The Brain Disease Model of Addiction and Implications for Public Stigma: A Cross-National Study

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INTRODUCTION

- Neurobiologists suggests that there have been recent advances in neurobiology that have helped clarify the mechanisms underlying addiction, and that these findings provide support for a BDMA[1]

- "Brain disease" terminology has also been linked to the intent to reduce public stigma which in turn will increase treatment seeking[1]

- Other researchers believe that "brain disease" terminology will increase stigma and that the BDMA does not capture the complexity of addiction[2,3]

- United States was chosen as a region to measure as the BDMA has been strongly promoted there; Australia was chosen as a majority of the empirical evidence investigating beliefs of the BDMA has been conducted there; Canada was chosen as there have also been influential researchers debating the validity of the BDMA

Dependent Variable

Public Stigma	• Attitudes and beliefs of the general public towards those suffering addictive disorders

Independent Variables

Country of Residence	• Canada, the United States, or Australia
Belief in Models of Addiction (MOA)	• BDMA, moral, psychological, sociological and nature
Vignette Manipulation	• Vignette of a hypothetical individual suffering from one of four disorders

HYPOTHESES

H1: Public stigma towards mental health disorders is lower than stigma toward addictive disorders

H2: Significant interaction where as beliefs in the BDMA increase, predicted public stigma ratings for individuals with an addictive disorder will be low

H3: Greater acceptance of the BDMA in the United States than other countries

METHODS

Participants and Procedure

- Sample: 872 English speaking individuals
- Recruitment: Amazon's Mechanical Turk (MTurk)
- Countries: Canada (N = 248), the United States (N = 574), and Australia (N = 50)

Materials

Participants were randomly assigned to one of 8 vignette conditions (4 vignettes below were displayed with a male and female individual)

Addiction
- Six sentence vignette describing an individual who has been suffering from low energy and is having difficulty carrying out their daily routines; yet drinking alcohol makes the individual feel better. The individual goes to the doctor and gets diagnosed with an alcohol use disorder.

Mental Health
- Six sentence vignette describing an individual who has been suffering from low energy and is having difficulty carrying out their daily routines; yet avoiding work and social activities makes the individual feel better. The individual goes to the doctor and gets diagnosed with a major depressive disorder disorder.

Addiction/Mental Health
- Six sentence vignette describing an individual who has been suffering from low energy and is having difficulty carrying out their daily routines; yet drinking alcohol and avoiding work and social activities makes the individual feel better. The individual goes to the doctor and gets diagnosed with an alcohol use disorder and a major depressive disorder disorder.

Non-Psychiatric Medical Disorder
- Six sentence vignette describing an individual who has been suffering from low energy and is having difficulty carrying out their daily routines; yet eating sugary foods makes the individual feel better. The individual goes to the doctor and gets diagnosed with diabetes.

