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RUNNING HEAD: Validation of Mental Illness Beliefs Inventory

Mental Illness Beliefs Inventory (MIBI): A Preliminary Validation of a Measure of the Level of Belief in the Medical Model of Mental Illness

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Abstract

The Mental Illness Beliefs Inventory (MIBI) measures the extent to which an individual subscribes to the medical model of mental illness. This paper reports the results of two preliminary validation studies. The first study establishes the initial psychometric properties for the MIBI, based on a sample of 222 students in the helping professions; the second study tests the model established in the first study with an additional 270 students. The MIBI performs well as a composite instrument measuring belief in the medical model of mental illness. This instrument shows promise for examining the extent to which individual beliefs affect mental health practice.

Keywords: Medical model, mental disorder, social work

Mental Illness Belief Inventory:

Validation of a Measure on the Level of Belief in the Medical Model of Mental Illness

Introduction

In helping professions such as psychology, social work, counseling, and psychiatry, the medical model is commonly used to explain disturbed or disturbing behavior (Lacasse & Gomory, 2003). Medical model terminology such as 'mental illness', 'mental disorder', and 'biologically-based brain disease' are often used interchangeably to describe both the putative cause and nature of disturbing human behavior (Boyle, 2002; Leo, 2004). However, critics have argued that in contrast to well-validated medical diagnoses such as cancer and hypertension, mental disorders are accorded disease status without meeting the classic Virchowian criteria for disease (Szasz, 2001). This lack of objective criteria for mental disorders is made clear in the United States Surgeon's General Report on Mental Health, which states, "T]here is no definitive lesion, laboratory test, or abnormality in brain tissue that can identify [mental] illness" (U.S. Department of Health and Human Services, 1999, pp. 44). Given unknown etiology and the absence of valid and reliable measurement of DSM-defined mental disorders (Kirk & Kutchins, 1992), a wide range of beliefs regarding mental disorder are possible. Possible beliefs range from that of mental disorder as scientifically established brain disease (Andreason, 1985; Andreason, 2001) to mental disorder as deviance (Scheff, 1999) to mental disorder as metaphorical, rather than genuine, bodily disease (Szasz, 1987).

Despite its potential importance, there is a paucity of research measuring belief in the medical model among mental health professionals (although see Colombo, Bendelow, Fulford, & Williams, 2003). Measurement of this belief could yield important information for mental health practice. This belief may impact how helping professionals treat their clients, view their

behavior, and decide when and if medical intervention is necessary (e.g., when a referral for psychotropic medication is appropriate). Furthermore, since some of the beliefs inherent in the contemporary medical model may have flimsy empirical underpinnings (Lacasse & Leo, 2005), such measurement has the potential to identify problem areas in knowledge development within the field of mental health.

Background

Instruments have been developed to measure attitudes and beliefs regarding mental illness, but only a few have focused on the medical model. Golding, Becker, Sherman and Rappaport (1975) developed The Behavioral Expectations Scale (BES) to measure adherence to the medical model, but the BES has lackluster psychometric properties. Morrison (1979) developed the Client Attitude Questionnaire (CAQ), which measured belief in the psychosocial model, partially characterized by a lack of belief in the medical model. Nevid & Morrison (1980) improved upon the CAQ by developing the Libertarian Mental Health Ideology Scale (LMHIS), but this instrument includes language that now appears iconoclastic.

