	—	—	—	—	.072**	.210**	.018	.051
					(.028)	(.080)	(.040)	(.110)
Economic	—	—	—	—	.069**	.138**	.031	.062
					(.027)	(.054)	(.039)	(.078)

*$p < .05$; **$p < .01$; ***$p < .001$ (one-tailed tests)
Note: XL = cross-lagged estimates; S = simultaneous estimates; standard errors in parentheses.

behavior leads to appraisals, by self and significant others, as deviant, thereby affecting subsequent delinquency. Similar processes are likely to be observed among persons with mental illness, requiring a more elaborate study design that includes source and context-specific measures of stigma attitudes and experiences.

In sum, the results of this study are generally consistent with modified labeling theory. However, the ways in which stigma influences the well-being of persons with mental illness still warrant more detailed examination.

NOTES

1. Since many of the respondents have more than one diagnosis, these percentages, when added, are greater than 100. The data do not indicate which diagnosis was the "primary" one.
2. Although the Devaluation-Discrimination Beliefs Scale includes 12 items, 8 items were chosen at random in order to shorten the lengthy questionnaire.
3. The sensitivity of the effects of stigma experiences to a range of estimates of unreliability (from 10 to 40%) were examined using LISREL. No substantive differences in the effects of stigma experiences were found when these estimates were used.
4. Following Wright and Gronfein (1996), the self-esteem items were divided into those reflecting "self-worth" and "self-deprecation." The results are similar, whichever esteem items are used, therefore the findings using the 10-item measure are presented.
5. Preliminary confirmatory factor analysis suggested the life satisfaction items best represent two underlying factors. Similar results were also obtained when the separate items were used.
6. The entire series of models were also estimated using multiple-indicator, latent variable techniques with LISREL. Since there were no substantive differences between the two methods, for the sake of parsimony, the results using the single-indictor measures are presented.
7. This was done using multiple group procedures in LISREL 8 (Jaccard and Wan 1996). The difference in fit between models (measured by model chi-square relative to degrees of freedom) where the coefficients were free to vary across the two groups was compared to the fit of models with the coefficients constrained to be equal across the two groups.
8. The correlation between anticipated and experienced stigma is .23 ($p < .05$).
9. Although self-esteem and mental health self-efficacy beliefs are substantially correlated ($r = .68$; $p < .05$), when both variables were included, the variance inflation factors never exceeded 1.9, well below the value of 4 at which collinearity may be a concern.

APPENDIX

Depression-Anxiety
How often in the last month:

1. have you felt nervous, tense, worried, frustrated, or afraid?
2. have you felt depressed?
3. have you felt lonely?
4. have you had trouble making up your mind about something like deciding where you want to go or what you are going to do, or how to solve a problem?
5. have you had trouble thinking straight or concentrating on something you need to do (like worrying so much or thinking about problems so much that you can't remember or focus on other things)?
6. have you felt that your behavior or actions were strange or different from that of other people?
7. have you felt out of place or like you didn't fit in?
8. have you forgotten important things?
9. have you had problems with thinking too fast (thoughts racing)?

Psychotic Symptoms
How often in the last month:

1. have others told you that you act paranoid or suspicious?
2. have you heard voices, or seen things that other people don't think are there?
3. have voices, thoughts, or feelings interfered with your doing things?
4. have you felt like hurting or killing yourself?
5. have you felt like seriously hurting someone else?

Self-Esteem
How strongly do you agree or disagree with these statements?

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal level with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Self-Efficacy
How confident are you right now that you can:

1. set goals for yourself?
2. stay out of the hospital?
3. say no to a person abusing you?
4. use your right to accept or reject mental health treatment?
5. advocate for your needs?

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Fred E. Markowitz is Assistant Professor of Sociology at Northern Illinois University. He recently completed a National Institute of Mental Health Postdoctoral Fellowship at the University of Wisconsin at Madison. His research interests are in the areas of violence, mental illness, and social control.