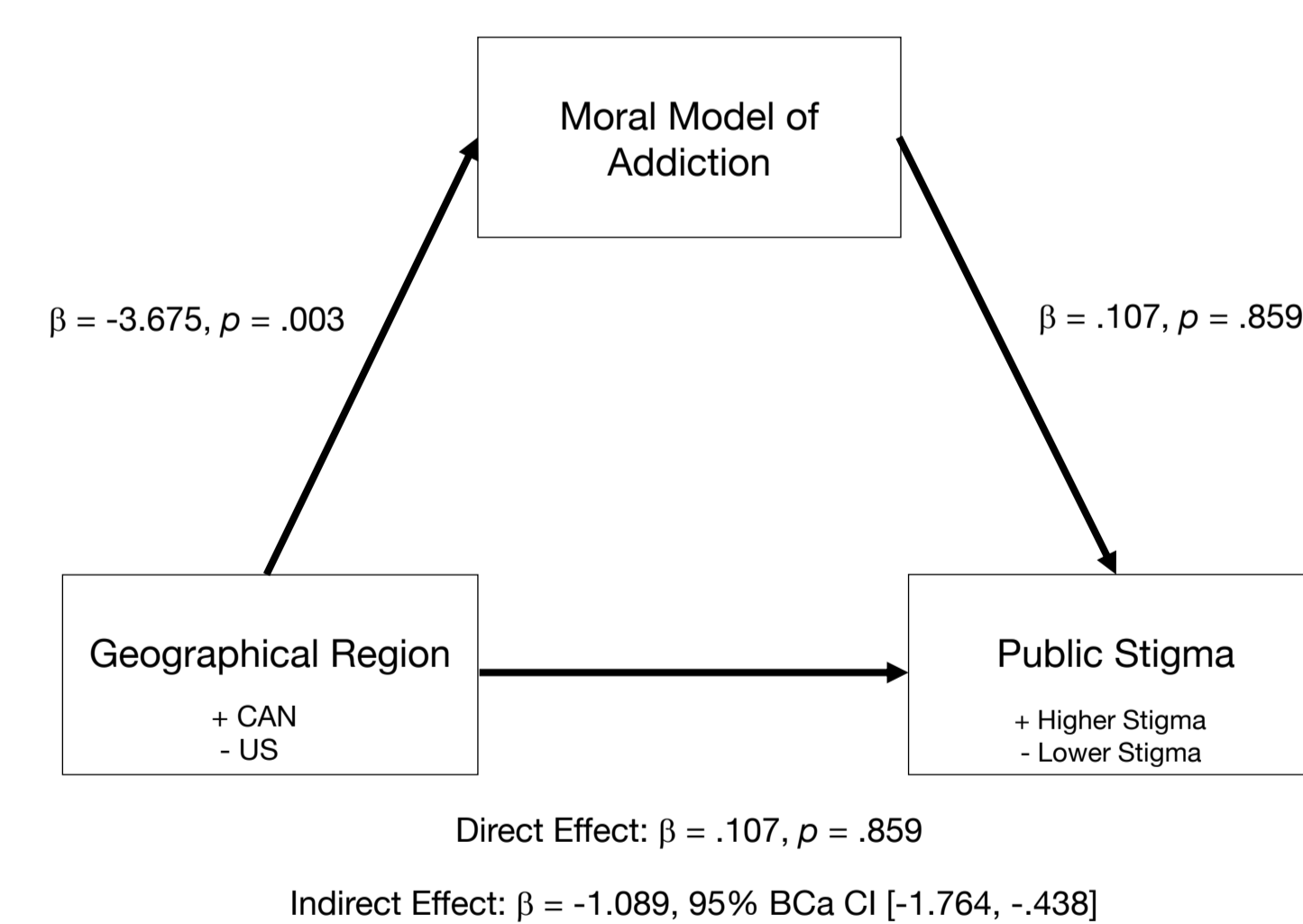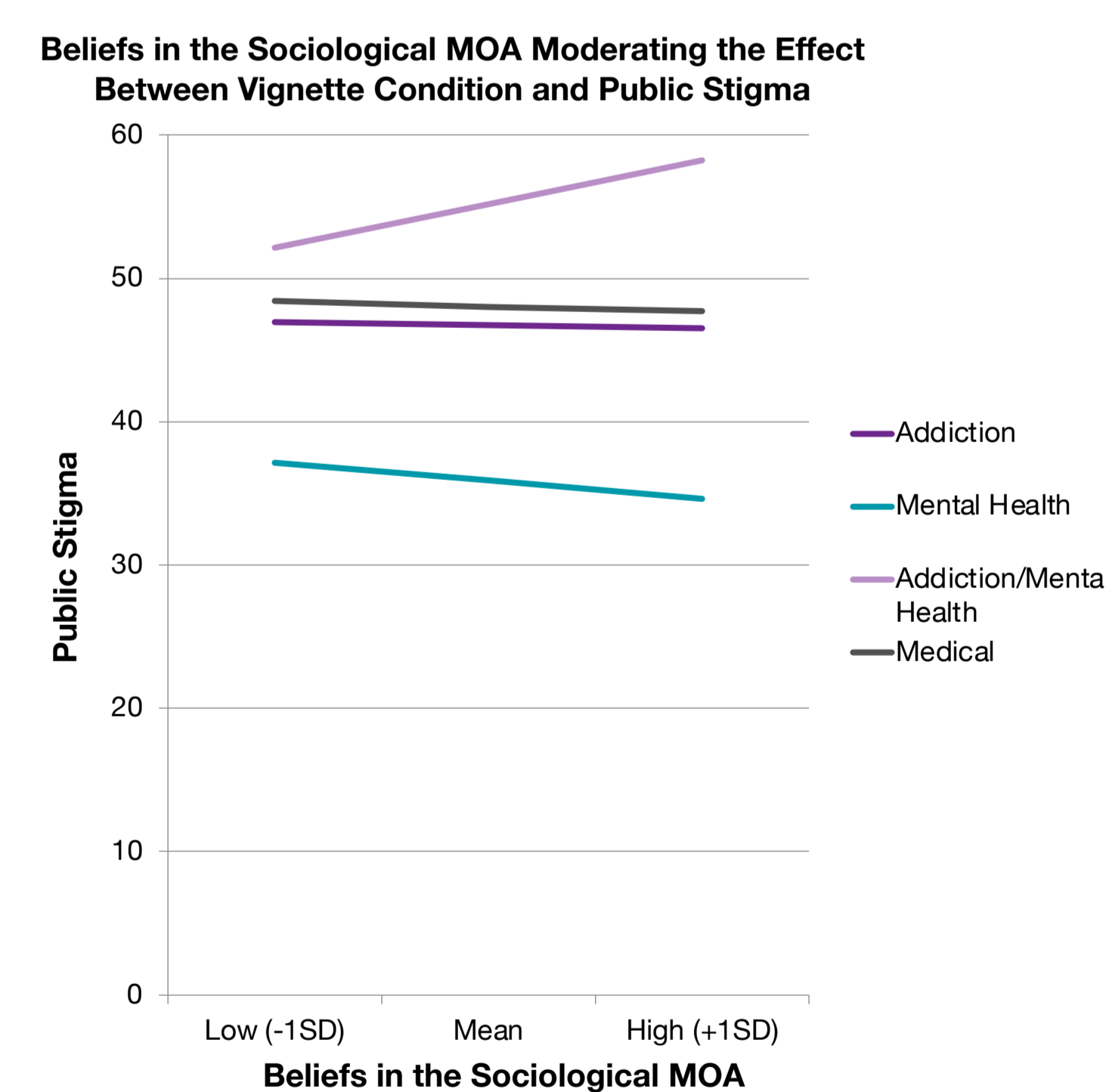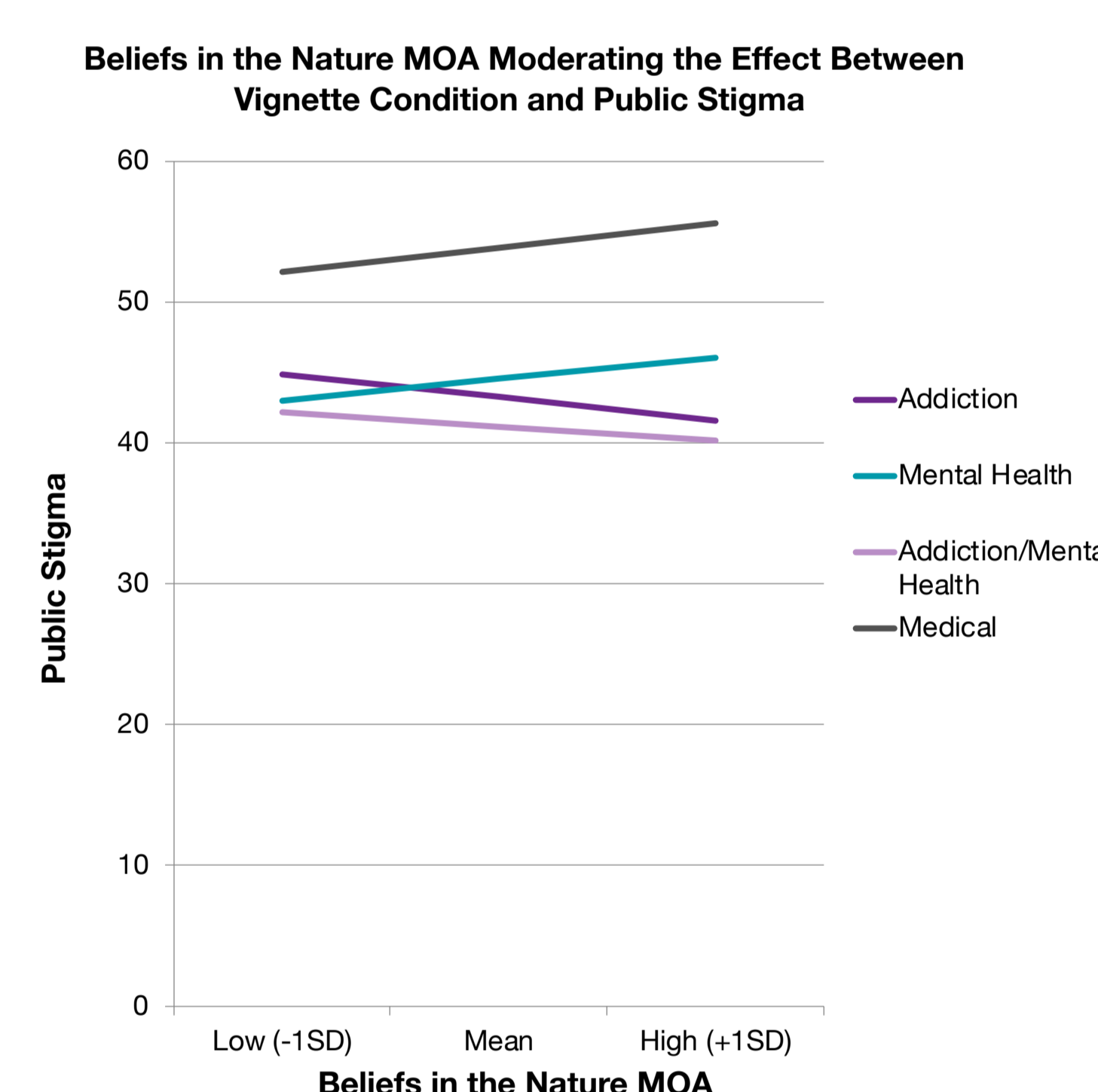