Milling (1981) critiqued previous efforts, such as the CAQ, by pointing out that these efforts included flawed items with poor construct validity. Milling's permutation, the Medical Model Ideology Scale (MMIS), appears to be the most rigorous effort thus far at capturing belief in the medical model. However, it was only published in dissertation form and apparently has never been cited in the literature since its validation almost thirty years ago. Like the CAQ (1975), the MMIS appears to include questions with poor construct validity. Furthermore, the MMIS is now somewhat anachronistic and does not adequately capture elements of the medical model that have emerged since its publication, such as post-Prozac chemical imbalance theory (Leo & Lacasse, 2008). Harland et al. (2008) developed the Maudley Attitude Questionaire

(MAQ), which tests how clinicians apply different models (e.g., biological, nihilist, cognitive) across different mental disorders (e.g., schizophrenia, major depression). While research using the MAQ appears rigorous, several aspects of the MAQ are less than ideal. Since it is intended to capture eight potential models of diagnosis and treatment, there are only four items for each model. Thus, the four biological items do not mention medication or genetics. Furthermore, the Szaszian viewpoint is not well-reflected in any of the items, and the Nihilist subscale could be interpreted to be a mis-statement of some Szaszian principles.

Thus, there appears to be a gap in the literature for an instrument that captures an individual's belief in the contemporary medical model. This study reports the results of the development and validation of the Mental Illness Beliefs Inventory (MIBI). Two studies were conducted to establish the psychometric properties of the MIBI and validate the factor structure of the instrument. Study one tested the reliability, convergent construct validity, discriminant construct validity, and tested the theoretical factor structure of the MIBI. Study two validated the factor structure of the MIBI.

Measure Development and Structure

Nunnally and Bernstein (1994) argue that the creation of items for a measurement instrument requires a "domain of content or body of relevant material" (p. 87) from which questionnaire items will be generated. To avoid confusion over the contested term "mental illness", we found it necessary to define mental illness as "psychiatric diagnoses" which included the terms Schizophrenia, Depression, Anxiety Disorder, Bipolar Disorder, Attention-Deficit/Hyperactivity Disorder and Drug Addiction/Alcoholism (American Psychiatric Association, 2000). In examining the conceptual, critical, and theoretical literature on the medical model of mental illness as defined above (Andreason, 1985; Guze, 1992; Szasz, 2001)

three themes emerged that captured the construct of the belief in the medical model of mental illness.

1. Brain disease – mental illness is a brain disease similar to physiologically-based cellular diseases like cancer or diabetes, and is diagnosed and treated as such.

2. Genetic determinism – mental illness is a genetic disorder and could be transmitted from one generation to the next.

3. Rationality of Behavior – the bizarre behaviors of those diagnosed as mentally ill are not purposeful and meaningful; rather,, it is assumed that the deviant behaviors exhibited by the mentally ill are irrational and beyond their control.

Based on the provided definitions of each of these three themes, or constructs, 29-questions were created to represent three subscales of the MIBI labeled for each of the themes. Of the 29-questions, 13-items were created to assess the brain disease construct (labeled disease), four-items for the genetic determinism construct (labeled genetic) and 12-items for the rationality of behavior construct (labeled behavior). Two items in the MIBI were adapted, with permission, from the Addiction Beliefs Scale (Schaler, 1995) to capture a larger definition of mental illness. Content validity of the initial 29-items was obtained from a panel of five experts, who were both knowledgeable in the medical model of mental illness and the concomitant critical commentary on the medical model.

Study One

Method

Sample Selection and Data Collection. Students enrolled in undergraduate and graduate-level courses in the allied mental health professions (psychology, nursing, and social work) at a large Southeastern University were identified as potential participants. The survey package was

administered to a purposive sample of participants during the class period by the authors. A total of 238 students were solicited to participate, with 222 returning usable surveys representing a response rate of 93%. All analyses were performed using the 222 usable surveys.

Measures. In addition to completing the MIBI, participants were asked to complete a demographic information sheet (age, education level, professional affiliation, number of years experience working with clients diagnosed as mentally ill), the Client Attitude Questionnaire (CAQ-B), the Addiction Belief Scale (ABS), and a theoretical orientation scale. The CAQ-B is a 20-item questionnaire developed to measure level of belief in the non-medical psychosocial viewpoint most frequently attributed to psychiatrist Thomas Szasz (see Szasz, 1987). The CAQ-B has been used previously to measure the attitudes of mental health providers from varying disciplines and as a measure of effectiveness of educational programs (Morrison, 1979; Morrison & Nevid, 1976; Morrison, Yablonovitz, Harris, & Nevid, 1976). The Cronbach's alpha obtained for the scale in this study was 0.75. The ABS is an 18-item questionnaire designed to measure the level of belief that individuals hold in the disease model of addiction. The Cronbach's alpha of the ABS in its developmental study was .91 (Schaler, 1995). The Cronbach's alpha obtained for the scale in this study was 0.72.

