



## The relationship between obsessive compulsive beliefs and symptoms, anxiety and disgust sensitivity, and Swine Flu fears

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### ABSTRACT

Using the 2009 Swine Flu outbreak as a contemporary example of pandemic fears, this study examined the relationship between various symptoms related to anxiety sensitivity and Swine Flu fears. It was hypothesized that both obsessive-compulsive (OC) beliefs and OC symptoms would significantly predict Swine Flu fears. It was also hypothesized that symptoms of anxiety, including measures of anxiety sensitivity and disgust sensitivity would significantly mediate the relationship between both OC beliefs and OC symptoms and Swine Flu fears. A total of 393 undergraduate students completed measures of Swine Flu fears, anxiety sensitivity, OC beliefs and symptoms, and disgust sensitivity. It was found that both OC beliefs and OC symptoms significantly predicted Swine Flu fears. While disgust sensitivity significantly mediated the relationship between both OC beliefs and OC symptoms and Swine Flu fears using the Sobel test, anxiety sensitivity was a significant mediator only for OC symptoms. Additionally, path modeling showed that anxiety sensitivity mediated the relationship between OC symptoms and Swine Flu fears best. The results of this study may be useful for treating individuals suffering from anxiety in light of future pandemics, as well as continuing to research the role of anxiety symptoms in predicting pandemic fears.

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### 1. Introduction

The Swine Flu (officially called the H1N1 Flu) first infected people in the United States in April (Center for Disease Control and Prevention, 2009). By June 2009, the Swine Flu became a pandemic (World Health Organization, 2009). Similar to traditional, seasonal strains of influenza, Swine Flu is very contagious, and can spread through coughing, sneezing, or touching (Center for Disease Control and Prevention, 2009). Although the Swine Flu does not significantly differ in symptomology compared to the traditional, seasonal flu, it garnered much attention in the media and became a significant health concern for many during the 2009 Swine Flu pandemic. It is possible that some individuals have significantly greater fears related to being infected by Swine Flu.

The 2009 Swine Flu pandemic provided researchers with an opportunity to examine relationships between pandemic fears and health anxiety. Other recent pandemics showed that anxiety was elevated among individuals living in urban areas associated with the outbreak. For example, during the outbreak of Severe Acute Respiratory Syndrome (SARS), which had primary outbreaks in Hong Kong and Toronto, it was shown that there was high anxiety regarding the risk of illness in general population of Hong Kong (Cheng & Cheung,

2005) and for individuals who attending a conference in Toronto (Stinson, McCartney, Leung, & Katz, 2004). The incidence of psychiatric disturbance following the SARS outbreak was limited primarily to those with prior psychiatric histories (Lancee, Maunder, & Goldbloom, 2008). Collectively, these studies show that widely publicized pandemics are associated with increased anxiety and potentially exacerbations of psychiatric disturbance. In the case of psychiatric disturbance, obsessive-compulsive disorder (OCD) is an especially important condition that may be influenced by pandemic outbreaks. Those already suffering from symptoms of anxiety may be at greater risk of Swine Flu fears, and may also be more susceptible to taking excessive measures to reduce the likelihood of contracting Swine Flu. Additionally, given the common symptoms of contamination fears in individuals suffering from OCD (American Psychiatric Association, 2000; Ball, Baer, & Otto, 1996), it is possible that individuals with obsessive-compulsive (OC) symptoms or OC beliefs are more likely to fear exposure to Swine Flu, along with taking excessive measures to prevent contracting this illness. Understanding these relationships could benefit clinicians in developing treatment plans for clients with significant pandemic fears, or anticipate the primary concerns of clients at risk for these fears when there are outbreaks presented in media reports of flu or other viral infections.

#### 1.1. Health-related anxiety

Fear of Swine Flu or other illnesses can be considered a specific type of anxiety called *health-related anxiety*. Taylor and Asmundson

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(2004) describe health anxiety as a useful function for humans to react to physical ailments with a certain level of concern. This normal level of anxiety often causes us to take the necessary measures to prevent and alleviate illness. Health anxiety becomes problematic when the anxiety is chronic and excessive, or when the anxiety is significantly greater than the severity of the health-related threat (Taylor, McKay, & Abramowitz, 2012). This kind of anxiety can be disabling, and is a common symptom in myriad psychological disorders, such as hypochondriasis, OCD, panic disorder, and specific phobias (Taylor et al., 2012).

Persons suffering from excessive health anxiety often seek reassurance that they are not ill, but the relief experienced from reassurance seeking generally does not last long and can actually increase long-term severity of health anxiety (Taylor & Asmundson, 2004). Excessive health anxiety is also often accompanied by excessive checking in many aspects, including bodily checking and checking medical sources about diseases.

