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Symptoms Moderating the Association between Recent Suicide Attempt and Traumatic  
Morbidity: Fan-shaped Effects

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### Abstract

The present study examines variables affecting the incidence of recent suicide attempt in a large sample of participants who experienced various levels of traumatic morbidity. The sample was drawn from a French nationally representative, general population survey (N= 39,617). In the same line with previous research on the data provided by the survey, five levels of traumatic morbidity were used on the basis of answers to the post-traumatic stress disorder items from the French version of Mini International Neuropsychiatric Interview. Twenty four items, representing Axis I psychopathological symptoms and suicidality indexes, were tested to identify intervening variables moderating the suicide attempt incidence in any given traumatic morbidity level. Seven items yielded a systematic effect: four suicidality items, two major depression items and one panic disorder item. The main findings consist of (i) the suppressing effect of the absence of these symptoms, and (ii) the gradual increasing effect of their presence. These results underline the importance of comorbid symptoms in the association between trauma and suicidality.

*Keywords:* Fan-shaped effect; Traumatic morbidity; Suicide attempt; Suicidal Ideation; Depression

## 1. Introduction

Suicidal behavior is among the main public health issues. According to the World Health Organization (WHO) each year approximately one million people die by suicide worldwide and 10 to 20 times more people will attempt suicide worldwide (Nock et al., 2009). Suicide is now among the three leading causes of death among people aged from 15 to 34 years and the 14th-overall cause of death worldwide accounting for 1.5 percent of all deaths (Gvion & Alan, 2012; Nock et al., 2008). Studies based on large community samples highlight that suicidal behavior is associated with a number of sociodemographic characteristics, such as younger age, being unemployed, and living alone, as well as a number of psychiatric diagnoses such as mood disorders, psychotic disorders, substance use disorders and anxiety disorders (Borges et al., 2006; Kessler, Borges, & Walters, 1999; Nock et al., 2009; Nock, Hwang, Sampson, & Kessler, 2010).

The experience of traumatic events and psychopathological symptoms related to it are also found to be associated with suicidal behavior, while the research in the domain is no older than two decades (Adams & Lehnert, 1997). For instance in a sample of 9,358 participants evaluated in the context of National Anxiety Disorders survey, the presence of suicidal ideation was found to be associated with the number of PTSD symptoms. According to Marshall's study (2001) the frequency of reported past month suicidal ideation is four times higher in a sample of trauma victims with four PTSD symptoms compared to a sample with no reported traumatic symptoms. In the same line Vaiva et al. (2007) conducted a study on the French general population sample (SMPG) and showed a gradual increase in the frequency of the current month suicide attempt along with increase of the levels of traumatic morbidity. Vaiva et al.'s study used five levels of traumatic morbidity: the levels are respectively defined by (i) not having experienced a traumatic event (henceforth the first level is going to be named No trauma), having

experienced (ii) a traumatic event (criterion A) without any further PTSD symptoms (henceforth this level is going to be named Trauma<sub>a</sub>), (iii) a traumatic event (criterion A) and an intrusion symptom (criterion B) without any further PTSD symptoms (Trauma<sub>b</sub>), (iv) a traumatic event (criterion A), an intrusion symptom (criterion B), and an avoidance symptom (criterion C) without any further PTSD symptoms (Trauma<sub>c</sub>), and (v) a traumatic event (criterion A), an intrusion symptom (criterion B), an avoidance symptom (criterion C) along with a criterion D symptom of negative alterations in cognitions and mood (Trauma<sub>d</sub>). Among participants without the experience of traumatic events (No trauma) only 0.36% reported a current month suicide attempt. In the sample of participants who have experienced trauma without any further PTSD symptom (Trauma<sub>a</sub>), 0.57% reported a current month suicide attempt. The proportion is 0.72% in the case of participants characterized by Trauma<sub>b</sub> level of traumatic morbidity, 2.42% for participants characterized by Trauma<sub>c</sub> level of traumatic morbidity, and 4.6 % for participants characterized by Trauma<sub>d</sub> level of traumatic morbidity. Figure 1 displays this increasing association.

The association between experience of trauma and suicidal behavior has been the subject of several critical notes in some recent articles. In a recent review on the subject Krysincka and Lester (2010) highlighted that studies published in the domain usually do not take into account the role of potential intervening variables in the relationship between trauma and suicidality. That is to say, the association between experience of traumatic events and suicidality may change conditionally to presence versus absence of other symptoms.

Jankovic et al. (2012) and Oquendo et al. (2003, 2005) addressed the issue of variables intervening potentially on suicidality outcomes such as suicidal ideation or suicide attempt, using logistic regression. All these studies treated traumatic morbidity as a dichotomous independent

variable (diagnosed with PTSD vs. not diagnosed with PTSD) whereas role of depression was specifically investigated by Jankovic et al. (2012) and Oquendo et al. (2003), while the specific role of borderline personality disorder was examined by Oquendo et al. (2005). The logistic regression approach used in these studies allows one to test statistically the necessity of certain independent variables in the model. However, these studies assumed no interaction between the independent variables.

As mentioned above, Vaiva et al. (2007) SMPG study highlights that the incidence of the current month suicide attempt is associated with the level of traumatic morbidity (see Figure 1), where traumatic morbidity is treated as a 5-level ordinal variable. The present study aims at supplementing Vaiva et al.'s results by finding out intervening variables which affect the association between traumatic morbidity and the frequency of recent suicidal behavior in every level of traumatic morbidity.

In the first place, we are going to define intervening variable, enhancing intervening variable and fan-shaped intervening variable. Let us consider an outcome (e.g. suicidal behavior, dependent variable), which occurs with a given frequency in a sample defined by a common characteristic in its members (e.g., experience of a traumatic event, independent variable). If the outcome frequency changes when the sample is split conditionally to different modalities of another variable (e.g. depression), it is called an intervening variable. That is to say, the frequency of the outcome (suicidal behavior) is *not the same* with respect to different modalities of the intervening variable (experience of a traumatic event along with depression versus experience of a traumatic in the absence of depression).

If the outcome frequency is not only different but also *systematically increased*, the intervening variable is called enhancing. The magnitude of the increasing effect can be evaluated

by an effect size measure such as Cohen's  $h$  index (1986, p. 180). If the effect size increases along with the levels of traumatic morbidity, we speak of a fan-shaped, intervening variable. Figure 2 displays an example of a fan-shaped enhancing variable where the effect size is 0.20 for the No trauma level, 0.20 for the first traumatic morbidity level, 0.22 for the second traumatic morbidity level, 0.27 for the third traumatic morbidity level, and 0.35 for the fourth traumatic morbidity level.

The main objective of the present study is to find out if there are some fan-shaped intervening variables that affect the association between the frequency of recent suicidal behavior and the level of traumatic morbidity on the large sample of French general population and mental health (SMPG) survey. Afterwards, if there are some intervening variables with fan-shape characteristics, we are going to examine the frequency of suicidal behavior for each level of traumatic morbidity in the conjoint presence and in the conjoint absence of the corresponding symptoms.

