

**Obsessive Compulsive Disorder:  
An Investigation into the Potential Factors that Influence Attitudes  
towards OCD**

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## **Abstract**

Previous research on the topic of attitudes towards mental illness has identified several important factors that may influence these attitudes. However, compared to disorders such as depression or schizophrenia, little is known about the factors that influence attitudes towards obsessive compulsive disorder (OCD), specifically. The current study aimed to further strengthen the research conducted in this area, by examining attitudes towards OCD and the potential factors that may influence these attitudes. This quantitative study was predominately cross sectional, however there was a manipulation applied as participants were presented with either a biological or psychosocial explanation of OCD. The current sample (N = 253) was recruited from the general population of the Republic of Ireland. The model used within the current study explained 23% of the variance pertaining to attitudes towards OCD. Mental health knowledge, older age, compassion, being familiar with mental illness and being female significantly predicted more positive attitudes towards OCD; however there was no significant difference between participants living in either an urban or rural area; or between participants that were presented with either the biological or psychosocial explanation of OCD. These findings have important implications for the development of effective interventions to reduce negative attitudes towards OCD. These findings alongside other clinical implications are discussed.

## Table of Contents

<b>Introduction</b> .....	1
<i>Age</i> .....	2
<i>Sex</i> .....	3
<i>Compassion</i> .....	4
<i>Region of Residence (Urban/Rural)</i> .....	4
<i>Familiarity</i> .....	5
<i>Knowledge of Mental Illness</i> .....	6
<i>Causal Beliefs of Mental Illness (Biological or Psychosocial)</i> .....	7
<i>Rationale</i> .....	9
<i>Hypothesis 1</i> .....	10
<i>Hypothesis 2</i> .....	10
<b>Method</b> .....	11
<i>Participants</i> .....	11
<i>Design</i> .....	11
<i>Measures</i> .....	12
<i>Procedure</i> .....	15
<i>Data Analysis</i> .....	16
<b>Results</b> .....	17
<i>Descriptive Statistics</i> .....	17
<i>Inferential Statistics</i> .....	18
<i>Group Differences</i> .....	18
<i>Multiple Regression and Correlational Analyses</i> .....	19
<b>Discussion</b> .....	22
<i>Age</i> .....	22
<i>Sex</i> .....	23
<i>Region of Residence (Urban/Rural)</i> .....	24
<i>Compassion</i> .....	24
<i>Knowledge of Mental Illness</i> .....	25
<i>Familiarity</i> .....	25
<i>Causal Explanation of OCD (Biological or Psychosocial) – Hypothesis 2</i> .....	26
<i>Major Implications</i> .....	27

<i>Limitations</i> .....	28
<i>Future Recommendations</i> .....	29
<i>Conclusion</i> .....	29
<b>References</b> .....	31
<b>Appendices</b> .....	43
Appendix A .....	43
Appendix B .....	45
Appendix C .....	46
Appendix D .....	47
Appendix E.....	48
Appendix F.....	50

## **Introduction**

Obsessive compulsive disorder (OCD) is an often chronic and debilitating condition that can negatively affect an individual's personal, social and professional life (Eisen et al., 2006; Koran, Thienemann & Davenport, 1996). The prevalence rate of OCD in the American population is estimated to be 2.3% (Ruscio, Stein, Chiu, & Kessler, 2010), however this figure can often vary across different studies (Veldhuis et al., 2012). According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5: American Psychiatric Association [APA], 2013), the criteria of OCD includes; obsessions (e.g., thoughts, feelings or impulses which are generally unwanted or intrusive) that are suppressed by performing a compulsion (repetitive behaviours such as washing, checking or repeating words silently) that the individual feels driven to perform (APA, 2013). These obsessions and/or compulsions are often time consuming (in excess of one hour per day) and cause significant distress and impairment to the individual's life. The majority of those who suffer from OCD delay treatment or avoid it all together (Mayerovitch et al., 2003), for example one study reported that only 25% of those who suffer from OCD receive treatment (Hantouche, Bouhassira, Lancrenon, Ravily & Bourgeois, 2002). The exact reason for this remains unknown as there has not been a vast amount of research conducted on the topic of OCD and the barriers that exist to receiving treatment (Glazier, Wetterneck, Singh & Williams, 2015). However, Simonds and Thorpe (2003) suggest that a possible reason for this delay/avoidance is due to the embarrassment or shame around mental illness. This is a cause for concern as the longer OCD remains untreated, the more intense the negative effects become (Coles, Heimberg & Weiss, 2013; Eisen & Rasmussen, 2002).

There appears to be a paucity of research concerning OCD, as opposed to other psychiatric disorders such as depression (Goodwin, Koenen, Hellman, Guardino & Struening, 2002), specifically investigating attitudes surrounding OCD (Simonds & Thorpe, 2003). Veldhuish et al. (2012) also suggest that OCD is a disorder that can often be under-recognised and under-treated. The effect of negative attitudes and stigma on individuals that suffer from a mental illness is of such a significant impact, that it has often been described as a 'second illness' (Finzen, 1996; Ociskova et al., 2013). Numerous studies have focused on identifying the factors that can influence one's attitudes towards mental illness in general (see Angermeyer & Dietrich, 2006), however there appears to be a lack of research conducted on



factors that influence one's attitudes towards OCD (specifically). Simonds and Thorpe (2003) conducted a study investigating attitudes towards OCD, using a sample of undergraduate students. The results of this study illustrated that individual's negative attitudes can increase/decrease depending on the subtype of OCD that is presented (e.g. consistently washing their hands, as opposed to reoccurring thoughts of harming others). However, other factors (such as age) that may influence an individual's attitudes were not assessed during this study. The identification of these factors may be critical in reducing the negative attitudes and stigma that surround OCD. A reduction in negative attitudes towards OCD may then lead to an increase in treatment seeking behaviour by individuals that suffer from OCD, as a barrier to receiving treatment is often due to the 'shame' and 'embarrassment' that is felt by these individuals (Glazier et al., 2015).