Five single-item indicators were created by the authors to assess the theoretical orientation of respondents in an attempt to establish the discriminant construct validity of the MIBI. Respondents were asked to indicate their preference for theoretical orientation by marking a statement which best described their general beliefs about human behavior. Respondents chose one statement from the following: "Human behavior is a function of the interaction between a person and his or her environment (systems)", "human behavior is strongly determined by early childhood experiences (psychodynamic)", "human behavior is a function of the interaction

between individual perceptions and environmental stimuli (social cognitive)", "human behavior can only be understood from the unique subjective personal experience of the individual (humanistic)", "except for simple reflexes, all human behavior is a learned phenomena (behavioral)". Responses were coded as a categorical-level variable. The statements were assessed to have face validity and were derived from definitions provided in a social work practice theory textbook (Payne, 1997).

Analysis. Preliminary analysis of the data yielded no outliers or influential observations. Missing data analysis indicated no single item had a substantial number (> 5%) of missing observations; therefore, an expectation-maximization (EM) algorithm was used to replace missing values. One case had greater than 25% missing data and was deleted prior to performing data analysis. All analyses, unless otherwise indicated, were conducted using SPSS (v. 10.0.7; SPSS Inc., 2000) software. Mplus software (version 2.02; Muthén & Muthén, 1998) was used to perform a confirmatory factor analysis using structural equation modeling.

Results

Sample Characteristics. Table 1 provides a description of the available demographic characteristics of the sample. The average age of participants was 22.7 years (standard deviation = 4.81 years) and approximately 79% of the sample was female. Most respondents identified themselves as White (68.9%), African-American (18.5%), and other (11.4%) racial/ethnic backgrounds. Nearly six percent described themselves as Hispanic. Almost three percent indicated they were multi-racial; two percent indicated they were Asian or Pacific Islander; and less than one percent described themselves as Native American. Social work majors represented the majority of respondents (33%), followed by nursing (23%), and psychology (16.8%). Most of the respondents were bachelor's degree seeking students (87.7%) with the remainder having

earned at least a Bachelor's degree.

MIBI Reliability. Reliability is considered a necessary but not sufficient condition for measurement validity and refers to the consistency with which the instrument and items perform (Nunnally & Bernstein, 1994). Therefore, initial decisions to retain or discard items were based upon the estimated "alpha if item deleted" values for each of the subscales of the MIBI. This process resulted in seven items being discarded (one from the disease subscale and six from the behavior subscale). Furthermore, results from the factorial validity (discussed in the next section) determined that removing two items from the genetic subscale would improve both the coefficient alpha for the subscale along with improvements in the theoretical model. The remaining items for the 20-item scale are depicted in Figure 1. The response set used for this study was "1 – *strongly disagree* to 6 – *strongly agree*" (DeVellis, 1991). Scores for each subscale were calculated by summing the scores of the items represented by the subscale. A global scale score was also calculated by summing values for all 20-items with higher values indicating a greater belief in the medical model of mental illness. The estimated Cronbach's alpha coefficient values for the 20-item measure by subscale along with the corrected item-total correlation coefficient are depicted in Table 2. As reported in Table 2, the strength of the alpha reliability coefficients for the MIBI subscales and global scale were mixed (ranging from .62 to .89) with the global scale coefficient alpha demonstrating the highest reliability (Cronbach's alpha = .89). The standard error of measurement (SEM) coefficients, depicted in Table 2, exceeded an acceptable threshold (i.e., less than 5% of scale range; Springer, Abell, & Hudson, 2002) in all but the total scale values.