## **2. Materials and methods**

### **2.1. Materials**

The French national SMPG survey used two main interviews. (i) A socio-demographic interview regarding gender, age, marital status, education, professional activity, income level, religious beliefs and practice, immigration and country of origin. (ii) The 166-item version of the French Mini International Neuropsychiatric Interview (MINI) aimed to assess the prevalence of psychiatric disorders as well as suicidality. The present study focuses on the information provided by the MINI. The MINI was designed as a brief structured interview for 12 Axis I psychiatric disorders (161 items) with the priority given to current diagnosis; moreover, five items evaluate suicidality. All items are answered in a 'yes' or 'no' format. Each psychiatric

disorder is evaluated with some 'screening items' to explore the mandatory criteria. Negative answers to these items necessarily rule out the diagnosis (so complete data is only available for mandatory 'screening items'). Lecrubier et al. (1997) and Sheehan et al. (1998) reported a high inter-rater agreement between the diagnosis proposed by MINI and the clinical diagnosis based on the Forth version of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) or the Tenth version of International Statistical Classification of Diseases (ICD-10). In order to identify intervening variables current study used the information provided by the Axis I mandatory screening items of MINI, along with five suicidality items, these items are detailed in Table 1.

## 2.2. Participants

The SMPG survey consisted in interviewing a nationally representative sample of 39'617 respondents in 47 sites in France. In each site, approximately 900 participants were evaluated by nursing students using interviews mentioned above. The survey data is composed of 54% women and 46% men, aged 18 and older ( $M = 45$ ,  $SD = 18.3$ ). According to Vaiva et al.'s (2007) increasing levels of traumatic morbidity, the size of the five sub-samples, i.e., No trauma, Trauma<sub>a</sub>, ..., Trauma<sub>d</sub>, is 27'896 (70%), 8211 (21%), 1668 (4.2%), 1406 (3.5%), and 436 (1.1%), respectively.

## 2.3. Analyses

The reported current month suicide attempt (positive answer to item Suicidality<sub>4</sub>, see Table 1) was chosen as the outcome criterion. Information conveyed by 20 screening items of MINI along with the other four suicidality items (a total of 24 items) was used to identify potential fan-shaped intervening variables. In order to do that, the frequency of the current month suicide attempt was computed for each level of traumatic morbidity conditionally to the positive/negative answer to each one of 24 potential intervening variables. The difference



between the resulting frequencies was expressed by using Cohen's  $h$  index of effect size (1986). Effect sizes below 0.20, between 0.20 and 0.80 and over 0.80 are considered as small, moderate and large, respectively. In this study, fan-shaped variables with minimum  $h$  index larger than 0.20 are of particular interest.

### 3. Results

#### 3.1. Frequency of Suicide Attempt in Each Level of Traumatic Morbidity

A total of 213 respondents reported a current month suicide attempt (0.68% of the total sample, which corresponds to 8.2% of annual suicide attempt rate). Respondents' age ranged between 18 and 68 years ( $M = 37$ ,  $SD = 16.2$ ). Fifty four percent of the attempters were female. Among participants having reported a current month suicide attempt, 113 participants were in the No trauma sample, 47 were in the Trauma<sub>a</sub> sample, 20 participants were in the Trauma<sub>b</sub> sample, 34 participants were in the Trauma<sub>c</sub> sample, and 20 participants were in the Trauma<sub>d</sub> sample.

#### 3.2. Fan-shaped Intervening Variables

Table 2 shows that among the 24 examined variables, seven variables exhibited characteristics of an intervening variable with fan-shaped pattern, with at least a moderate effect size for every level of traumatic morbidity. The corresponding items are listed on the top of Table 2. These items are four suicidality items, namely death wish (Suicidality<sub>1</sub>), self harm intention (Suicidality<sub>2</sub>), suicidal ideation (Suicidality<sub>3</sub>), and lifetime suicide attempt (Suicidality<sub>5</sub>), two major depression items, i.e. depressed mood (Depression<sub>1</sub>) and loss of interest (Depression<sub>2</sub>), along with one item concerning the experience of panic attack in past month (Panic Attack). Figure 2 displays the percentage of current month suicide attempt for five levels of traumatic morbidity, in the presence of the loss of interest symptom (Depression<sub>2</sub>), in absence

of the depression<sub>2</sub> symptom, and for total sample. In the same way the fan-shaped effect of the six other intervening variables is displayed in Figure 3 and Figure 4.

### **3.2. Suicide Attempt Incidence in the Conjoint Presence/Absence of Intervening Symptoms**

In case of conjoint presence of seven aforementioned intervening symptoms the percentage of suicidal behavior goes from 42%, in the No trauma sample, to 89%, in the Trauma<sub>d</sub> sample. While in the conjoint absence of all of seven intervening symptoms the percentage of suicidal behavior remains less than 0.01% for all of different levels of traumatic morbidity, which demonstrates that conjoint absence of these symptoms suppress the association between levels of traumatic morbidity and recent suicide attempt.

## **4. Discussion**

The current study employed a simple and straightforward descriptive approach to the SMPG data, without using statistical modeling, to detect the intervening variables that affect the association between traumatic morbidity and the frequency of suicide attempt in a fan-shaped way. Seven fan-shaped variables emerged from the data analysis; namely death wish, self harm intention, suicidal ideation, lifetime suicide attempt, experience of panic attack, depressed mood, and loss of interest. Conjoint absence or presence of these symptoms substantially changes the frequency of suicide attempt. In the absence of them all, the percentage of suicide attempt is less than 0.01% for every traumatic morbidity level. In the presence of all seven symptoms the percentage of suicidal behaviour goes from 42% to 89% depending on various levels of traumatic morbidity.

These results are consistent with findings of previous studies, concerning the intervening role of depression in the trauma-suicidal behavior association (Jankovic et al., 2012; Oquendo et al., 2003, 2005). However, literature addresses the issue of variables intervening in the traumatic

morbidity-suicidal behavior association on the basis of logistic regression. Some methodological differences between these studies and the current study have to be underlined. Firstly, in the literature traumatic morbidity is treated as a binary variable (presence vs. absence of PTSD) whereas in the case of SMPG data (Vaiva et al. 2007) traumatic morbidity is a five-level ordinal scale. This is much like the case of Marshal et al.'s (2001) study. Neither Marshal et al. nor Vaiva et al. looked for fan-shaped intervening variables.

The logistic regression approach has the advantage of estimating the relation between trauma and suicidality after taking into account the effect of intervening variables; moreover it is capable of providing the possibility to reproduce frequencies of the outcome given different combinations of the independent variables. However, the validity of such a model can be questioned because the interaction terms are systemically set at zero. This is probably due to the large number of interaction terms that one would have to insert into the model. For instance, in their analyses, Jankovic et al. (2012) set 502 interaction terms at zero; Oquendo et al. (2003, 2005) set 26 interaction terms at zero.

