Global Social Sciences Review (GSSR) **Vol.** VIII, **No.** II (Spring 2023) **Pages:** 435 – 442
ISSN (Online): 2520-0348 **ISSN (Print):** 2616-793X **ISSN (Linkage):** 2520-0348

Using IAT to Measure Implicit Biases towards Mental Illness

Sarima Baig [*] Elizabeth Schwaiger [†]

Corresponding Author: Sarima Baig (Visiting Lecturer, Department of Psychology, Forman Christian College, Lahore, Punjab, Pakistan. Email: sarima.baig@gmail.com)

Abstract: *Mental illness for many years has been perceived in a negative light, greatly impacting the degree of treatment-seeking behaviour, the public attitude towards mental illness, laws and policies and the negative attitudes and associations that are formed towards mental illness. Therefore the research study investigates the attitude of psychology students; given their psychological knowledge about mental illness and evaluates the attributions they make towards mental illness. Participants from different institutions in Lahore participated in this research study and attempted Implicit Association Test to assess whether psychology students are implicitly biased towards the mentally ill or not. Quantitative data were collected and statistically analyzed with the help of SPSS; Independent samples t-test, paired samples test, One-way ANOVA and Pearson Correlation were applied to analyze the data. The study concluded that regardless of knowledge and exposure, students of psychology have an implicit bias towards mental illness.*

Key Words: Attributions, Implicit Biases, IAT, Mental Illness, Mental Health Facilities, Negative Attitude. Public Attitude, Psychology

Introduction

Historically, the concept of madness came into existence in society ever since any behaviour occurred outside the societal normative bounds. The difficulty in defining madness as a medical disease or an act of deviance created a void in the understanding of what is now known as mental health. The societal perception regarding any behaviour created certain labels to categorize and quantify the behaviour. However, the labels resulted in an ever-lasting stigma towards mental illness that not only made the victims of it internalize the labels and adopt the sick role but also impacted the degree to which people sought help regarding mental illness (Glock & Kovas, 2013).

Despite the evolution in the perception of people towards mental illness; people still tend to make negative associations towards mentally ill people due to the culturally embedded concepts. While the public practised negative attitudes towards mentally ill people, and socially excluded them; the stigma attached to mental illness grew alarming.

In Pakistan, where religion dictates most of the people's belief system and their perception; people often rely on faith healers to cure any sort of illness. In addition to this, the limited number of practising psychiatrists in the country really

[*] Visiting Lecturer, Department of Psychology, Forman Christian College, Lahore, Punjab, Pakistan.
[†] Assistant Professor, Department of Psychology, Forman Christian College, Lahore, Punjab, Pakistan.

Citation: Baig, S., & Schwaiger, E. (2023). Using IAT to Measure Implicit Biases towards Mental Illness. *Global Social Sciences Review*, *VIII*(II), 435-442. https://doi.org/10.31703/gssr.2023(VIII-II).40

DOI: 10.31703/gssr.2023(VIII-II).40 **URL:** http://dx.doi.org/10.31703/gssr.2023(VIII-II).40

restricts the possibility of mentally ill people receiving the needed help. Despite recent awareness about mental illness, discriminatory and prejudiced behaviour still marks its presence in society.

While making associations towards a certain concept, an individual's cognitive connections are either recognized explicitly or implicitly. Explicit attitudes are evaluative, socially acceptable responses that an individual is aware of, whereas, implicit attitudes are automatic responses that are below an individual's awareness (Kopera et.al, 2014).

These implicit attitudes can turn out to be problematic as it eventually reflects in the behaviour of the individual when dealing with the out-group. It is highly important for mental health practitioners to identify their implicit attitudes and recognize their unwanted effects on the number of help-seeking behaviour among mentally ill people. Greenwald, McGhee and Schwartz (1998) introduced the Implicit Association Test, which posits to measure these implicit attitudes of individuals.