Due to preoccupations with health concerns and physical symptoms, it follows that health-related anxiety is commonly experienced in individuals suffering from symptoms of anxiety disorders such as OCD and panic disorder, where individuals often interpret benign physical symptoms (particularly anxiety-related arousal) as harmful (called anxiety sensitivity; Taylor et al., 2007). Additionally, a common OC belief includes overestimation of threat. In contamination-based OCD, this overestimation of threat may include health anxiety-based symptoms such as obsessions with becoming ill or contaminating others (Cisler, Brady, Olatunji, & Lohr, 2010). It is important to note that OC beliefs are not specific to OCD and are often experienced by individuals suffering from other anxiety disorders as well (Tolin, Worhunsky, & Maltby, 2006). Finally, those who are more likely to experience disgust may also endorse a greater number of pandemic-related fears. Disgust sensitivity is seen in anxiety disorders such as OCD and certain phobias, and has been shown to play a critical role in those suffering from OCD, especially when symptoms are contamination-based (Thorpe, Patel, & Simonds, 2003).

### 1.2. Previous research on Swine Flu attitudes and behaviors

A telephone survey study in the UK examined how perceptions of Swine Flu affected behaviors taken to reduce Swine Flu (Rubin, Amlot, Page, & Wessely, 2009). Participants in this study were asked questions about specific behaviors they had engaged in over the previous few days relating to fear of Swine Flu. The researchers found that individuals with higher levels of anxiety about Swine Flu were significantly more likely to carry out avoidance behaviors recommended by the government than those who did not have high levels of anxiety (Rubin, Amlot, Page, & Wessely, 2009).

Goodwin, Haque, Neto, and Myers (2009) conducted an internet and paper-based survey in Malaysia and Europe, which examined “attitudinal and behavioral responses” related to the Swine Flu pandemic. In terms of anxiety regarding Swine Flu infection, about half of the participants reported being at least “somewhat concerned” by catching Swine Flu, and this percentage was significantly higher in the Malaysian sample (71% indicated they were at least “somewhat concerned”) (Goodwin et al., 2009). Interestingly, the researchers found that while participants in the European sample were more likely to discuss their fears with their friends when compared to the Malaysian sample, Malaysian participants were more likely to contemplate behavioral changes (i.e., not using public transportation, and purchasing masks and other goods in preparation of an outbreak) (Goodwin et al., 2009). These findings, plus the higher level of overall anxiety in the Malaysian population, shed light on some potential cultural differences when examining Swine Flu fears. This could be based on multiple factors, such as

access to health care, access to information regarding Swine Flu, and cultural differences about emotional expression to friends and family.

Another study used a cross-sectional survey to ascertain the beliefs and attitudes of Australians about the Swine Flu during the WHO Phase 5 (Pandemic H1N1, 2009; Seale et al., 2009). While this study did not directly examine the relationship between anxiety and Swine Flu, it did find that almost half of the participants felt they did not have enough information regarding the pandemic, and only 33% of the participants felt that being infected by Swine Flu would affect their lives “very seriously” (Seale et al., 2009). Perhaps, there is a relationship between media exposure and perceived threat of Swine Flu, considering many participants in this study felt under-informed. While the effects of media exposure on Swine Flu anxiety are beyond the scope of this paper, it is an important point to consider in future studies of epidemic attitudes and behaviors.

While the research above describes different factors that may affect attitudes toward Swine Flu, none of these studies have directly examined the effect of psychological symptoms on Swine Flu attitudes. A 2011 study examined the relationship between Swine Flu fears and various symptoms related to health anxiety, including contamination fears, panic symptoms, and disgust in an undergraduate sample (Wheaton, Abramowitz, Berman, Fabricant, & Olatunji, 2012). Using regression analyses, Wheaton, Abramowitz, Berman, Fabricant, & Olatunji (2012) found that health-related anxiety, disgust sensitivity, and contamination fears all significantly predicted Swine Flu fears. This study was the first to demonstrate a relationship between various symptoms of anxiety and fears related to Swine Flu.

These studies highlight how epidemics can impact an individual's mental and emotional state. Especially in the field of health care, these anxieties can affect attitudes and behaviors both professionally and personally. The current study aims to build on the literature discussed above by examining how previous anxiety and other factors contribute to pandemic anxiety.

The aims of the current study are to investigate the relationship between symptoms of various anxiety problems (e.g., panic, obsessive-compulsive disorder) and fear of contracting Swine Flu. Measuring these relationships will help clarify the role of anxiety in pandemic fears, which could be useful information for clinicians treating patients with such fears.

Based on the findings from Wheaton, Abramowitz, Berman, Fabricant, & Olatunji (2012), the current study examined the mediating effects of various symptoms of anxiety between OC symptoms and OC beliefs and Swine Flu fears and behaviors. Mediation analyses allow for identification of possible causal pathways (MacKinnon, 2008) unexamined in the prior report. It is expected, based on the literature reviewed here, that OC symptoms and beliefs are intermediate causal factors between anxiety symptoms and the experience of Swine Flu fears. First, it was hypothesized that both OC beliefs and OC symptoms will significantly predict levels of Swine Flu fears and behaviors. Then, it was hypothesized that measures that target symptoms of panic and disgust, will significantly mediate the relationship between both OC symptoms and OC beliefs, and Swine Flu fears and behaviors.

## 2. Methods

### 2.1. Participants and procedure

Participants consisted of undergraduate students at Fordham University and the University of North Carolina ( $N=393$ ), primarily in Introductory Psychology courses. The sample from Fordham University included 208 participants, while the sample from University of North Carolina included 185 participants. Data collected from the University of North Carolina sample were also used for analysis

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