The descriptive approach used here encounters some practical obstacles in order to find out the frequency of the outcome with respect to different combinations of intervening variables. For instance, in our study 640 samples have to be taken into account (the seven binary intervening variables and the five point-scaled traumatic morbidity variable require the calculation of  $2^7 \times 5 = 640$  combinations). The data reveals that 209 of these different combinations are not instantiated in the overall sample (amongst the 39,617 cases of the SMPG data, no relevant case was observed). Nevertheless, a statistical model could allow one to estimate the frequencies of interest. A logistic regression model (with 12 parameters, i.e., one intercept, four beta

coefficients for the dummy variables used to describe traumatic morbidity and seven beta coefficients for the intervening variables) yields the 12 estimates reported in the Table 3.

All of the four traumatic morbidity levels have non-significant association with suicidal behaviour. However, these variables cannot be removed from the model because the nested model which sets the corresponding parameters at zero (see Table 4) has a significantly worse fit:  $\Delta-2LL(4) = 15.28$ ,  $p = 0.004$ . As mentioned above, considering the fact that in such a model all of the 628 interaction terms (640 combinations minus 12 parameters) have to be set at zero the estimates are doubtful. Table 5 shows the discrepancies between the estimated percentage and the observed percentage of recent suicide attempt in the presence and the absence of each intervening symptom. In addition, the three bottom lines compare the estimated percentage with the observed percentage in the conjoint presence and in the conjoint absence of the intervening symptoms, and the number of suicide attempts. The model over-estimates the number of recent suicide attempts: 260 predicted vs. 213 observed. Figure 5 illustrates that the model reproduces the fan-shaped effect with a systematic discrepancy between the observed and the predicted suicide frequencies.

Finally, coming back to the association between traumatic morbidity and suicidal behavior, the SMPG data show that even in the case of highest traumatic morbidity level in the presence of each intervening symptom, the frequency of suicidal behaviour remains less than 50%. Thus it suggests that future research could investigate the variables, or reasons for living, which may protect people with traumatic morbidity from suicide. In the same vein the absence of intervening variables can be considered as a protective factor that decreases the frequency of the suicide attempt: as mentioned at the beginning of the Discussion, in conjoint absence the seven

intervening variables, the percentage of suicide attempt is less than 0.01% for every traumatic morbidity level.

### References

- Adams, D. M., & Lehnert, K. L. (1997). Prolonged trauma and subsequent suicidal behavior: child abuse and combat trauma reviewed. *Journal of Traumatic Stress, 10*(4), 619–34. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9391945>
- Belik, S.-L., Cox, B. J., Stein, M. B., Asmundson, G. J. G., & Sareen, J. (2007). Traumatic events and suicidal behavior: results from a national mental health survey. *The Journal of Nervous and Mental Disease, 195*(4), 342–9. doi:10.1097/01.nmd.0b013e318060a869
- Borges, G., Angst, J., Nock, M. K., Ruscio, A. M., Walters, E. E., & Kessler, R. C. (2006). A risk index for 12-month suicide attempts in the National Comorbidity Survey Replication (NCS-R). *Psychological Medicine, 36*(12), 1747–57. doi:10.1017/S0033291706008786
- Cohen, J. (1986). *Statistical Power Analysis for the Behavioral Sciences* (Revised.). New York: Academic Press.
- Gvion, Y., & Alan, A. (2012). Suicide and suicidal behavior. *Public Health Reviews, 34*(2), 1–20.
- Harriss, L., & Hawton, K. (2005). Suicidal intent in deliberate self-harm and the risk of suicide: the predictive power of the Suicide Intent Scale. *Journal of Affective Disorders, 86*(2-3), 225–33. doi:10.1016/j.jad.2005.02.009
- Hawton, K., Zahl, D. L., & Weatherall, R. (2003). Suicide following deliberate self-harm: long-term follow-up of patients who presented to a general hospital. *The British Journal of Psychiatry, 537*–542. doi:10.1192/02-540
- Jankovic, J., Bremner, S., Bogic, M., Lecic-Tosevski, D., Ajdukovic, D., Franciskovic, T., Priebe, S. (2012). Trauma and suicidality in war affected communities. *European Psychiatry, 1*–7. doi:10.1016/j.eurpsy.2012.06.001
- Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry, 56*(7), 617–26. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/10401507>
- Krysinska, K., & Lester, D. (2010). Post-traumatic stress disorder and suicide risk: a systematic review. *Archives of Suicide Research : Official Journal of the International Academy for Suicide Research, 14*(1), 1–23. doi:10.1080/13811110903478997
- Lecrubier, Y., Sheehan, D., Weiller, E., Amorim, P., Bonora, I., Harnett Sheehan, K., Dunbar, G. (1997). The Mini International Neuropsychiatric Interview (MINI). A short diagnostic structured interview: reliability and validity according to the CIDI. *European Psychiatry, 12*(5), 224–231. doi:10.1016/S0924-9338(97)83296-8

- Marshall, R. D. (2001). Comorbidity, Impairment, and Suicidality in Subthreshold PTSD. *American Journal of Psychiatry*, *158*(9), 1467–1473. doi:10.1176/appi.ajp.158.9.1467
- Murphy, E., Kapur, N., Webb, R., & Cooper, J. (2011). Risk assessment following self-harm: comparison of mental health nurses and psychiatrists. *Journal of Advanced Nursing*, *67*(1), 127–39. doi:10.1111/j.1365-2648.2010.05484.x
- Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., & Lee, S. (2008). Suicide and suicidal behavior. *Epidemiologic Reviews*, *30*(1), 133–54. doi:10.1093/epirev/mxn002
- Nock, M. K., Hwang, I., Sampson, N. A., & Kessler, R. C. (2010). Mental disorders, comorbidity and suicidal behavior: results from the National Comorbidity Survey Replication. *Molecular Psychiatry*, *15*(8), 868–76. doi:10.1038/mp.2009.29
- Nock, M. K., Hwang, I., Sampson, N., Kessler, R. C., Angermeyer, M., Beautrais, A., Williams, D. R. (2009). Cross-national analysis of the associations among mental disorders and suicidal behavior: findings from the WHO World Mental Health Surveys. *PLoS Medicine*, *6*(8), e1000123. doi:10.1371/journal.pmed.1000123
- Oquendo, M., Brent, D., Birmaher, B., Greenhill, L., Kolko, D., Stanley, B., Mann, J. (2005). Posttraumatic stress disorder comorbid with major depression: factors mediating the association with suicidal behavior. *The American Journal of Psychiatry*, *162*(3), 560–6. doi:10.1176/appi.ajp.162.3.560
- Oquendo, M., Friend, J., Halberstam, B., Brodsky, B., Burke, A., Grunebaum, M., Mann, J. (2003). Association of comorbid posttraumatic stress disorder and major depression with greater risk for suicidal behavior. *The American Journal of Psychiatry*, *160*(3), 580–2. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12611845>
- Panagioti, M., Gooding, P. a, & Tarrier, N. (2012). A meta-analysis of the association between posttraumatic stress disorder and suicidality: the role of comorbid depression. *Comprehensive Psychiatry*, *53*(7), 915–30. doi:10.1016/j.comppsy.2012.02.009
- Panagioti, M., Gooding, P., Taylor, P. J., & Tarrier, N. (2013). A model of suicidal behavior in posttraumatic stress disorder (PTSD): The mediating role of defeat and entrapment. *Psychiatry Research*, 1–5. doi:10.1016/j.psychres.2013.02.018
- Sheehan, D., Lecrubier, Y., Sheehan, K., Amorim, P., Janavs, J., Weiller, E., Dunbar, G. (1998). The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry*, *59*, 22–33. Retrieved from [http://www.musc.edu/psychiatry/research/cns/upadhyayareferences/Sheehan\\_1998.pdf](http://www.musc.edu/psychiatry/research/cns/upadhyayareferences/Sheehan_1998.pdf)
- Stein, D. J., Chiu, W. T., Hwang, I., Kessler, R. C., Sampson, N., Alonso, J., Nock, M. K. (2010). Cross-national analysis of the associations between traumatic events and suicidal