### Age

The age of an individual has often been identified as a potential factor predicting attitudes towards mental illness (Angermeyer & Dietrich, 2006). The results of a study conducted by Segal, Coolidge, Mincic and O'Riley (2005) found that elderly individuals were more likely to hold negative views towards the mentally ill. It was noted that elderly individuals were more likely to perceive the mentally ill as being 'embarrassing' and having poor social skills. This attitudinal difference between young and elderly individuals is seen across numerous studies conducted over a number of decades (Brockington, Hall, Levings & Murphy, 1993; Lauber, Nordt, Falcato & Rossler, 2004; Mirnezami, Jacobsson & Edin-Liljegren, 2015). This difference is also identifiable across different countries including Germany, Italy, Ireland and Sweden, suggesting that there may be few cultural differences between age and attitudes towards mental illness, at least in Europe (Angermeyer & Matschinger, 1997; Black, Duffy, Kieran, Mallon & Murphy, 1993; Magliano, Fiorillo, De Rosa, Malangone & Maj, 2004; Mirnezami et al., 2015).

However contrary to the findings of the aforementioned studies, Suominen, Suokas & Lönnqvist (2007) found that older aged emergency room personnel possessed more favourable attitudes towards individuals that had attempted suicide, than their younger colleagues. However, one could argue that the participant's profession may have acted as a confounding factor in this study. Considering the large body of research that illustrates the association between age and attitudes towards mental illness, it appears that these findings

may only serve as a reflection of the sample contained within the study and not as a true representation of the general public. The results of other studies that were conducted in order to investigate factors that influence one's attitudes have demonstrated no relationship between age and attitudes towards mental illness (e.g. Angermeyer & Matschinger, 2003a; Taskin et al., 2003). As the relationship between age and attitudes towards the mentally ill have been somewhat inconsistent over the last number of years, it is reasonable to suggest that this factor should be investigated further.

### Sex

An individual's sex has also been identified as a possible factor relating to one's attitudes towards mental illness. The results of several studies suggest that males tend to hold more negative attitudes towards mental illness (in general), and also towards the seeking of psychological help, than their female counterparts (Cook & Wang, 2010; Evans-Lacko, Henderson & Thornicroft, 2013; Kessler, Agines & Bowen, 2015; Savrun et al., 2007; Wahlbeck & Aromaa, 2011; Yousaf, Popat & Hunter, 2015). In a nationally representative study conducted by Evans-Lacko et al. (2013), it was found that women held more favourable views towards mental illness and also appeared to have an increased knowledge of mental illness. According to Yousaf et al. (2015), a possibly explanation as to the reason why males hold less favourable views of mental illness is due to the attribution of negative characteristics of mental illness, such as being caused by 'weakness of character'.

However, this positive relationship between males and negative attitudes towards mental illness appears to be an inconsistent finding across the literature (Angermeyer & Dietrich, 2006). According to a comprehensive review of the literature surrounding attitudes towards mental health disorders and sex differences (Holzinger, Floris, Schomerus, Carta & Angermeyer, 2012), it is suggested that females, on average, do not exhibit more favourable attitudes towards mental illness. Several studies investigating attitudes towards mental illness have yielded results that coincide with that of the review carried out by Holzinger et al. (e.g. Crisp, Gelder, Rix, Meltzer & Rowlands, 2000; Levav et al., 2004; Schnittker, 2000; Wahlbeck & Aromaa, 2011). The results of several studies also indicate that females may possibly hold increased negative perceptions such as exaggerated fearfulness of the mentally ill (Gaebel, Baumann, Witte & Zaeske, 2003; Stuart & Arboleda-Florez, 2001). Considering these conflicting results, one could argue that the sex of an individual may play a role in the

development of positive/negative attitudes towards mental illness; however this relationship requires further research (Holzinger et al., 2012).

### Compassion

Integrating individuals with a mental illness back into a community can often have positive effects on the individuals living within the community. For example, Hickling, Robertson-Hickling and Paisley (2011) illustrated that negative beliefs about mental illness can often change to positive feelings such as compassion, when people increase their contact with those who suffer from a mental illness. This finding suggests that compassion may play a role in positive attitudes towards mental illness. The results from a recent study conducted by Ellison, Mason and Scior (2015) found that compassion may play a crucial role in the reduction of the desire for social distance from the mentally ill. According to Ellison et al., certain beliefs about a mental illness may increase negative responses (e.g. fear) that increase the desire for social distance; however they may also increase compassion, which can simultaneously elicit a decrease in the desire for social distance. It should be noted that this study focused solely on attitudes towards bipolar disorder. Nevertheless, it would be reasonable to suggest that this relationship may extend to other mental illnesses such as OCD. Further research is required in order to elucidate this relationship between compassion and attitudes towards mental illness.

### Region of Residence (Urban/Rural)

An individual's region of residency (i.e. living in an urban area, as opposed to a rural area) has also been identified as a potential factor that may influence one's attitudes towards mental illness. However, akin to sex, results of studies investigating this factor have led to conflicting results (Angermeyer & Dietrich, 2006). The results from a study conducted by Phelan and Link (2004) found no significant difference between rural and urban individuals, in relation to negative perceptions of the dangerousness of the mentally ill. A similar non-significant relationship was illustrated in other studies investigating stigma towards mental illness (Cook & Wang, 2010; Crisp et al., 2000). Findings from other studies have demonstrated a positive correlation between those living in urban areas and negative attitudes towards mental illness (Hu et al., 2012; Martin, Pescosolido & Tuch, 2000).

