CLINICAL DECISION-MAKING BIASES IN MENTAL HEALTH PROVIDERS
Sarah Romeo, BA1, Kelly Sutton-Skinner, BA1, Timothy Petersen, PhD1, Lee Baer, PhD1, Jeff Huffman, MD1, Robert Birnbaum, MD, PhD1, Steven Sloman, PhD2

1 Massachusetts General Hospital, Division of Postgraduate Education, Boston, MA
2 Brown University, Providence, RI

ABSTRACT

BACKGROUND: Previous research suggests that medical professionals are susceptible to clinical decision-making biases, which have the potential to negatively impact clinical care. In the field of psychiatry, little systematic research has been conducted to evaluate the presence of such biases. The objective of this investigation was to evaluate, in a sample of attendees of a psychopharmacology review course, the presence of two of the more common clinical decision-making biases, hypothesis selection and pseudodiagnosticity.

METHODS: 265 (84.2% prescribers; 47.5% female) mental health practitioners completed an instrument designed to measure the presence of hypothesis selection and pseudodiagnosticity biases. Data analyses (paired-sample t-tests and a z-test for two proportions) were conducted to evaluate two specific hypotheses: 1. Hypothesis selection: that doctors will neglect alternative hypotheses when diagnosing a patient, when reasoning from a disease to a symptom and 2. Pseudodiagnosticity: that doctors preferentially select diagnostic information that is consistent with their initial hypothesis, rather than choosing information that challenges their hypotheses.

RESULTS: Results confirm that mental health practitioners exhibit the hypothesis selection bias, when reasoning from disease to symptom (t=-4.92, df=129, p<0.001). Contrary to our hypothesis, respondents to this instrument did not demonstrate the pseudodiagnosticity bias (z=3.86, p<0.001); rather they chose to obtain information that challenged their hypothesis.

CONCLUSIONS: These data suggest that mental health practitioners may evidence decision-making bias in their clinical work. Specifically, we found in this sample the presence of the hypothesis selection bias, which could result in sub-optimal clinical care.

INTRODUCTION

Diagnostic errors are one of the most common causes of clinical care errors and litigation against doctors. Two common cognitive errors made in the general population are hypothesis selection, which is when people tend to neglect alternative hypotheses when reasoning from a disease to a symptom, and pseudodiagnosticity, which is when people choose to find out information that is consistent with their current hypothesis, instead of gathering information that would help them expand their hypothesis. Demonstration of these biases in a population of mental health providers may lead to diagnostic errors, and poor clinical care.

METHOD

Study Procedures

Two versions of the instrument were administered to mental health providers who attended Psychopharmacology, a continuing medical education course, in October of 2008.

The instrument was created through a collaboration between Brown University and the Massachusetts General Hospital Psychiatry Academy.

The two surveys were split among the participants based on their last names (half the alphabet got Survey 1, the second half got Survey 2).

Hypothesis Selection:

Questions were as follows:

Experimental Survey:

Causal Question: Ms. Y is a 32-year-old female who has been diagnosed with depression. Please indicate on the scale below from 1 to 10 (1 being the least likely and 10 being the most likely), the likelihood that she presents with lethargy.

Control Survey:

Diagnostic Question: Ms. Y is a 32-year-old female who presented with lethargy. On the scale below from 1 to 10 (1 being the least likely and 10 being the most likely), please indicate the likelihood that she has been diagnosed with depression.

Diagnostic Question with no alternative hypotheses: Same as diagnostic question, but states that a complete workup revealed that she was not diagnosed with anything else (medical or psychiatric) that would cause lethargy.

Hypotheses:

1. Experimental Survey: Participants will rate the likelihood of both questions equal, though the causal question should be higher (there are many other reasons for the lethargy).

2. Control Survey: Participants will rate the diagnostic question as less likely than the diagnostic question with no alternative hypotheses because the second question suggests that depression is the sole cause of the lethargy.

METHOD

Pseudodiagnosticity:

Participants were given the following question and were asked to select one response from the two listed:

Assume that a person randomly selected from the population has an equal chance of being diagnosed with Schizophrenia or Bipolar I Disorder. Both of these disorders can be used to explain a patient who presents with grandiose delusions and irritability. The probability is high that a person who presents with grandiose delusions has schizophrenia. Given this information, which of the following would you most like to know in order to correctly diagnose this patient?

- The probability of irritability in Schizophrenia
- The probability of grandiose delusions in Bipolar I Disorder.

The hypothesis was that participants would choose A, which demonstrates that they chose to stick with their current hypothesis instead of choosing B, which would broaden their diagnosis.

Data Analysis

265 out of 630 participants (42.1%) completed both sections of the survey.

A paired-samples t-test was conducted to determine the presence of the hypothesis selection bias.

A z-test was conducted to determine the presence of the pseudodiagnosticity bias.

RESULTS

Pseudodiagnosticity Results

Contrary to our hypothesis, respondents to this instrument did not exhibit the pseudodiagnosticity bias (z=3.86, p<0.001). This was demonstrated by the significant difference in the frequencies of the two responses.

Figure 1. Hypothesis Selection Results

Hypothesis Selection Results

Assume that a person randomly selected from the population has an equal chance of being diagnosed with Schizophrenia or Bipolar I Disorder.

Figure 2. Pseudodiagnosticity Results

Pseudodiagnosticity Results

REFERENCES