behavior: findings from the WHO World Mental Health Surveys. *PloS One*, 5(5), e10574. doi:10.1371/journal.pone.0010574

Suris, A. M., Link-malcolm, J., & North, C. S. (2011). Predictors of Suicidal Ideation in Veterans With PTSD Related to Military Sexual Trauma. *Journal of Traumatic Stress*, 24(5), 605–608. doi:10.1002/jts.

Tarrier, N., & Gregg, L. (2004). Suicide risk in civilian PTSD patients predictors of suicidal ideation, planning and attempts. *Social Psychiatry and Psychiatric Epidemiology*, 39(8), 655–61. doi:10.1007/s00127-004-0799-4

Vaiva, G., Ducrocq, F., Jehel, L., Genest, P., Duchet, C., Omnes, C., Roelandt, J.-L. (2007). Psychotraumatismes et risque suicidaire en France. *Stress et Trauma*, 7(2), 69–77.

Zahl, D. L., & Hawton, K. (2004). Repetition of deliberate self-harm and subsequent suicide risk: long-term follow-up study of 11,583 patients. *The British Journal of Psychiatry*, 185, 70–5. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/152315>



Table 1  
Screening items MINI along with suicidality and PTSD items

Item	Question
Depression <sub>1</sub>	Have you been consistently depressed or down, most of the day, nearly every day, for the past two weeks?
Depression <sub>2</sub>	In the past two weeks, have you been much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?
Depression <sub>3</sub>	Did you feel tired or without energy almost every day?
Dysthymia	Have you felt sad, low or depressed most of the time for the last two years?
Maniac Episode <sub>1</sub>	Have you ever had a period of time when you were feeling 'up' or 'high' or 'hyper' or so full of energy or full of yourself that you got into trouble?
Maniac Episode <sub>2</sub>	Have you ever been persistently irritable, for several days, so that you had arguments or verbal or physical fights, or shouted at people outside your family?
Agoraphobia	Do you feel anxious or uneasy in places or situations where you might have a panic attack or the panic-like symptoms we just spoke about, or where help might not be available or escape might be difficult: like being in a crowd, standing in a line (queue)?
Panic Attack	Have you, on more than one occasion, had spells or attacks when you suddenly felt anxious, frightened, uncomfortable or uneasy?
Social Phobia	In the past month, were you fearful or embarrassed being watched, being the focus of attention, or fearful of being humiliated? This includes things like speaking in public, eating in public or with others, writing while someone watches, or being in social situations.
Generalized Anxiety	Have you worried excessively or been anxious about several things over the past 6 months?
Alcohol Abuse	In the past 12 months, have you had 3 or more alcoholic drinks within a 3 hour period on 3 or more occasions?
Drug Abuse	In the past 12 months, did you take any drugs more than once, to get high, to feel better, or to change your mood?
Psychotic Disorder <sub>1</sub>	Have you ever had thoughts that your entourage considered strange or unusual, and they did not share with you?
Psychotic Disorder <sub>2</sub>	Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you?
Psychotic Disorder <sub>3</sub>	Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking?
Psychotic Disorder <sub>4</sub>	Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, or made you act in a way that was not your usual self? Have you ever felt that you were possessed?
Psychotic Disorder <sub>5</sub>	Have you ever believed that you were being sent special messages through the TV, radio, or newspaper?
Psychotic Disorder <sub>6</sub>	Have you ever had visions when you were awake or have you ever seen things other people could not see?
Psychotic Disorder <sub>7</sub>	Have you ever heard things other people could not hear, such as voices?
Suicidality <sub>1</sub>	Did you think that would be better off dead or wish you were dead?
Suicidality <sub>2</sub>	Did you wish to harm or hurt or injure yourself? (Current month)
Suicidality <sub>3</sub>	Did you think about suicide? (Current month)
Suicidality <sub>4</sub>	Did you attempt suicide? (Current month)
Suicidality <sub>5</sub>	Had you ever make a suicide attempt in your life?
PTSD <sub>1</sub>	Have you ever experienced or witnessed or had to deal with an extremely traumatic event?
PTSD <sub>2</sub>	During the past month, have you re-experienced, thought, or dreamt of the event in a distressing way?
PTSD <sub>3</sub>	Have you avoided thinking about or talking about the event?
PTSD <sub>4</sub>	Have you had trouble recalling some important part of what happened?

Table 2

*h* index of difference and current month suicide attempt percentage given positive or negative answer to potential intervening variables (in parenthesis).