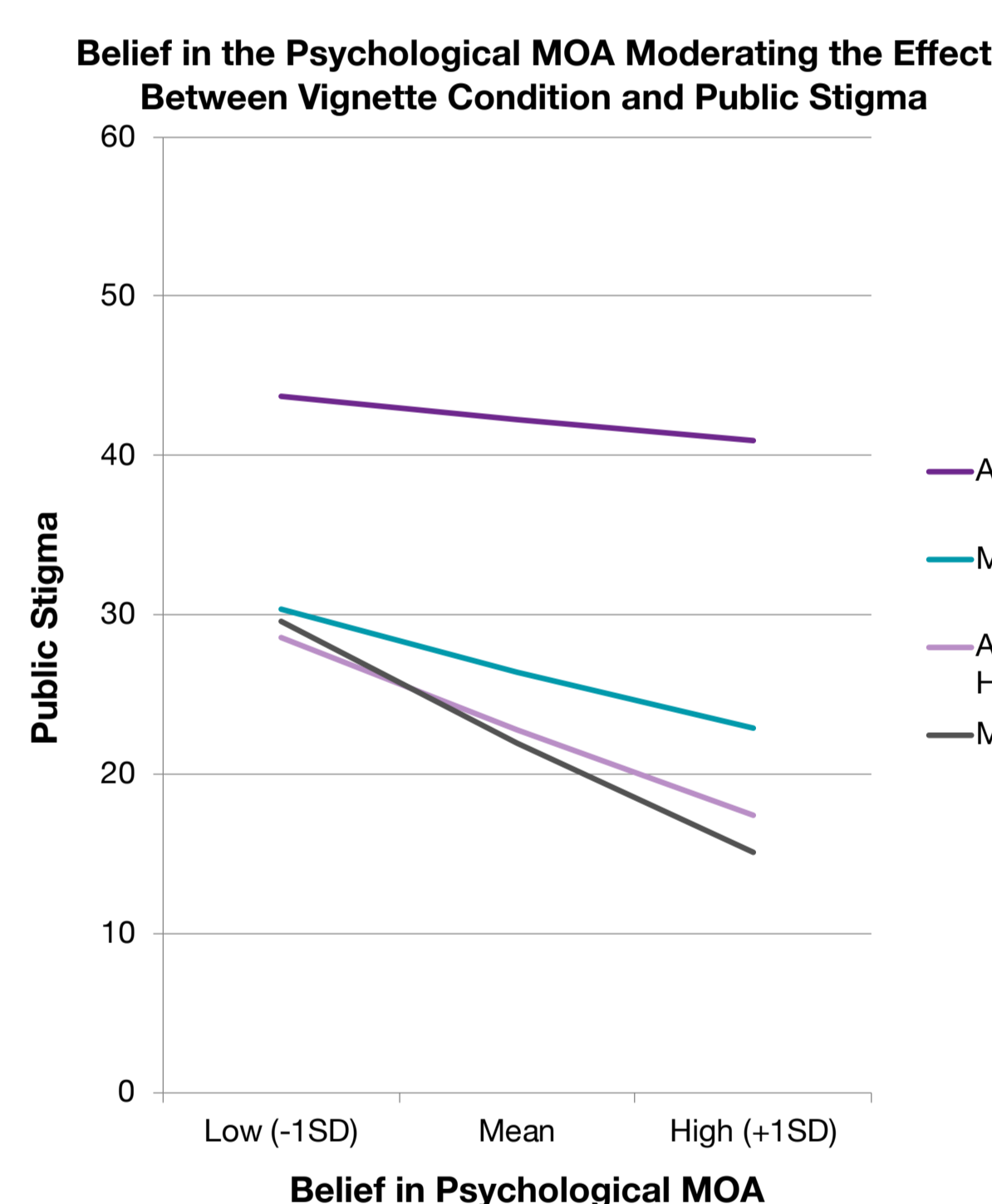| Measure	Sample Item
Personal and Perceived Public Stigma Measures	People like John should feel embarrassed about their situation[4]
Public Attitudes About Addiction Survey	Addicts cannot control their addictive behaviour[5]