Literature Review

Attributions towards Mental Illness

The concept of mental health is directly associated with people's perception of the illness and its symptoms. If the associated symptom or behaviour were expected to be violent then the overall concept of mental illness would be considered in a negative light. For example, Levinson (1975) in a study about students' perception about mental illness found that 80% of students attributed psychopathological behaviour to a normal person when they were presented with labels by the researcher. Howard and Levinson (1985), further explained these findings through labelling theory as a way of communication of societal reaction. Labelling theory creates and reinforces different labels in society. These labels, therefore, divide people into "us" and "them" groups making them discriminate against one another based on different characteristics. Similarly, (Antonio, 1975) suggested that these societal reactions define the normalization or stigmatization of certain behaviours. Labelling is the underlying process of attribution theory, which focuses on the information processing of individuals into creating meanings, an association of people's behaviour in light of various factors (Corrigan et. al, 2003).

Forming Attitudes through Attributions

Wallach (2004) explained reasons why experience holds importance in shaping people's perceptions and attitudes. Since attitudes can be influenced through a number of sources such as media, education etc therefore limited information can be misleading and focus on one aspect of the illness. Therefore, Cohen and Struening (1962) laid emphasis on the environmental factors such as the positive relationship between community and mental patients that can have a great impact on the well-being of the patients. Corrigan et.al (2003) specifically found that people tend to make a decision about mentally ill people through internal and external attributions by either laying the emphasis on the patient or on the circumstances. Furthermore, Corrigan et.al (2003) explained people who have knowledge about mental illness generally have a more positive attitude towards those with mental illness and are less likely to reject them. Korska and Harkness (2006) concluded that the self-concept of mentally ill people is a direct result of public attitude. Similarly, Martin, Pescosolido, Olafstottir, and MecLeaod (2007) evaluated that people with better education are less likely to reject people with mental illness. Also, if people are given an explanation about illness the perceived danger and social distance are reduced.

Role of Culture in Creating and Reducing Stigma

The cultural definition of mental illness has a great influence on how society normalizes or stigmatizes any behaviour. Goodfellow, Defromont, Calandreau, & Roelandt (2010) explain how in every culture the representation of a mentally ill person differs either attributing the illness as internal fault or external circumstances beyond the person's control. Link and Cullen (1986) concluded that with an increase in exposure to people with mental illness, there is an overall reduction in perceived dangerousness among people. Whereas, Phelan and Link (2004) found a contradicting finding and proposed that exposure increases fear.

According to the General Social Survey (1996; 2006) referred by Collins et.al (2012) in the US the cause behind mental illness in one in three adults is considered a bad character. While the knowledge about mental illness has increased with time; blame has been a main component in the debate on mental illness.

IAT Theory

An individual perception is formed through many factors such as their environment and social settings. Within the environment, an individual's culture can greatly influence the beliefs that are adopted and how those beliefs are practised; these are also known as nomothetic beliefs. In comparison to this, individuals can also form idiosyncratic beliefs that are formed in isolation from cultural beliefs. These forms of beliefs are a secondary form of learning for individuals. The Implicit Association Test has been designed to measure varying social cognition (Greenwald, McGhee & Schwartz, 1998).

This test not only serves as a tool for measuring social cognition but also as a predictor of behaviour; the effectiveness and use of the Implicit Association Test are known because of its distinguishing nature from any explicit measure. Thus, the test can be used in varying fields of psychology (Messner and Vosgerau, 2010).

The Implicit Association Test assesses the emotional responses that are associated with a particular stimulus (Hatzenbuehler, Hoeksema & Dovidio (2009). According to Dasgupta and Greenwald (2001), the process of undertaking the test is becoming aware of personal beliefs, biases and attitudes. Thus, IAT also provides insight to the test takers as they provide their responses from one category to another.