Item	<i>h</i> (%suicide attempt item=no, %suicide attempt in item=yes)					<i>h</i> index		
	No trauma	Trauma <sub>a</sub>	Trauma <sub>b</sub>	Trauma <sub>c</sub>	Trauma <sub>d</sub>	Min	Max	Average
Suicidality <sub>2</sub>	0.65 (0.2, 11.37)	0.69 (0.1, 13.3)	0.78 (0.3, 20.7)	0.83 (1.6, 24.3)	1.06 (1.2, 36.3)	0.6	1.1	0.83
Suicidality <sub>3</sub>	0.45 (0.08, 6.99)	0.54(0.1, 8.8)	0.67 (0.2, 14.1)	0.86 (0.7, 24.5)	1.25 (0, 3.5)	0.4	1.3	0.80
Suicidality <sub>5</sub>	0.38 (0.06, 3.17)	0.40 (0, 4)	0.44 (0.1, 6.1)	0.60 (0.5, 13.1)	0.81 (0.3 ,20.2)	0.4	0.8	0.55
Suicidality <sub>1</sub>	0.30 (0.08, 4.69)	0.37 (0.1, 6)	0.45 (0.2, 7.5)	0.50 (1.3, 12.6)	0.94 (0.3, 25.7)	0.3	1.0	0.54
Depression <sub>1</sub>	0.21 (0.14, 1.56)	0.23 (0.1, 2.1)	0.26 (0.3, 3.3)	0.37 (0.9, 7.6)	0.47 (1.8, 13.2)	0.2	0.5	0.31
Panic Attack	0.20 (0.15, 1.7)	0.20 (0.1, 2)	0.21 (0.4, 2.3)	0.29 (1.3, 6.6)	0.52 (1.5, 13.7)	0.2	0.5	0.27
Depression <sub>2</sub>	0.20(0.06, 1.46)	0.20 (0.1, 1.5)	0.22 (0.2, 2.4)	0.27(1, 5.6)	0.35 (2, 10)	0.2	0.4	0.24
Psychotic Disorder <sub>2</sub>	0.08 (0.35, 1.2)	0.1 (0.4, 1.3)	0.23 (0.1, 1.9)	0.1 (2, 3.7)	0.41 (1.9, 11.4)	0.1	0.4	0.20
Psychotic Disorder <sub>7</sub>	0.11 (0.44, 1.85)	0.14 (0.5, 2)	0.07 (0.4, 1)	0.17 (2.1, 5.2)	0.36 (3.4, 12.7)	0.1	0.4	0.18
Maniac Episode <sub>2</sub>	0.06 (0.35, 1.02)	0.08 (0.4, 1.1)	0.15 (0.2, 1.3)	0.18 (1.6, 4.6)	0.34 (2.5, 10.3)	0.1	0.3	0.17
Psychotic Disorder <sub>6</sub>	0.16 (0.35, 2.5)	0.21 (0.4, 2.7)	0.14 (0.3, 1.5)	0.12 (2.1, 4.1)	0.24 (3.7, 9.5)	0.1	0.2	0.17
Depression <sub>3</sub>	0.11 (0.27, 1.48)	0.14 (0.3, 1.6)	0.04 (0.3, 0.6)	0.21 (1.2, 4.4)	0.3 (2.2, 8.7)	0.0	0.3	0.16
Drug Abuse	0.08 (0.35, 1.3)	0.11 (0.4, 1.4)	0.11 (0.3, 1.2)	0.15 (2, 4.7)	0.34 (3.0, 11.5)	0.1	0.3	0.16
Psychotic Disorder <sub>1</sub>	0.05 (0.44, 0.93)	0.06 (0.5, 1)	0.14 (0.2, 1.3)	0.09 (2.1, 3.6)	0.39 (2.4, 11.6)	0.1	0.4	0.16
Psychotic Disorder <sub>3</sub>	0.05 (0.44, 1.02)	0.06 (0.5, 1.1)	0.13 (0.3, 1.3)	0.25 (1.7, 6.3)	0.21 (3.8, 8.8)	0.1	0.3	0.15
Maniac Episode <sub>1</sub>	0.12 (0.27, 1.67)	0.16 (0.3, 1.8)	0.12 (0.2, 1.1)	0.17 (1.6, 4.5)	0.17 (3.5, 7.3)	0.1	0.2	0.14
Psychotic Disorder <sub>4</sub>	0.08 (0.44, 1.3)	0.1 (0.5, 1.4)	0.03 (0.4, 0.6)	0.03 (2.4, 2.9)	0.47 (3.1, 1)	0.0	0.5	0.14
Dysthymia	0.11 (0.09, 1.2)	0.15 (0.1, 1.3)	0.17 (0, 0.7)	0.09 (1.1, 2.1)	0.12 (2, 4.1)	0.1	0.2	0.13
Agoraphobia	0.05 (0.44, 0.93)	0.07 (0.5, 1)	0.1 (0.2, 0.9)	0.21 (1.2, 4.5)	0.13(3.6, 6.3)	0.1	0.2	0.11
Psychotic Disorder <sub>5</sub>	0.08 (0.44, 1.39)	0.1 (0.5, 1.5)	0.1 (0.4, 1.2)	0.1 (2.3, 4)	0.12 (4.4, 7.1)	0.1	0.1	0.10
Alcohol Abuse	0.02 (0.44, 0.65)	0.02 (0.5, 0.7)	0.2 (0, 1)	0.08 (2, 3.2)	0.09 (3.8, 5.6)	0.0	0.2	0.08
Generalized Anxiety	0.08 (0.18, 0.93)	0.11 (0.2, 1)	0.05 (0.1, 0.4)	0.03 (0.8, 1.1)	0.09 (1.5, 2.9)	0.0	0.1	0.07
Social Phobia	0.03 (0.44, 0.74)	0.04 (0.5, 0.8)	0.07 (0.3, 0.7)	0.11 (1.7, 3.5)	0.12 (3.6, 6.2)	0.0	0.1	0.07

Table 3

Logistic regression analysis with current month suicide attempt as dependent variable, levels of traumatic morbidity and seven intervening variables as independent variables. (-2 Log likelihood = 1135.189.)

	$\beta$ (df=1)	S.E.	<i>p</i>
Intercept	-7.88	0.25	0.00
Trauma <sub>a</sub>	0.05	0.21	0.82
Trauma <sub>b</sub>	0.36	0.34	0.20
Trauma <sub>c</sub>	0.38	0.26	0.11
Trauma <sub>d</sub>	0.35	0.34	0.23
Suicidality <sub>2</sub>	3.3	0.24	0.00
Suicidality <sub>5</sub>	2.43	0.27	0.00
Suicidality <sub>3</sub>	1.17	0.2	0.00
Depression <sub>2</sub>	0.49	0.2	0.03
Panic Attack	0.48	0.18	0.01
Suicidality <sub>1</sub>	0.43	0.2	0.04
Depression <sub>1</sub>	0.42	0.18	0.05

Table 4

Logistic regression analysis with current month suicide attempt as dependent variable, and seven intervening variables as independent variables. (-2 Log likelihood = 1150.473.)

	$\beta$ (df=1)	S.E.	<i>p</i>
Intercept	-7.86	0.24	0.00
Suicidality <sub>2</sub>	3.28	0.24	0.00
Suicidality <sub>5</sub>	2.43	0.27	0.00
Suicidality <sub>3</sub>	1.15	0.2	0.00
Depression <sub>2</sub>	0.53	0.20	0.02
Panic Attack	0.51	0.18	0.01
Suicidality <sub>1</sub>	0.46	0.21	0.04
Depression <sub>1</sub>	0.45	0.20	0.04

Table 5

Estimated vs. observed (in parenthesis) percentages of current month suicide attempt given presence vs. absence of intervening symptoms, frequencies predicted by model versus frequencies in the actual data