However, in accordance with the current literature surrounding this area, if a significant difference does exist between area of residency and attitudes towards mental illness, the most likely relationship is a positive correlation between rural residency and negative attitudes towards mental illness. Rural individuals tend to hold different definitions of health than urban individuals. Individuals living in rural areas often define health as the ability to be productive, regardless of mental health problems such as stress or depression (Chimonides & Frank, 1998). A possible explanation for the occurrence of different definitions may be due to factors such as stoicism or decreased mental health literacy (Judd et al., 2006; Stuart & Arboleda-Florez, 2001). However pertaining to attitudes towards mental illness, this may provide a possible reason for the difference that is seen through-out various studies (e.g. Economou, Richardson, Gramandani, Stalikas & Stefanis, 2009; Hayslip, Maiden, Thomison & Temple, 2010; Jones, Cook & Wang, 2011; Kishore, Gupta, Jiloha & Bantman, 2011; Li & Phillips, 2010; Magliano, De Rosa et al., 2004). The findings of a recent study have also suggested that individuals living in rural communities may also have increased self-stigma, along with public stigma, regarding mental health concerns (Stewart, Jameson & Curtin, 2015).

### *Familiarity*

With regards to theoretical causes of negative attitudes towards mental illness, the use of different 'labels' to describe individuals with mental illnesses can often lead to preconceived misconceptions of exaggerated dangerousness, violent behaviour or unpredictability (e.g. Angermeyer & Matschinger, 2003b; Link, Cullen, Frank & Wozniak, 1987; Martin et al., 2000). However, it is also argued that negative attitudes are a result of the behaviour displayed by individuals suffering from a mental illness. For example Clausen (1981) argues that regardless of what label is used, severe mental disorders can elicit negative responses from those that live and care for the person as he cautioned that "by whatever name they are referred to, psychotic persons tend to be hard to live with" (p.287). Contrary to this argument put forth by Clausen (1981), the results of a study conducted by Phelan and Link (2004) found that exposure and personal contact with individuals suffering from a mental illness evoked more favourable attitudes, even though they are more likely to have been exposed to threatening or violent behaviour. Phelan and Link (2004) suggest that increased exposure to

the mentally ill may be used as a possible ‘weapon’ to combat the negative attitudes that surround mental illness.

Personal contact with/exposure to people suffering from a mental illness or having suffered from a mental illness themselves is often referred to as ‘familiarity’. How familiar an individual is with mental illness has often been correlated with increased positive attitudes towards mental illness. Alexander and Link (2003) observed similar results that coincide with the aforementioned study (Phelan & Link, 2004) as they observed a strong relationship between positive attitudes towards mental illness and increased contact with mentally ill individuals, as increased contact and exposure can challenge an individual’s underlying beliefs about mental illness. This relationship between ‘familiarity’ and positive attitudes has been demonstrated across numerous studies over the last number of years (Aromaa, Tolvanen, Tuulari & Wahlbeck, 2011; Brockington, et al., 1993; Corrigan, Edwards, Green, Diwan & Penn, 2001; Corrigan, Morris, Michaels, Rafacz & Rüsich, 2012; Evans-Lacko, et al., 2013). However, similar to many variables examined relating to attitudes towards mental illness, the relationship between familiarity with mental illness and attitudes towards OCD has not been assessed. Therefore suggesting that further research in this area is required.

### *Knowledge of Mental Illness*

Sociodemographic variables such as low educational level or low social class have often been linked with increased negative attitudes towards mental illness (e.g. Lauber, Nordt, Falcato & Rössler, 2002; Rüsich, Angermeyer & Corrigan, 2005). However, Wolff, Pathare, Craig and Leff (1996) suggest that this association is actually mediated by a lack of knowledge about mental illness. Jorm and Wright (2008) found that a common stigma among adolescents towards mental illness is that the individual is considered to be ‘weak’ and not ‘sick’. The results yielded from this study found that adolescents that had been exposed to mental health information campaigns elicited a reduction in this type of belief. Knowledge of mental illness has been demonstrated to be effective against holding stigmatising beliefs, irrespective of previous contact with individuals suffering from a mental illness (Mas & Hatim, 2002; Stuart & Arboleda-Florez, 2001), may possibly aid in the promotion of the acceptance towards the mentally ill (Gaebel, Baumann, Witte & Zaeske, 2002) and also treatment seeking behaviours (Gulliver, Griffiths & Christensen, 2010).

Many interventions over the last number of years have targeted the public's knowledge of mental illness (or 'mental health literacy') in order to improve their overall knowledge of mental illness, such as the symptoms and treatments of depression (Dumesnil & Verger, 2009; Jorm, Christensen & Griffiths, 2005). According to Schomerus et al. (2012), these interventions appear to be effective as the general public's mental health literacy has improved over recent years. The attitudes of the general public does appear amenable to change, the continued improvement of mental health literacy may be one such method of improvement. An increase in mental health literacy may also lead to enhanced recognition of mental health care, which can result in an increased public acceptance of those who use these facilities (Jorm, 2000; Kelly, Jorm & Wright, 2007).

#### *Causal Beliefs of Mental Illness (Biological or Psychosocial)*

The factor to which an individual attributes as a causal explanation of mental illness is also believed to influence their attitudes towards the mentally ill, such as biological or psychosocial factors. Weiner (1995), in his theory of human attribution, argues that blaming an individual for a negative condition (e.g. mental disorder), by attributing causes such as 'weakness of character' or other character flaws, can result in increased feelings of anger and desire for social distance from the individual. Several studies have investigated the influence of causal beliefs and attitudes towards medical disorders such as Alzheimer's disease, AIDS and blindness (e.g. Dijker & Kooman, 2003; Weiner, Perry & Magnusson, 1988). The results of these studies found that individuals who attributed biological causes were more likely to have decreased negative attitudes and perceived responsibility for the condition. These results support Weiner's (1995) hypothesis that the attributed cause is crucial in determining whether the individual is believed to be responsible for their illness, which therefore influences subsequent behavioural and emotional reactions.