The test is presented to the participants with category and its attributable pairs, the participants are required to categorize each pair (Dasgupta, Greenwald & Banaji, 2003). The test then assesses the participants' speed of responsiveness towards each category; if more time is taken to respond the test calculates an implicit bias towards that category (Dasgupta and Greenwald, 2001).

The responses to the Implicit Association Test are also assessed through the reaction time it takes when there is a shift in the category (Messner and Vosgerau, 2010).

According to Blanton, Jaccard, Gonzales & Christie (2006), IAT serves as a judgment task for participants where they implicitly make sense of the categories either as favourable or unfavourable. The attitudes individuals have formed over the course of their lives are overtly seen through this test. One of the important aspects of the test is to make inferences about how much cognitive control participants exert when there is a bias about a category (Steffens, 2004). The Implicit Association Test is widely recognized as compared to explicit measures such as self-report because explicit measures are designed in a manner which allows the space to keep up the self-presentation (Asendorpf, Banse & Mucke, 2002).

The literature sheds light on the history of how mental illness has been viewed; considering various factors that play a part in shaping our perceptions and beliefs about mental illness; in today's world, there is still a considerable amount of misconception about people who are mentally ill. This study was conducted in order to further identify these biases that people develop over a period of time. The field of psychology requires utmost objectivity from practitioners and as long as there are biases about mental illness, there are very less chances of coming around to help people who are suffering from mental illness. Therefore, this study aimed to establish to identify implicit biases among students to further make inferences about the importance of exposure to mentally ill people.

Hypothesis

Reaction time for associations between mental illness and negative terms will be faster than the reaction time for associations between mental illness and positive terms, indicating an implicit negative bias among psychology students toward those with mental illness.

Material and Methods

Participants

The research study initially recruited 147 participants who belonged to private universities from Lahore, Pakistan. However, when outliers were eliminated from the final data, the remaining and final number of participants was 106, with 96 females and 14 males (see Table 1 for Demographic Characteristics of the Sample).

The average age of the sample was 21.4 (*SD* = 1.4) and the majority had not completed a formal internship in psychology (72.64%); however, all reported some level of awareness of mental health issues and only 10.3% reported that they had not had any exposure to people with mental illness (see Table 1 and 2 for the reported level of awareness and exposure of participants).

Table 1

Level of Awareness 107 participants reported on a scale of 5

Level of Awareness	Not at all aware (1)	Slightly aware (2)	Moderately aware (3)	Very aware (4)	Extremely aware (5)
Participants	0	6 (5.6%)	42 (39.3%)	52 (48.6%)	7 (6.5%)
Average Level of awareness	3.56 (*SD*=.703)				

Table 2

Level of Exposure 107 Participants Reported on a Scale of 5

Level of Exposure	Not exposure(1)	Slight exposure (2)	Moderate exposure (3)	Very much exposure (4)	Extreme exposure (5)
Participants	11 (10.3%)	39 (36.4%)	37 (34.6%)	17 (15.9%)	3(2.8%)
Average Level of Exposure	2.64 (*SD*=.964)				

Materials

The Implicit Association Test

In order to collect data for this research study, the computer-based Implicit Association Test (IAT; Greenwald, 2020) was used to assess the implicit attitudes of psychology students towards people with mental illness (see Table 2 for stimuli used in the IAT for Implicit Bias toward Mental Illness). The IAT tasks and scoring procedure are described in detail elsewhere (Greenwald, 2020)

Conceptually the way IAT works is based on categorization as the participants make a judgment, about which stimuli belong, in the relevant category. For instance, mentally ill people are categorized as harmless or dangerous. Therefore, IAT measures the implicit attitudes through reaction time; this suggests that participants with stronger associations would respond faster as compared to participants with weak associations would have a delayed response indicating implicit bias (Asendorpf, Banse & Mucke, 2002; Steffens, 2004; Hatzenbuehler, Hoeksema & Dovidio, 2009; Dasgupta and Greenwald, 2001).