Item	No trauma		Trauma <sub>a</sub>		Trauma <sub>b</sub>		Trauma <sub>c</sub>		Trauma <sub>d</sub>	
	Item=no	Item=yes	Item=no	Item=yes	Item=no	Item=yes	Item=no	Item=yes	Item=no	Item=yes
Suicidality <sub>2</sub>	0.1 (0.2)	8.7 (11.4)	0.1 (0.1)	7.8 (13.3)	0.1 (0.3)	13.6 (20.7)	0.3 (1.6)	16.1 (24.3)	0.4 (1.3)	23.2 (36.4)
Suicidality <sub>3</sub>	0.3 (0.1)	22.1 (7)	0.4 (0.1)	25 (8.8)	0.7 (0.2)	36.9 (14.1)	1.3 (0.7)	36.7 (24.5)	2 (0)	39.8 (34.5)
Suicidality <sub>5</sub>	0.1 (0.1)	15.5 (3.2)	0.2 (0)	20 (4)	0.4 (0.1)	30.7 (6.1)	0.6 (0.5)	31.3 (13.1)	0.5 (0.4)	37.4 (20.2)
Suicidality <sub>1</sub>	0.2 (0.1)	8 (4.7)	0.3 (0.1)	10 (6.1)	0.5 (0.2)	14.9 (7.5)	1 (1.3)	18.5 (12.6)	0.9 (0.3)	28 (25.7)
Depression <sub>1</sub>	0.2 (0.1)	2.9 (1.6)	0.3 (0.1)	4.1 (2.1)	0.6 (0.3)	5.8 (3.3)	1.2 (0.9)	9.7 (7.6)	2.3 (1.8)	15.1 (13.2)
Panic Attack	0.4 (0.1)	4.3 (1.7)	0.6 (0.1)	5.3 (2)	1.2 (0.4)	7.7 (2.3)	2.2 (1.3)	11.8 (6.6)	3.3 (1.5)	19.2 (13.8)
Depression <sub>2</sub>	0.2 (0.1)	4.4 (1.5)	0.4 (0.1)	5.8 (1.5)	0.8 (0.2)	8.8 (2.4)	1.1 (1)	13.9 (5.6)	2.9 (2)	17.5 (10)
Conjoint Absence	0.03 (0)		0.04 (0.02)		0.05 (0)		0.05 (0)		0.05 (0)	
Conjoint Presence	69.1 (41.3)		71.3 (43.2)		76.2 (60)		77.3 (56.4)		77.1 (88.9)	
Total suicide attempt	132 (105)		58 (47)		17 (7)		30 (34)		23 (20)	

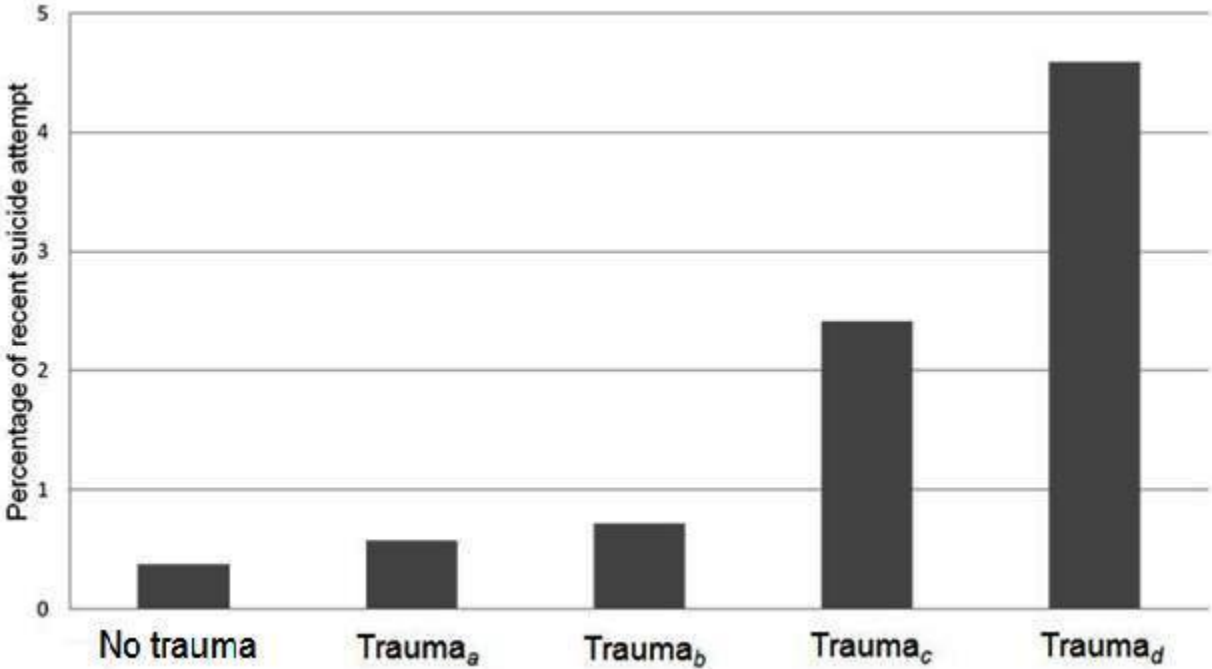


Figure 1. The percentages of current month suicide attempt in five sub-samples with different number of traumatic symptoms.