Factorial Composition. Given the intentional process of developing items from a domain-sampling model (Nunnally & Bernstein, 1994) reflecting definitions of the three factors

underlying the belief in the medical model, confirmatory factor analysis (CFA) was performed to assess the dimensionality of the three latent factors of the belief in the medical model of mental illness. Structural equation modeling was selected to test the factorial validity of the measure (Bollen, 1989). Parameter estimates for a CFA measurement model were calculated using a maximum likelihood (ML) parameter estimation technique. The model was evaluated based upon the exact fit test (chi-square goodness of fit test) and three fit indices (Comparative Fit Index – CFI, Tucker-Lewis Fit Index – TLI and Root Mean Square Error of Approximation – RMSEA). Acceptable values for the exact fit test and fit indices are chi-square $p > .05$, CFI > .90, TLI > .90, RMSEA < .06 (Bollen, 1989). The initial estimation of the model yielded a poor model fit ($\chi^2[167, N = 222] = 391.27$, $p < .0001$; CFI = .84; TLI = .81; and RMSEA = .08). Examination of modification indices and the test items resulted in correlating the error measurement among several items, which are graphically depicted in the path diagram in Figure 2.

The final results of the CFA are depicted in Table 3. While the chi-square goodness of fit test statistic of the three-dimensional model continued to demonstrate a poor model fit (χ^2 [161, $N = 222$] = 282.50, $p < .0001$), the model fit indices provided good evidence of approximate fit (CFI = .91, TLI = .90, RMSEA = .06). In addition, all standardized lambda coefficients were statistically significant. The chi-square likelihood ratio, which provides a test of the two structural models, is statistically significant ($\chi^2[6, N = 222] = 101.77$, $p < .05$), lending additional support to the improved model fit by correlating the measurement errors for the items indicated in Figure 2. However, as depicted in Table 3, there is a strong relationship between the disease latent factor and the behavior latent factor, which may indicate that these two latent factors in fact represent one latent factor.

Convergent Construct Validity. Convergent construct validity was tested by correlating each subscale score and the total score on the MIBI with the ABS and CAQ-B. As depicted in Table 4, the MIBI total score and each of the subscales performed as expected with the ABS and CAQ-B. The correlation coefficients are in the expected direction and are statistically significant with values for the CAQ-B ranging from –.49 to –.75 and values for the ABS ranging from .41 to 0.51.

Discriminant Validity. Discriminant validity refers to the distinctiveness of the construct being measured, such that when measured using different methods, there remains little doubt that the construct is unique (Pedhazur & Schmelkin, 1991). In addition, discriminant validity is intended to demonstrate that the construct of interest has not fallen prey to the jangle fallacy (Pedhazur & Schmelkin, 1991). More specifically, to protect against the jangle fallacy, the proposed construct of the medical model of mental illness should not have the appearance of an already agreed upon concept, which in this case, is hypothesized to be theoretical orientation. Therefore, to determine the discriminant validity of the MIBI, it was hypothesized that scores on the MIBI would not be significantly correlated with gender or theoretical orientation. Two separate analyses were conducted to determine the discriminant validity properties of the MIBI and are depicted in Table 5. First, The point biserial correlation coefficient between gender and the three subscales of the MIBI along with the total MIBI score were relatively weak, with estimates ranging from 0.09 to 0.13. A Kruskall-Wallis one-way analysis of variance was used to determine the discriminant validity of the MIBI and theoretical orientation. The results indicated that the three subscales for the MIBI and the total MIBI score performed as expected with no statistically significant findings for each of the analyses.