Table 2

Stimuli used in the IAT for Implicit Bias toward Mental Illness

Mental Illness	Physical Illness	Harmless Words	Dangerous Words
Schizophrenia	Diabetes	Harmless	Dangerous
Bipolar Disorder	Cancer	Safe	Unsafe
Depression	Appendicitis	Peaceful	Violent
Obsessive-Compulsive Disorder	Cerebral Palsy	Gentle	Aggressive

Procedure

Prior to conducting this research study, permission was taken from the Institutional Review Board Review (IRB-107/12-2018) as well as the Heads of Departments of the institutions whose psychology students participated. Participation depended on the students' willingness and availability to participate. Informed consent was obtained from the participants and then they were directed to a computer lab present in the institution. In the lab, the participants were briefed about the procedure,

purpose and benefits of the study. Participants then answered demographics questions, a self-report question about their level of awareness of mental illness issues, and a self-report question about their level of exposure to people with mental illness. The participants then attempted the IAT at the website provided for them.

Results

Prior to testing the study hypothesis, a one-way between-groups analysis of variance was conducted to assess the difference scores among all three universities (FCC, BNU, KC). There was no statistical difference in IAT scores for all three universities [$F(2, 104) = .399$, $p = .672$]. This suggests that since there were no significant differences in the groups, they could be considered as a single sample.

A paired samples t-test was then computed to compare the average amount of time taken in Trial 3 (Harmlessness Words matched to Mental Illness) and Trial 6 (Dangerousness Words matched to Mental Illness). The students' reaction time for Trial 6 ($M = 1017.05$, $SD = 811.85$) was greater than for Trial 3 ($M = 881.55$, $SD = 606.20$) and this difference was significant [$t(106) = -2.823$, $p = .006$], indicating that the students had stronger associations for mental illness and dangerousness than for mental illness and harmlessness. The eta square statistic (0.056) showed a small effect size.

Another paired samples t-test was computed to compare the average amount of errors made in Trial 3 compared to Trial 6. The students made more errors on Trial 6 ($M = .3244$ $SD = .28542$) than on Trial 3 ($M = .2510$, $SD = .30453$) and there was a significant difference between the trials [$t(106) = -2.728$, $p = .007$] indicating that the students made more errors in associating Mental Illness with Harmlessness than Dangerousness. Again indicating an implicit bias toward those with mental illness. The eta square statistic (-0.054) again showed a small effect size.

Discussion

The results of the study demonstrate that regardless of the exposure and awareness psychology students have, they still show implicit biases when it comes to people with mental illness. In particular, they have stronger associations between mental illness and dangerousness than harmlessness. The possible reasons for such findings could be various, including the relative inflexibility of societal norms, cultural pressures given the collectivistic context, and the relative lack of exposure these participants had to people with mental illness.

Societal and cultural norms can be very strong, especially in collectivistic cultures. There is much stigma about mental illness in Pakistan and this stigma may easily become inculcated from a young age. This would create the associations needed for the implicit bias to appear in the IAT. Additionally, in collectivistic cultures, going against societal expectations can lead to interpersonal stress. Most collectivistic cultures prefer group membership and coherence to individual goals and anything that might cause a breach in the community's level of harmony (Hofstede, 2011).

The environment has a strong impact on how perception and attitudes are shaped by an individual. Many individuals remain unaware of their own attitudes and perceptions towards people around them. However, their implicit bias is evidently observed in their overt behaviour as they continue to express micro-aggression or discriminate towards others; the implicit attitude in this discrimination is the negative attitude towards others (Brendl, Markman & Messner, 2001).

Importantly, the participants in this study were undergraduate students majoring in psychology. Most (77) had not completed a formal internship and their average reported level of exposure and knowledge about mental illness was less ($M = SD =$ and $M = SD =$, respectively). It is possible that this level of exposure and awareness was not enough to alter prior associations. Research has shown that exposure reduces bias, however, the level of exposure may not have been significant enough to create a change in implicit bias. Future studies might compare students at the beginning of their pursuit of psychology (BS/BA) to those who have been working with those with mental illness in a professional context for a significant amount of time.