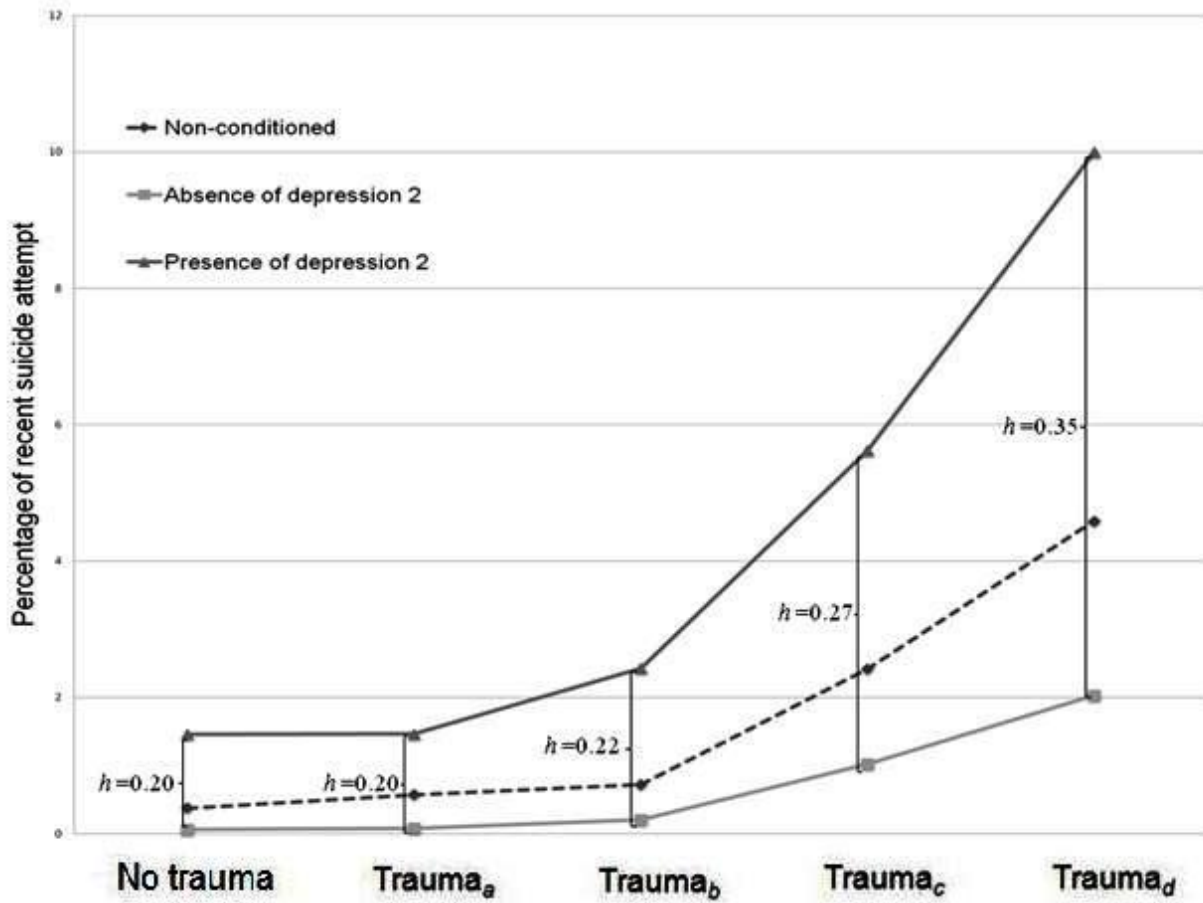


Figure 2. The percentages of current month suicide attempt for five levels of traumatic morbidity, in presence of a depression symptom, in absence of a depression symptom, and for total sample, an example of fan-shaped intervening variable.

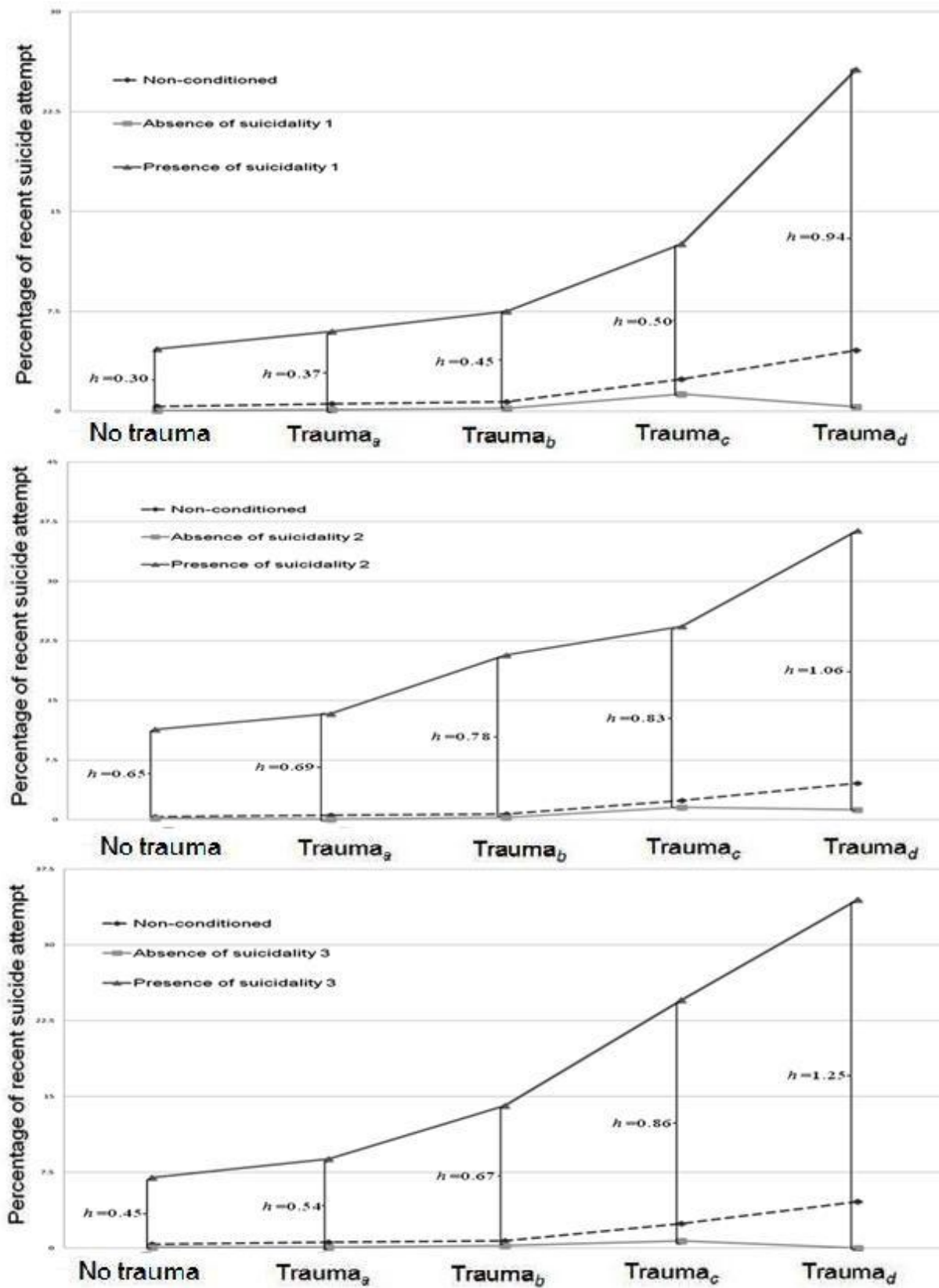


Figure 3. The percentages of current month suicide attempt for five levels of traumatic morbidity in presence of three intervening symptoms (Suicidality<sub>1</sub> at the top, Suicidality<sub>2</sub> in the middle, and Suicidality<sub>3</sub> on the bottom) in their absence, and for total sample.