Findings and Discussion for Study One

Findings. The MIBI was designed to assess the level of belief in the medical model of mental illness, in contrast to a (broadly defined) psychosocial belief in mental illness. It was initially proposed that the MIBI would measure beliefs in the medical model of mental illness as a three factor, or subscale, instrument. However, due to the low Cronbach alpha values for each subscale, and the latent factor intercorrelation values, we cannot assert that the three factors are clearly distinct constructs. First, as indicated in Table 2, the estimated Cronbach alpha values for each of the subscales did not perform well. In fact, the strongest measure of reliability was achieved for the total scale value (alpha = .89). Second, as depicted in Table 3, there is a strong relationship between the disease and behavior latent factors, possibly indicating the presence of one latent variable, rather than two. A post-hoc CFA was calculated using the observed variables in the MIBI as a unidimensional construct. Similar standardized lambda values, R^2 values, chi-square test statistic ($\chi^2[164, N = 222] = 314.59$, $p < .0001$), and model fit indices (CFI = .89, TLI = .87, RMSEA = .06) were obtained. Taken together, this evidence suggests a conservative (i.e., unidimensional) interpretation of scale structure. Therefore, study two was conducted to test the factor structure of the MIBI as a unidimensional measure and examine a shortened (10-item) version of the MIBI.

Study Two

Methods

Sample. Students enrolled in undergraduate and graduate-level courses in the allied mental health professions (nursing and social work) at a large Southeastern University were identified as potential participants. The survey package was administered to a purposive sample of participants during the class period by the authors. A total of 287 students were solicited to participate, with 270 returning usable surveys for a 94% response rate. All analyses were

performed using the 270 usable surveys.

Measures. Students completed the original 29-item version of the MIBI and a demographic questionnaire. For this study only results for the 20-item MIBI were used (see Figure 1). The response set for the MIBI in study two was adapted to incorporate feedback from study one that the six-item response set did not provide respondents an opportunity to provide a neither agree or disagree response. Therefore, a 7-point Likert-type scale was adopted (1 – *strongly disagree*, 7 – *strongly agree*) with higher scores indicating a stronger belief in the medical model of mental illness. The estimated Cronbach's alpha for this study was .87.

Results

Sample Characteristics. The demographic characteristics of participants in study two are depicted in Table 1. The majority of the participants were female (86.3%), Caucasian (67.7%), social work majors (70%), with a mean age of 26.3. An examination of demographic characteristics of participants in both studies finds that the groups were comparable. The only major difference between the two studies was a statistically significant difference in mean age, of 3.6 years ($t(221) = 6.16$, $p < .05$). No other statistically significant differences were observed.

Factoral Validity. A CFA was performed using structural equation modeling procedures to estimate the 20-item MIBI as a unidimensional measure using the same item correlations indicated in Figure 1. The chi-square exact fit test statistic was nearly identical to the values obtained in Study one indicating less than optimal model fit ($\chi^2[164, N = 270] = 323.02$, $p < .001$). In addition, the approximate fit indices were the same as those observed for Study one (CFI = .89, TLI = .87, RMSEA = .06). As a result of the less than optimal measures of model fit obtained for Study one and Study two, 10-items were selected by the authors that were representative of the core elements of the construct (items 1, 2, 3, 4, 8, 11, 12, 13, 15, 16). The

result of the CFA for the 10-item measure indicate exceptional model fit (χ^2[34, N = 270] = 48.44, p > .05, CFI = .98, TLI = .98, RMSEA = .04). The Cronbach's reliability estimate for the 10-item scale is .84

Discussion

We interpret study two to indicate that the 20-item MIBI shows promise as a unidimensional instrument that reliably measures beliefs about the medical model of mental illness. Furthermore, the results of the post-hoc 10-item scale indicate that a shorter version of the MIBI is a reliable instrument that could be integrated into larger questionnaires as needed. Taken together, these studies provide preliminary validation of the psychometric properties of the MIBI. In addition, structural equation modeling again shows promise as an analytic strategy to test the underlying theoretical basis of measurement instruments. As demonstrated in this example, structural equation modeling allows for both the estimation of measurement error and the ability to model correlated measurement error, which is assumed to be zero and uncorrelated in other analysis strategies (e.g., exploratory factor analysis). In addition, structural equation modeling allows the scale developer to test the a priori theoretical factor structure by calculating an exact fit test statistic, which identifies misspecified theoretical models (Bollen, 1989). This being said, there are some limitations from this study worth noting.