Attribution theory has also been applied to mental illnesses in order to aid in the reduction of negative attitudes/stigma. According to Corrigan (2000), attribution theory provides a social cognitive approach to understanding stigma and explains the reason individuals that are believed to be not responsible for their mental illness are less stigmatised than individuals who are believed to be responsible for their illness. For example, individuals that developed a mental illness due to a head injury (not responsible) receive less negative attitudes than individuals believed to have developed the same mental illness as a result of

drug abuse (responsible) (Corrigan, Markowitz, Watson, Rowan & Kubiak, 2003). Many anti-stigma intervention programmes have attempted to increase the public's knowledge of the biological correlates of mental illness, as this may lead to a reduction in blame/responsibility for an individual's mental illness which may, in turn, lead to a decrease in negative attitudes towards the mentally ill (Angermeyer, Holzinger, Carta & Schomerus, 2011). The results of a US population study found a positive correlation between biological causes and willingness to interact with the mentally ill (Martin et al., 2000). However, although this model (biological causes decrease stigma) appears to have face validity, most notably its relation to attribution theory, the literature that investigates this model appears to offer mixed or contrary results (Corrigan & Watson, 2004).

A recent study examined two population surveys (Germany) that were conducted two decades apart, which investigated changes in attitudes towards mental illness (Angermeyer, Matschinger & Schomerus, 2013). The results of this study demonstrated a significant increase in biogenetic causal attributions towards schizophrenia, whilst there was also a significant increase in the desire for social distance between the general public and individuals with schizophrenia. Biogenetic causes decreased for depression and alcohol dependency, whilst attitudinal changes were either non-significant or inconsistent. The results of another study comparing causal attributions across a variety of cultures found that endorsing biological causes towards mental illnesses (depression and schizophrenia) was a risk factor for increased desire for social distance from the mentally ill, as opposed to attributing psychosocial causes (Dietrich et al., 2004). The results of two comprehensive reviews (Angermeyer et al., 2011; Schomerus et al., 2012) found that there has been an increase in the public's mental health literacy, most notably towards the biological correlates of mental illness, over recent years. However, there does not appear to be an increase in positive attitudes towards mental illness as the majority of the studies reported either no significant increase in positive attitudes or a significant increase in negative attitudes/desire for social distance. A similar trend was observed in a study conducted by Botha and Dozois (2015) comparing different models of causal attributions to mental illness.

Mehta and Farina (1997) suggest that a possible explanation for this relationship is that attributing biological causes can render the mentally ill 'almost another species', 'strangers' or 'different from us' (Dietrich et al., 2004, p. 349). The biological model may aid in reducing

the blame and responsibility of an individual for developing a mental illness, however this may lead to perceptions of the mentally ill as not being able to control their behaviour and as a result are more dangerous and unpredictable (Read, Haslam, Sayce & Davies, 2006).

Several researchers (Read & Harré, 2001; Read & Law, 1999; Walker & Read, 2002) put forth the argument that the biogenetic model of mental illness approach to reduce negative attitudes (or the 'mental illness is an illness like any other approach; Read et al., 2006) is an insufficient means of reducing the stigma surrounding mental illness, and may also lead to increased perceived dangerousness, unpredictability and fear, and also desire for social distance. The results of the aforementioned studies (Angermeyer et al., 2011; Botha & Dozois, 2015; Dietrich et al., 2004; Schomerus et al., 2012) can be seen as support for this argument. The results of studies conducted by Read and Harré (2001) and Read et al. (2006) suggest that providing the public with psychosocial causes of mental illnesses, as opposed to biological causes may lead to decreased negative attitudes and/or increased positive attitudes towards the mentally ill. This argument requires further investigation as these studies tend to focus on schizophrenia, depression or mental illness in general, as other disorders, such as OCD, may exhibit a different relationship.

## **The Current Study**

### Rationale

There are several important implications of studying attitudes towards OCD, specifically. A thorough search of the relevant literature revealed only two studies which directly focused on attitudes towards OCD (Pirutinsky, Rosmarin & Pargament, 2009; Simonds & Thorpe, 2003). However, these studies compared attitudes across different types of OCD and did not examine any other factors that may influence these attitudes. The majority of OCD sufferers do not seek adequate treatment (Hantouche et al., 2002), as those who suffer from OCD can feel ashamed or embarrassed about the condition (Coles et al., 2013; Simonds & Thorpe, 2003), due to the negative attitudes and stigmas placed around mental illness. This is a cause for concern as obsessions and/or compulsions can often increase in intensity if left untreated (Eisen & Rasmussen, 2002). Therefore, the assessment of attitudes towards OCD and factors that influence them may be vital for encouraging OCD sufferers to receive treatment. Early treatment is also important as those who have comorbid OCD and depression are at a high risk of experiencing suicidal tendencies (50%) and attempting suicide (15%) (Fenske &



Schwenk, 2009). According to Boysen and Vogel (2008), understanding these factors can lead to the creation of effective methods for reducing negative attitudes/stigma and ultimately improving the lives of those that suffer from a mental illness. They also argue that every mental disorder is perceived differently and therefore requires separate research and interventions, for example biological causal beliefs may be ineffective at reducing negative attitudes towards schizophrenia, but may be effective for other disorders such as OCD.

### Research Aim

The current study aims to further strengthen the research conducted in the area of attitudes towards mental illness, by specifically examining attitudes towards obsessive compulsive disorder and the potential factors that may influence these attitudes. Based on the foregoing literature review, two research hypotheses were formulated for the purpose of the current study:

#### ***Hypothesis 1:***

It is hypothesised that; age, sex (male/female), residency location (rural/urban), whether the individual considers themselves to be familiar/non-familiar with mental illness, mental health knowledge and levels of compassion will significantly predict attitudes towards obsessive compulsive disorder.

#### ***Hypothesis 2:***

That there will be a difference in the relationship between causal explanations (biological or psychosocial) that are attributed to obsessive compulsive disorder and the subsequent attitudes towards obsessive compulsive disorder that follows.