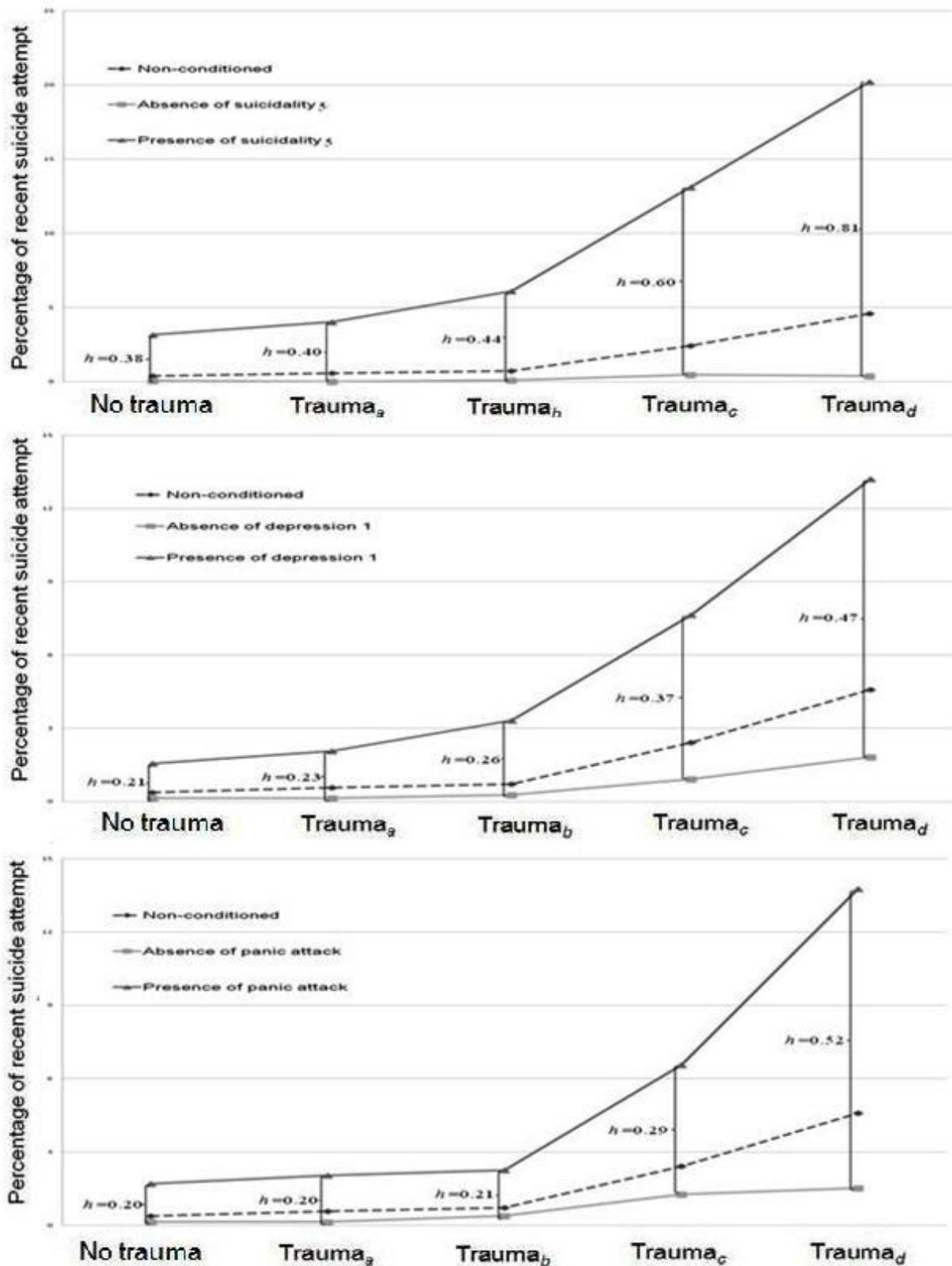


Figure 4. The percentages of current month suicide attempt for five levels of traumatic morbidity in presence of three intervening symptoms (Suicidality<sub>4</sub> at the top, Depression<sub>1</sub> in the middle, and panic attack on the bottom) in their absence, and for total sample.

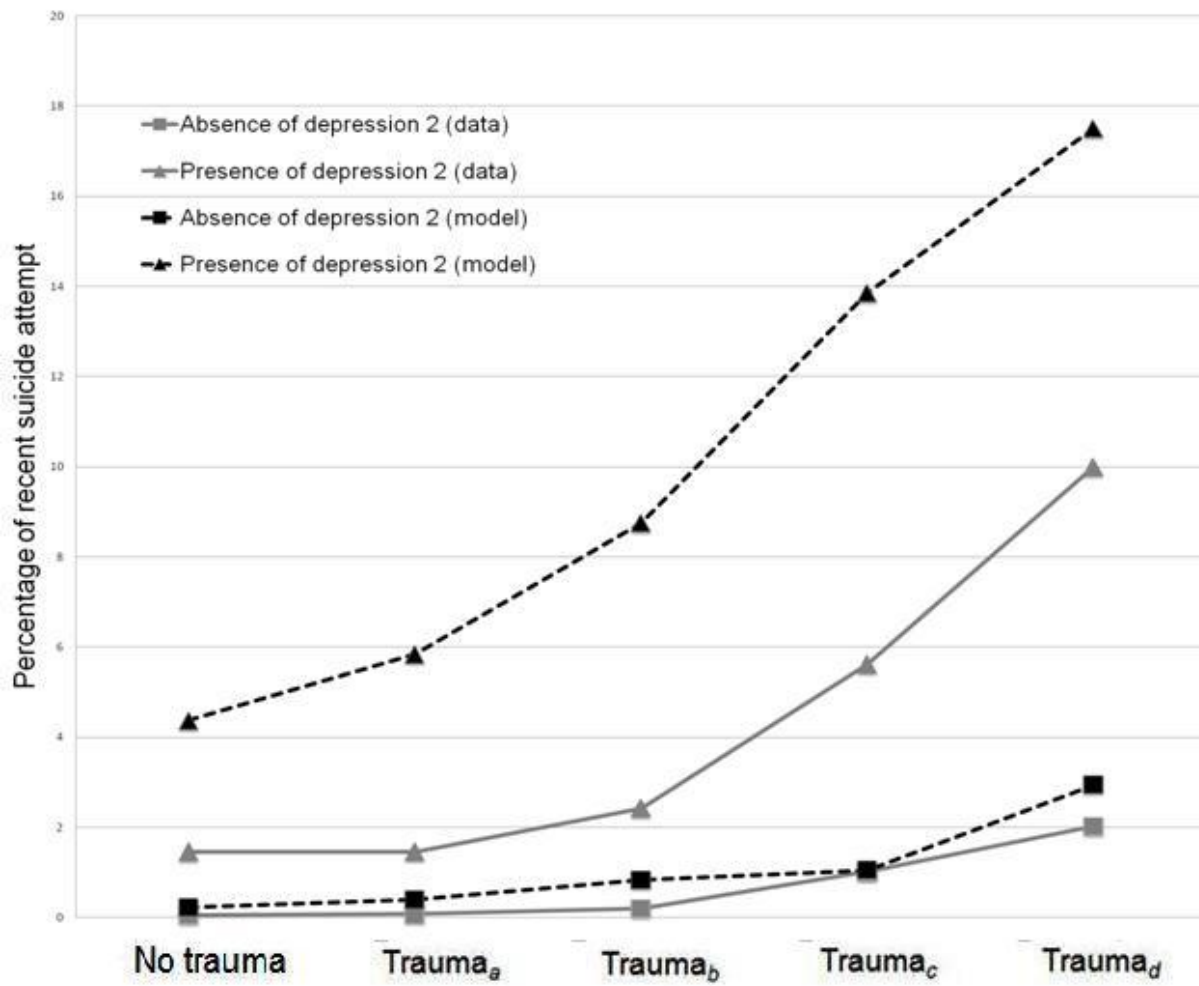


Figure 5. The percentages of current month suicide attempt for five levels of traumatic morbidity in presence of a depression symptom, and in absence of a depression symptom, frequencies predicted by model versus frequencies in the actual data.