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RESULTS

- **H1; Supported**
  - Significant differences between mean stigma ratings of the vignette conditions were found, $F(3,868) = 47.18$, $p = .000$, in the following order from greatest to least stigma: Addiction, Addiction/Mental Health, Mental Health, Medical

- **H2; Not Supported**
  - Moderation Models indicate that the Psychological, Nature, and Sociological MOA's moderate the relationship between vignette condition and stigma (see Figures below)
  - Multiple regression suggests that higher beliefs in the psychological (β = -.147) and nature (β = -.097) MOA significantly predicted higher stigma ratings whereas higher beliefs in the moral MOA (β = .268) significantly predicted lower stigma ratings for the conditions with addiction (R^2 = .40, $F(5,414)=54.98$, p = .000)

- **H3; Partially Supported**
  - Significant differences were found between the mean acceptance scores of the BDMA based on geographical region where the US has greater acceptance than Canada, $F(2,869) = 6.31$, $p = .002$; M = 25.35, SD = 6.11 (US) and M = 23.83, SD = 5.39 (CAN); no significant differences between Australia and Canada or the US
  - Mediation Model indicates that the Moral MOA is the only model which mediates the relationship between geographical region and stigma, b = -.430, BCa CI [-.850, -.052]. The US had higher beliefs in the Moral MOA which led to higher ratings of public stigma.

FIGURES

Belief in the Psychological MOA Moderating the Effect Between Vignette Condition and Public Stigma

Beliefs in the Nature MOA Moderating the Effect Between Vignette Condition and Public Stigma

Beliefs in the Sociological MOA Moderating the Effect Between Vignette Condition and Public Stigma

DISCUSSION

- Results from this randomized study suggest that addictive disorders are more stigmatized than mental health disorders, which is consistent with findings from past research[6]

- Beliefs in the BDMA do not predict stigma ratings for the ADD and ADD/MH conditions but beliefs in the psychological, nature, and moral MOA's do with greater beliefs in the psychological and nature model predicting lower stigma scores and greater beliefs in the moral model predicting higher stigma scores
  - High beliefs in the psychological and nature MOA explains more of the variance in predicting public stigma in comparison to vignette condition predicting public stigma, alone
  - This is inconsistent with the proposal that viewing addiction as a brain disease reduces stigma toward addictive disorders

- Participants from the United States had greater acceptance of the Moral MOA which led to higher ratings of public stigma attributed to individuals with addictive disorders