## **Method**

### **Participants**

The sample for the current study consisted of 253 participants that were recruited from the general population of the Republic of Ireland. The sample (see *Table 1*) was comprised of a similar number of men (N = 121, 47.8%) and women (N= 132, 52.2%), with an average age of 28.29 years (*SD* = 11.75, *range* 18 – 67). The majority of participants resided in an urban environment (N = 161, 63.6%) compared to a rural environment (N = 92, 36.4%). The majority of participants appeared to be familiar with mental illness (N = 148, 58.5%) as opposed to being non-familiar (N = 105, 41.5%). An even number of participants also received either the ‘biological’ vignette (N = 124, 49.0%) or the ‘psychosocial’ vignette (N = 129, 51.0%). Participants were selected in an opportunistic fashion using an online survey (‘Google Forms’). Participants received the survey via e-mail (response rate 21%) and took between 10 – 15 minutes to complete. The low response rate was likely due to a number of factors such as the length of time required to complete the survey or unwillingness to participate on the part of certain individuals.

### **Design**

The current study employed a between-groups design and was predominately cross-sectional as the data was collected at a single point in time. However there was also a quasi-experimental aspect to the study as a manipulation was applied. The participants were split into two groups (they read either a biological or psychosocial causal explanation of OCD). The current study was quantitative in nature and did not contain any qualitative questions. This study explored the relationship between a single independent variable (causal explanation), six predictor variables; age, sex, residency, familiarity (with mental illness), mental health knowledge and compassion, and a single dependent/criterion variable, ‘attitudes towards OCD’.

*Table 1: Frequencies for the current sample on each demographic variable (N = 253)*

Variable	Frequency	Valid Percentage
<b>Sex</b>		
Male	121	47.8
Female	132	52.2
<b>Residency</b>		
Urban	161	63.6
Rural	92	36.4
<b>Familiarity with Mental Illness</b>		
Familiar	148	58.5
Non-familiar	105	41.5
<b>Causal Explanation</b>		
Biological	124	49.0
Psychosocial	129	51.0

## **Measures**

### **Community Attitudes towards Mental Illness (CAMI)**

A modified version of the *Community Attitudes towards Mental Illness* (CAMI; Taylor & Dear, 1981; see App. A) was used in this study. The original version of the CAMI consists of 40 items that assess attitudes towards mental illness in general. The CAMI is a self-report questionnaire that was developed using Cohen and Struening's (1962) *Opinions about Mental Illness* (OMI) survey as a conceptual basis. However for the purpose of the current study each item was modified to assess attitudes towards OCD, specifically. The original CAMI also assesses four attitudinal factors; 'authoritarianism', 'benevolence', 'social restrictiveness' and 'community mental health ideology'. The fourth factor has been removed as it focused primarily upon attitudes towards mental health facilities and not mental illness. Items of the CAMI were modified to apply to individuals with OCD as follow: the terms 'mental illness'

or ‘mentally ill’ were substituted with ‘OCD’ or ‘individuals with/suffering from OCD’, where appropriate; gender specific references such as ‘a woman’ were substituted with ‘a person’.

Each factor contains 10 items (30 items in total) that is scored using a 5 point likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). The ‘authoritarianism’ sub-scale measures one’s belief that those with OCD are inferior and different. The ‘benevolence’ sub-scale measures optimistic views towards individuals suffering from OCD. The ‘social-restrictiveness’ sub-scale measures one’s belief that those with OCD are a threat to the community. Sample items include: ‘one of the main causes of OCD is a lack of self-discipline and will power’; ‘people that suffer from OCD don't deserve our sympathy’; ‘people that suffer from OCD can be trusted as babysitters’. After reversing the appropriate items, higher scores indicate more positive attitudes towards OCD. A total score was produced by summing the three factor scores, which can range from a score of 50 - 150. During the initial investigation of the CAMI, Taylor and Dear (1981) demonstrated the scale to have adequate validity and reliability. With regards to the validity of the measure, Taylor and Dear generated items using previously validated measures, a review of the literature and through factor analysis which identified the four aforementioned attitudinal factors. The overall internal consistency of the CAMI in the current study was demonstrated to be reliable (Cronbach’s  $\alpha = 0.84$ ). Previous studies using modified versions of the CAMI illustrated similar results in terms of the reliability of this measure, e.g. Evans-Lacko et al. (2013; Cronbach’s  $\alpha = 0.87$ ); Hansson and Markström (2014; Cronbach’s  $\alpha = 0.82$ ). Sample items include: “Most people with mental health problems want to have paid employment” and “if a friend had a mental health problem, I know what advice to give them to get professional help”.

#### *Santa Clara Brief Compassion Scale (SCBCS)*

Levels of compassion were assessed through the use of the *Santa Clara Brief Compassion Scale* (SCBCS: Hwang, Plante & Lackey, 2008; see App. B). This measure was developed to act as a brief version of the reliable and valid Sprecher and Fehr’s Compassionate Love Scale (Sprecher & Fehr, 2005). The correlation between the original and brief version is 0.96 (Hwang et al., 2008). This measure is comprised of five items that is scored using a seven point Likert-scale that ranges from 1 (not at all true of me) to 7 (very

true of me). The SCBCS yields a possible total score that ranges from 5 – 35, with higher scores indicating higher levels of compassion. Hwang et al. (2008) reported an excellent internal consistency as shown by a Cronbach’s alpha of 0.90. This result is similar to that of the current sample (Cronbach’s  $\alpha = 0.85$ ). Sample items of this measure include: “I tend to feel compassion for people, even though I do not know them” and “One of the activities that provide me with the most meaning to my life is helping others in the world when they need help”.