Overall, the study found that even people belonging to a knowledgeable background of mental health and its practices, who have chosen psychology as a major, still tend to be implicitly

biased towards those with mental illness. The reasons behind these implicit biases could be various, such as cultural concepts, societal in-group out-group favouritism, and less actual exposure to those with mental illness. Despite these reasons, the study concludes towards the question that how can these implicit attitudes towards mental illness be altered and how can a systematic structured form of stigmatization in society be eliminated.

Implications

One of the important implications of this research study is in the application of IAT as a measure of societally learned implicit attitudes. The test not only measures the implicit biases but also helps identify the learned cultural values of the individual. Since most beliefs are learned culturally, people have difficulty altering their perceptions that have been adjusted to societal expectations.

This study also serves as a source of insight into the students of psychology. The measure of IAT can be effective in identifying and helping people recognize their own implicit biases and begin to examine how to adjust these implicit associations. This is especially important in the field of psychology as recognizing implicit bias is an important step to becoming a more effective practitioner.

Since students in this study showed implicit bias toward those with mental illness, this indicates that education about mental illness in itself may not be enough to change these implicit biases. Therefore, IAT also serves as an important tool in educational learning. For instance, current trainee psychologists could have workshops and other forms of learning through which they can consciously identify and work on the reduction of biases towards mental illness. Through the study, the need for placements in mental health facilities is also highlighted, as exposure to mental health facilities for a certain time period can serve as an important form of intervention to alter the beliefs.

References

Antonio, R. J. (1975). On ignoring the subtle dimensions of labeling: the case of mental disorder. *The Kansas Journal of Sociology*, *11*(1), 3-13. https://doi.org/10.17161/str.1808.6093

Asendorpf, J. B., Banse, R., & Mücke, D. (2002). Double dissociation between implicit and explicit personality self-concept: The case of shy behavior. *Journal of Personality and Social Psychology,* *83*(2), 380-393. https://doi.org/10.1037/0022-3514.83.2.380

Blanton, H., Jaccard, J., Gonzales, P. M., & Christie, C. (2006). Decoding the implicit association test: Implications for criterion prediction. *Journal of Experimental Social Psychology,* *42*(2), 192-212. https://doi.org/10.1016/j.jesp.2005.07.003

Brendl, C. M., Markman, A. B., & Messner, C. (2001). How do indirect measures of evaluation work? Evaluating the inference of prejudice in the Implicit Association Test. *Journal of Personality and Social Psychology,* *81*(5), 760-773. https://doi.org/10.1037/0022-3514.81.5.760

Cohen, J., & Struening, E. L. (1962). Opinions about mental illness in the personnel of two large mental hospitals. *The Journal of Abnormal and Social Psychology*, *64*(5), 349–360. https://doi.org/10.1037/h0045526

Collins, R.L., Wong, E. C., Cerully, J. L., Schultz, D., & Eberhart, N. K. (2012). Interventions to Reduce Mental Health Stigma and Discrimination. A Literature Review to Guide Evaluation of California's Mental Health Prevention and Early Intervention Initiative. *RAND Corporation.*

Corrigan, P. W., Markowitz, F. E., Watson, A. C., Rowan, D., & Kubiak, M. A. (2003). An Attribution Model of Public Discrimination Towards Persons with Mental Illness. *Journal of Health and Social Behavior*, *44*(2), 162. https://doi.org/10.2307/1519806

Dasgupta, N., & Greenwald, A. G. (2001). On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals. *Journal of Personality and Social Psychology*, *81*(5), 800–814. https://doi.org/10.1037/0022-3514.81.5.800