The chi-square test statistic for all of the SEM models estimated (except the 10-item version) were statistically significant, indicating that the model did not achieve exact fit, and thus the test of the theoretical model was disconfirmed. These results indicate that additional examination into the conceptual boundaries of the belief in the medical model of mental illness is necessary. Deletion of items with poor reliability may have limited our ability to capture the more esoteric aspects of the medical model. Items were deleted which asked about malingering

behavior, the role and nature of psychiatric medications, and the capacity of the mentally ill to engage in manipulative behavior. It is unknown whether the low reliability of these items was sample-dependent. Also, due to institutional constraints we received some useful expert feedback only after data collection began. Thus, we were unable to incorporate valuable suggestions, including items concerning the role of medications and the rejection or acceptance of a trauma-based model. A major goal of future permutations will be to create items that capture these aspects of the medical model while retaining high reliability.

The use of a non-probability sample could also result in biased parameter estimates, therefore future studies utilizing the MIBI should utilize a systematic sampling strategy. Similarly, the sample consisted of college students, who were chosen due to their availability rather than their representative nature. The MIBI should eventually be validated with other populations.

Implications for Mental Health Practice and Research

The MIBI has a variety of potential applications within the fields of mental health practice, education, and policy. The MIBI can be used in direct practice research to investigate a variety of research questions. For instance, clinical social workers commonly refer clients for medication (Bentley, Walsh, & Farmer, 2005); what role does belief in the medical model play in such decisions? Therapists report that empathy and warmth are important qualities for clinicians to have (Nalavany, Ryan, Gomory, & Lacasse, 2005); is adherence to the medical model a valued quality as well?

Whatever the specific research question, it is clear that much empirical uncertainty remains in the field of mental health (Fancher, 1995). Since mental health practitioners will need to act even in the absence of empirical evidence, examining their beliefs may prove useful. We

suggest that the MIBI may have utility in the measurement of such beliefs.

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Table 1

Sample Demographic Characteristics

	Study One[a]		Study Two[b]	
	N	Percent	N	Percent
Gender				
Male	46	21	36	13.3
Female	173	79	233	86.3
Ethnicity				
Black	41	18.5	50	18.6
Hispanic	13	5.9	16	5.9
Asian or Pacific Islander	5	2.3	13	4.8
White	153	68.9	182	67.7
Other	7	3.2	8	3
Declared Major				
Social Work	71	33.2	189	70
Nursing	50	23.4	63	23.4
Psychology	36	16.8	0	0
Other	57	26.6	17	6.3
Theoretical Orientation				
Systems	77	35.6		
Psychodynamic	11	5.1		
Social-Cognitive	101	46.8		
Humanistic	20	9.3		
Behavioral	7	3.2		
Age	Mean = 22.7	SD = 4.81	Mean = 26.3	SD = 8.01

Note: Demographic data based on available data from completed survey.
[a]$n = 222$. [b]$n = 270$.

Table 2

MIBI Subscale Reliabilities (Study One)

Disease			Behavior			Genetic		
Item	Corrected Item-Total Correlation	Alpha if Item Deleted	Item	Corrected Item-Total Correlation	Alpha if Item Deleted	Item	Corrected Item-Total Correlation	Alpha if Item Deleted
1	.56	.83	4	.28	.61	3	.55	.00
2	.51	.83	7	.54	.50	11	.55	.00
5	.30	.84	10	.34	.59			
6	.50	.83	14	.35	.58			
8	.75	.81	17	.32	.60			
9	.52	.83	20	.33	.59			
12	.60	.82						
13	.31	.84						
15	.68	.82						
16	.58	.83						
18	.36	.84						
19	.44	.83						
Alpha = .84 (SEM = 3.96)			Alpha = .62 (SEM = 2.74)			Alpha = .71 (SEM = 1.11)		