#### *Mental Health Knowledge Schedule (MAKS)*

Mental health knowledge was assessed using the *Mental Health Knowledge Schedule* (MAKS; Evans-Lacko et al., 2010; see App. C). The MAKS consists of 12 items. The first six items (part A) pertain to the mental health literacy areas of: help seeking, ability to give advice, support, employment, treatment, and recovery. The remaining six items (part B) reflect the individual’s agreement of different mental illness diagnoses. Part B relating to diagnoses was not used in the present study. The sixth item of the MAKS ‘Most people with mental health problems go to a health care professional to get help’ is the only item that is reverse-coded. The MAKS is scored using a 5 point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a total score that ranges from 6 – 30. Higher scores indicate an increased knowledge of mental health. The validity of this measure was demonstrated through the use of an extensive review by experts in stigma-related research (Evans-Lacko et al., 2010). With regards to the reliability of this measure, Evans-Lacko et al. (2010) note that this measure was not developed to function as a scale, however it can be used in conjunction with other attitudinal measures. For this reason, Evans-Lacko et al. suggest that the Cronbach’s alpha value should only be used to interpret trends in responses, as they reported a Cronbach’s alpha value of 0.65. The present study also reported an inadequate Cronbach’s alpha of 0.45, however, considering the above recommendation, the MAKS may still remain to be an effective measurement in the current study.

#### *Demographic Questionnaire and Familiarity with Mental Illness*

Participants also completed a demographic questionnaire (see App. D) that was developed specifically for the current study. The questionnaire provided the researcher with information regarding the participant’s age, sex and residency (urban/rural). Familiarity with

mental illness was assessed using a single question that required a categorical response (yes/no): ‘Do you consider yourself to be familiar with mental illness, for example, have a close relationship with someone who has a mental illness?’

### *Causal Explanation – Biological or Psychosocial Vignettes*

Participants were presented with either a biological or a psychosocial vignette that briefly described OCD and, provided examples of intrusive thoughts and compulsive behaviours. However the causal explanation of OCD differed between the two vignettes (i.e. biological or psychosocial explanation; see App. E).

### **Procedure**

Ethical permission to conduct the current study was obtained from the ethical review board at the National College of Ireland. The study did not contain any ‘vulnerable participants’. The participants were required to read an informed consent document (see App. F) which informed them that they were under no obligation to participate, that they were able to withdraw their consent at any time without reprimand and that the study was entirely anonymous and confidential. As the study did not contain any vulnerable participants and prior informed consent was obtained, this ensured that there was no violation under the ‘NCI Ethical Guidelines for Research with Human Participants’ code of conduct, regarding ethical procedures. There were no incentives used to recruit participants. Furthermore the survey also provided the participants with the mobile number of a 24-hour helpline centre (‘The Samaritans’).

The participants were provided with written instructions describing the survey and how to complete it. The participants completed the demographics, compassion and mental health knowledge questionnaire before being presented with either the biological or psychosocial vignette. After the participants read the vignette, they completed the questionnaire regarding their attitudes towards OCD. The survey was created through the use of ‘Google Forms’. Participants received the survey via e-mail and generally took between 10 – 15 minutes to complete the survey in its entirety.

### Data Analysis

Basic descriptive statistics (mean, median, standard deviation and range) were calculated for each variable measured in the present study. The data was recoded where required and preliminary analyses were conducted in order to effectively screen the data before conducting inferential analyses. A Pearson-product moment correlational analysis was conducted in order to explore the relationship between the predictor and criterion variables. The results of the preliminary analyses and the correlational analysis indicated that there was no violation of the assumptions of normality, linearity, homoscedasticity and multicollinearity. As these assumptions were not violated, a standard multiple linear regression analysis was conducted in order to examine the predictive power of age, sex, residency, familiarity with mental illness, mental health knowledge and compassion on attitudes towards OCD. An independent samples t-test (two-tailed) was conducted in order to compare the mean attitudes towards OCD scores between the two causal explanation groups (biological or psychosocial). An additional two independent samples t-tests (two-tailed) were also conducted in order to further investigate the relationship between 'familiarity with mental illness' (IV), mental health knowledge (DV) and compassion (DV). As there were multiple comparisons tests being performed, the Bonferroni correction method was used in order to adjust the p-values accordingly. The adjustment was calculated according to the Bonferroni procedure ( $0.05/3$ ) as there were three independent samples t-test being conducted. After the Bonferroni adjustment to adjust for multiple comparisons ( $n = 3$ ) was applied, the results of these analyses now become statistically significant at  $p = 0.017$ . The magnitude of difference between the mean scores was calculated using Cohen's  $d$ . All data was analysed using SPSS version 22.

## Results

### Descriptive Statistics

*Table 1* reports the descriptive statistics of all the continuous variables within the current study. The mean total attitudes towards OCD score (30 items) was 123.88 ( $SD = 12.39$ ,  $median = 126$ ,  $range = 90 - 144$ ). Inspection of the confidence intervals determine that at the 95% confidence level, the true population mean lies within the 122.35-125.41 range. Results indicate that attitudes among the current sample were generally positive. The mean mental health knowledge score (6 items) was 21.40 ( $SD = 2.75$ ,  $median = 21$ ,  $range = 13 - 24$ ). Further inspection of the confidence intervals determine that at the 95% confidence level, the true population mean lies within the 21.06-21.74 range. These results indicate that the mental health knowledge among the current sample was generally moderate to high. The mean compassion score (7 items) was 21.40 ( $SD = 2.75$ ,  $median = 21$ ,  $range = 13 - 24$ ). Inspection of the confidence intervals determine that at the 95% confidence level, the true population mean lies within the 23.40-24.85 range. These results indicate that the mental health knowledge among the current sample was generally moderate to high.