Dasgupta, N., Greenwald, A. G., & Banaji, M. R. (2003). The First Ontological Challenge to the IAT: Attitude or Mere Familiarity? *Psychological Inquiry*, *14*(3), 238–243. https://faculty.washington.edu/agg/IATmaterials/PDFs/Dasgupta&al.PsyInq(2003).pdf

Glock, S., & Kovacs, C. (2013). Educational Psychology: Using Insights from Implicit Attitude Measures. *Educational Psychology Review,* *25*(4), 503-522. http://www.jstor.org/stable/43546825

Goodfellow, B., Defromont, L., Calandreau, F., & Roelandt, J.-L. (2010). Images of the "Insane," the "Mentally Ill," and the "Depressed" in Nouméa, New Caledonia: A Mental Health Survey in the General Population. *International Journal of Mental Health*, *39*(1), 82–98. http://www.jstor.org/stable/41345312

Greenwald, A. G. (2020). Implicit Association Test Materials [Website]. https://faculty.washington.edu/agg/iat_materials.htm

Greenwald, A. G., McGhee, D. E., & Schwartz, J. (1998b). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*(6), 1464–1480. https://doi.org/10.1037/0022-3514.74.6.1464

Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Dovidio, J. F. (2009). How Does Stigma "Get Under the Skin"? *Psychological Science*, *20*(10), 1282–1289. https://doi.org/10.1111/j.1467-9280.2009.02441.x

Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, *2*(1). https://doi.org/10.9707/2307-0919.1014

Howard, J. a. K., & Levinson, R. (1985). The Overdue Courtship of Attribution and Labeling. *Social Psychology Quarterly*, *48*(3), 191. https://doi.org/10.2307/3033680

Jakubczyk, A., Suszek, H., Bonar, E. E., Myszka, M., Gmaj, B., Ilgen, M. A., & Wojnar, M. (2014). Evaluating Explicit and Implicit Stigma of Mental Illness in Mental Health Professionals and Medical Students. *Community Mental Health Journal*, *51*(5), 628–634. https://doi.org/10.1007/s10597-014-9796-6

Kroska, A., & Harkness, S. K. (2006). Stigma Sentiments and Self-Meanings: Exploring the Modified Labeling Theory of Mental Illness. *Social Psychology Quarterly*, *69*(4), 325–348. https://doi.org/10.1177/019027250606900403

Levinson, R. M. (1975). Teaching Labeling Theory: Four Experiences in Illness Attribution. *Teaching Sociology*. https://doi.org/10.2307/1316872

Link, B. G., & Cullen, F. T. (1986). Contact with the Mentally Ill and Perceptions of How Dangerous They Are. *Journal of Health and Social Behavior*, *27*(4), 289. https://doi.org/10.2307/2136945

Martin, J. K., Pescosolido, B. A., Olafsdottir, S., & McLeod, J. D. (2007). The Construction of Fear: Americans' Preferences for Social Distance from Children and Adolescents with Mental Health Problems. *Journal of Health and Social Behavior*, *48*(1), 50–67. http://www.jstor.org/stable/27638690

Meesner, C., & Vosgerau, J. (2010). Cognitive Inertia and the Implicit Association Test. *Journal of Marketing Research, 47*(2), 374-386. http://www.jstor.org/stable/25674434

Phelan, J. C., & Link, B. G. (2004). Fear of People with Mental Illnesses: The Role of Personal and Impersonal Contact and Exposure to Threat or Harm. *Journal of Health and Social Behavior*, *45*(1), 68–80. http://www.jstor.org/stable/3653805

Steffens, M. C. (2004). Is the Implicit Association Test Immune to Faking? *Experimental Psychology*, *51*(3), 165–179. https://doi.org/10.1027/1618-3169.51.3.165

Wallach, H. S. (2004). Changes in Attitudes towards Mental Illness Following Exposure. *Community Mental Health Journal*, *40*(3), 235–248. https://doi.org/10.1023/b:comh.0000026997.92083.4d