Note: N=222. Global scale coefficient alpha = .89 (SEM = 5.00)

Table 3

Structural Equation Model Standardized Lambda Coefficients (Study One)

Item	Disease	Behavior	Genetic	R^2
1	.61*	---	---	.37
2	.56*	---	---	.32
5	.38*	---	---	.15
6	.57*	---	---	.32
8	.74*	---	---	.54
9	.63*	---	---	.40
12	.62*	---	---	.38
13	.33*	---	---	.11
15	.67*	---	---	.45
16	.65*	---	---	.42
18	.39*	---	---	.15
19	.40*	---	---	.16
4	---	.42*	---	.18
7	---	.64*	---	.41
10	---	.44*	---	.20
14	---	.55*	---	.30
17	---	.45*	---	.20
20	---	.36*	---	.13
3	---	---	.83*	.69
11	---	---	.66*	.43
Means	.56	.48	.75	.32
Latent Factor Intercorrelations				
Disease	1.00	.97	.80	
Behavior		1.00	.65	
Genetic			1.00	

Note: *$p < .05$,
χ^2 [161, $N = 222$] = 282.50, $p < .0001$, CFI = .91, TLI = .90, RMSEA = .06

Table 4

Convergent and Discriminant Validity Scores (Study One)

	Disease		Behavior		Genetic		Total	
	r	r^2	R	r^2	r	r^2	r	r^2
Convergent Measures								
Addiction Belief Scale[a]	.50*	.25	.41*	.17	.42*	.13	.51*	.26
Client Attitude Questionnaire[a]	-.75*	.56	-.62*	.38	-.49*	.13	-.76*	.58
Discriminant Measures								
Gender[b]	.10	.01	.13	.06	.09	.00	.11	.01
	X^2	*df*	X^2	*df*	X^2	*df*	X^2	*df*
Theoretical Orientation[c]	5.74	4	5.74	4	3.04	4	5.92	4

Note: N=222. *p < .05

[a]Pearson product moment correlation coefficient.

[b]Point biserial correlation coefficient.

[c]Kruskall Wallis One-way ANOVA for *k* independent sample

Figure 1: Mental Illness Belief Inventory (MIBI) Items

1. Mental illness is a disease like cancer or diabetes.
2. Anti-depressants such as Prozac® and Paxil® correct chemical imbalances in the brain.
3. The fact that mental illness runs in families means that it is a genetic disease.
4. People diagnosed with mental illness cannot control their behavior.
5. Mental illnesses can be accurately diagnosed by talking to people and observing their behavior.
6. The brains of mentally ill people are normal.
7. Suicidal patients require hospitalization because their mental illness has become life threatening.
8. Mentally ill people need medication just as people with diabetes need insulin.
9. Getting the correct diagnosis is the most important step in the treatment of mental illness.
10. Oftentimes, people with mental illness don't realize their need for treatment.
11. Mental illnesses are genetically transmitted from one generation to the next.
12. Mental illnesses are brain diseases.
13. Physiology, not psychology, determines who will become mentally ill.
14. Sometimes, mentally ill people need to be committed and treated against their will in order to protect themselves and others.
15. Mental illness requires medication.
16. The behaviors of the mentally ill are best interpreted as signs of their disease.
17. If a person wants to commit suicide, he/she is suffering from a mental illness.
18. If a person claims that 'everyone is out to get me', this is a symptom of a mental illness.
19. People can recover from mental illness without medical treatment.
20. Mentally ill people usually have no insight into their illness.

Note:
Brain disease subscale items: 1, 2, 5, 6, 8, 9, 12, 13, 15, 16, 18, 19; Genetic subscale items: 3, 11; Rationality of behavior items: 4, 7, 10, 14, 17, 20; Reverse score items: 6, 19.