*Table 2: Descriptive statistics of all continuous variables, i.e. Mean, Median, Standard Deviation (SD), Range and Standard Error.*

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
MHK	21.40 (21.06-21.74)	.17	21	2.75	13-24
Compassion	24.12 (23.40-24.85)	.37	24	5.87	7-35
Attitudes	123.88 (122.35-125.41)	.78	126	12.39	90- 144

Note. N=253

MHK = Mental Health Knowledge



## Inferential Statistics

### **Group Differences**

For the purpose of the current study, it was necessary to conduct three independent samples t-tests (two-tailed). The first independent samples t-test was conducted to ascertain whether attitudes towards OCD scores differed between those who received either the biological or psychosocial causal explanation. In addition, two independent samples t-tests were conducted in order to compare group differences between two dependent variables; mental health knowledge and compassion scores, between individuals that consider themselves to be familiar with mental illness, and those that are not familiar with mental illness. As there were multiple comparisons tests being performed, the Bonferroni correction method was used in order to adjust the p-values accordingly. The adjustment was calculated according to the Bonferroni procedure ( $0.05/3$ ). After the Bonferroni adjustment to adjust for multiple comparisons ( $n = 3$ ) was applied, the results of these analyses now become statistically significant at  $p = 0.017$ .

The first independent samples t-test (two-tailed) was conducted in order to compare the attitudes towards OCD scores between those who received either the biological or psychosocial causal explanation. There was no significant difference in scores between the two groups,  $t(251) = 1.03$ ,  $p = .30$ , two-tailed with the biological group (mean = 124.70, SD = 12.07) scoring slightly higher than the psychosocial group (mean = 123.09, SD = 12.68). The magnitude of differences in the means (*means difference* = 1.60, 95% CI: -1.46 to 4.68) indicated no effect (*Cohen's d* = .13).

The second independent samples t-test (two-tailed) was conducted in order to compare the mental health knowledge scores between individuals that are familiar with mental illness, and those who are not familiar with mental illness. There was a significant difference in scores between the two groups,  $t(251) = 3.83$ ,  $p < .001$ , two-tailed with the familiar group (mean = 21.95, SD = 2.80) scoring higher than the non-familiar group (mean = 20.64, SD = 2.48). The magnitude of differences in the means (*means difference* = 1.31, 95% CI: .64 to 1.99) indicated a moderate effect (*Cohen's d* = .50).

The final independent samples t-test (two-tailed) was conducted in order to compare the compassion scores between individuals that are familiar with mental illness, and those who are not familiar with mental illness. There was a significant difference in scores between the two groups,  $t(251) = 2.61, p = .01$ , two-tailed with the familiar group ( $mean = 24.93, SD = 5.72$ ) scoring higher than the non-familiar group ( $mean = 22.99, SD = 5.93$ ). The magnitude of differences in the means ( $means\ difference = 1.94, 95\% CI: .48\ to\ 3.39$ ) indicated a weak to moderate effect ( $Cohen's\ d = .33$ ).

### ***Multiple Regression and Correlational Analyses***

Prior to conducting the standard multiple linear regression analysis, it was necessary to first conduct preliminary analyses, including a bivariate correlational analysis, to ensure that there was no violation of the assumptions of normality, linearity, and homoscedasticity. It was necessary to conduct a bivariate analysis in order to ascertain the relationship between the predictor and criterion (attitudes towards OCD) variables. This relationship was investigated using Pearson-product moment correlation analysis (see *Table 3*). All correlations ranged from no effect to moderate effect, ranging from  $r = -.08, p = .192$  and  $r = .32, p < .001$ . These results indicate that multicollinearity was unlikely to be a problem (see Tabachnick and Fidell, 2007), which suggests that the data was suitably correlated with attitudes towards OCD (CV) for the investigation of potential predictors of positive attitudes through the use of a standard multiple linear regression analysis. The sample size ( $N = 253$ ) was also sufficient in order to conduct this analysis, according to the recommendations put forth by Tabachnick and Fidell (2007), i.e.  $N > 50 + 8m$ , where  $m =$  number of independent variables,  $50 + 8(6) = 98$  participants (minimum required).

Table 3: Correlations between the criterion and predictor variables

Variables	1	2	3	4	5	6	7
1. Attitudes Towards OCD	1						
2. Age	.22***	1					
3. Sex <sup>a</sup>	.17**	-.03	1				
4. Residency (Rural/Urban) <sup>b</sup>	.07	.14*	-.08	1			
5. Familiarity (with Mental Illness) <sup>c</sup>	.24***	-.02	.11	-.04	1		
6. Mental Health Knowledge	.32***	.09	-.05	-.05	.24***	1	
7. Compassion	.28***	.01	.17**	.08	.16**	.25***	1

Note. Statistical significance: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

<sup>a</sup> Sex: *Male* = 0, *Female* = 1.

<sup>b</sup> Residency: *Rural* = 0, *Urban* = 1.

<sup>c</sup> Familiarity (with mental illness): *No* = 0, *Yes* = 1.

Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the multiple linear regression analysis. The six predictor variables explained 23% of variance (see *Table 4*) in attitudes towards OCD ( $F(6, 244) = 12.11, p < .001$ ).

In the final model five out of six predictor variables were statistically significant, noted in order of predictive strength: mental health knowledge ( $\beta = 0.23, p < .001$ ), age ( $\beta = 0.20, p = .001$ ), compassion ( $\beta = 0.17, p = .005$ ), being familiar with mental illness ( $\beta = 0.14, p = .014$ ), sex (female;  $\beta = 0.14, p = .014$ ), residency (urban;  $\beta = 0.06, p = .326$ ). These results indicate that increased knowledge of mental illness, older age, compassion, being familiar with mental illness and being female predict increased positive attitudes towards OCD.

*Table 4: Multiple regression model predicting attitudes towards OCD scores*

	<i>R</i> <sup>2</sup>	<i>Adjusted R</i> <sup>2</sup>	$\beta$	<i>B</i>	<i>SE</i>	<i>CI 95% (B)</i>
<b>Model</b>	0.23***	0.21***				
Age			0.20**	0.21	0.06	0.09/0.33
Sex <sup>a</sup>			0.14*	3.53	1.43	0.71/6.35
Residency <sup>b</sup>			0.06	1.45	1.48	-1.46/4.36
Familiarity <sup>c</sup>			0.14*	3.62	1.47	0.73/6.51
Mental Health Knowledge			0.23***	1.06	0.27	0.52/1.59
Compassion			0.17**	0.36	0.13	0.11/0.61

*Note.* Statistical significance: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

<sup>a</sup> Sex: *Male* = 0, *Female* = 1.