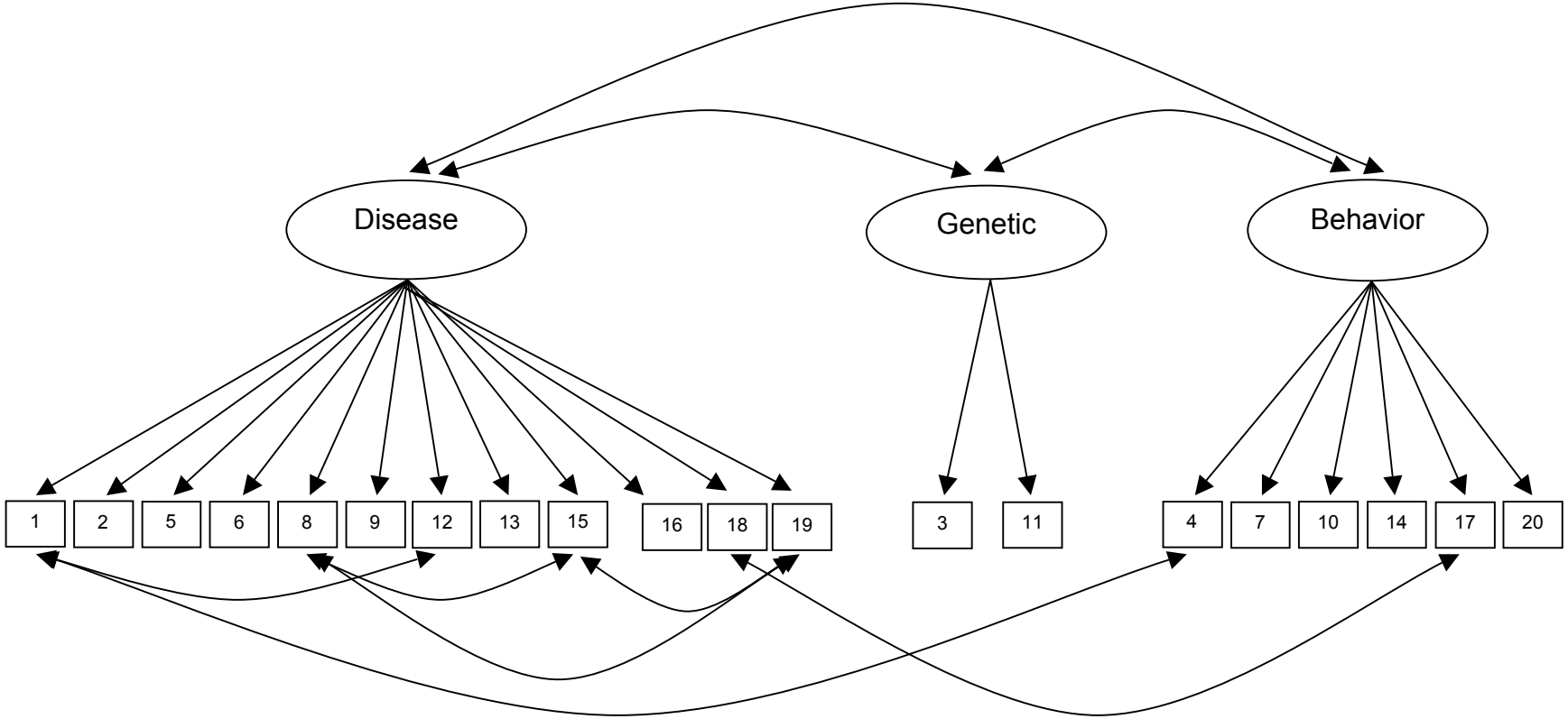

Figure 2: Confirmatory Factor Analysis Measurement Model

Note: Numbers represent item numbers from the MIBI