<sup>b</sup> Residency: *Rural* = 0, *Urban* = 1.

<sup>c</sup> Familiarity (with mental illness): *No* = 0, *Yes* = 1.

## **Discussion**

The aim of the present study was to further strengthen the research conducted in the area of attitudes towards mental illness, by specifically examining attitudes towards OCD among the general public and determining the potential factors that may influence these attitudes. In order to achieve this aim, two research hypotheses were investigated. First, it was hypothesised that age, sex (male/female), residency location (rural/urban), whether the individual considers themselves to be familiar/non-familiar with mental illness, mental health knowledge and levels of compassion will significantly predict attitudes towards OCD. Second, it was hypothesised that there will be a difference in the relationship between causal explanations (biological or psychosocial) that are attributed to obsessive compulsive disorder and the subsequent attitudes towards OCD that follows.

The results of the present study were generally consistent with the first hypothesis and provided somewhat unique information about the factors that can influence attitudes toward OCD, specifically. Increased knowledge of mental illness, older age, compassion, being familiar with mental illness and being female significantly predicted increased positive attitudes towards OCD; however an individual's area of residence (rural/urban) appeared to not play a significant role in influencing one's attitudes towards OCD. With regards to the second hypothesis, the results of the present study did not support this hypothesis as it was found that either a biological or psychosocial causal attribution to OCD did not appear to significantly impact an individual's attitudes towards OCD.

### Age

It was found that age plays a significant role in the development of more positive attitudes towards OCD. The results yielded from this study suggest that older individual's appear to endorse more positive attitudes towards OCD, than their younger counterparts. This is a surprising finding as it appears to contradict a large body of research conducted (e.g. Angermeyer & Matschinger, 1997; Black et al., 1993; Brockington et al., 1993; Lauber et al., 2004; Magliano et al., 2004; Mirnezami et al., 2015; Segal et al., 2005) with the purpose of investigating factors that influence attitudes towards mental illness. However it should be noted that research, pertaining to age and attitudes towards mental illness, has also exhibited inconsistent findings, as a number of studies demonstrated no significant difference between

younger and older adults (e.g. Angermeyer & Matschinger, 2003a; Evans-Lacko et al., 2010; Taskin et al., 2003).

These findings may emphasise the importance of examining possible factors that may influence attitudes towards specific mental disorders, as the vast majority of the research conducted of this nature, tends to focus on disorders such as depression, schizophrenia and substance abuse. A plausible explanation of this finding may be due to the difference in the perceptions of individuals across different disorders. For example, Crisp et al. (2000) found that older adults perceived certain mental disorders as being less dangerous than younger adults; however this difference was not seen across all types of disorders that were assessed. Perhaps OCD is one such disorder that is perceived more positively (or as being less dangerous) among older adults, which may provide a possible explanation for these findings.

Another explanation is that there is a growing change in the relationship between older adults and decreased positive attitudes towards mental illness, for example one study (Robb, Haley, Becker, Polivka & Chwa, 2003) found that even though younger adults displayed more positive attitudes towards mental illness, older adults expressed an increased desire to learn more about mental illness and mental health care. However one could argue that a possible change among younger adult's attitudes towards mental illness may explain this finding as several recent studies have reported that public attitudes towards mental illness may have possibly become worse over the last number of years (e.g. Angermeyer et al., 2013; Schomerus et al., 2012). However as this is a somewhat unique and contrary finding, to that of other mental disorders, future studies of this nature should attempt to further investigate this relationship. Consequently, as the reasons for this finding are yet to be elucidated, generalisations should be made with caution.

### Sex

The results of the present study found that females exhibited significantly increased positive attitudes towards OCD, compared to males. This finding is congruent with that of previous research of this nature (Cook & Wang, 2010; Evans-Lacko et al., 2013; Kessler et al., 2015; Savrun et al., 2007; Wahlbeck & Aromaa, 2011; Yousaf et al., 2015). However akin to age differences, research in this area can often demonstrate conflicting results (Holzinger et al., 2012). Although conflicting results may exist through-out the literature, several researchers have posited possible reasons for the relationship between males and decreased

positive attitudes towards mental illness. Cook and Wang (2010) argue that sex differences may be due to females having increased mental health literacy. However this relationship was not observed in the current study, although a weak positive correlation was observed between females and increased levels of compassion (which was also a significant predictor of positive attitudes towards OCD). This correlation may partly explain the difference between males and females. Another plausible explanation for this finding is that males can often attribute more character flaws such as ‘weakness of character’ as causes of mental illness, as opposed to females (Connery & Davidson, 2006; Pescosolido et al., 2008; Yousaf et al., 2015). Attributing such causes can often elicit increased desire for social distance and increased negative attitudes towards mental illness (Ebnetter & Latner, 2013; Pescosolido, 2013; Weiner, 1995).

#### Region of Residence (Urban/Rural)

According to the findings of the current study, an individual’s region of residency (i.e. living in an urban area, as opposed to a rural area) did not appear to have a significant impact on their attitudes towards OCD. This finding is consistent with numerous other studies examining attitudes towards different types of mental illness (e.g. Cook & Wang, 2010; Pescosolido, Monahan, Link, Stueve & Kikuzawa, 1999; Phelan & Link, 2004). Individuals living in rural areas tend to have decreased mental health knowledge (Judd et al., 2006), compared to living in an urban area, which may explain the difference that is often seen through-out the literature (Stuart & Arboleda-Florez, 2001). However this association was not observed in the current study, which may explain the reason as to why there were no significant differences among rural and urban dwellers.

#### Compassion

There is a paucity of research that investigates the direct effects of compassion upon one’s attitudes towards mental illness. The results of the current study found that higher levels of compassion significantly predicted more positive attitudes towards OCD. To the author’s knowledge, one previous study (Ellison et al., 2015) had investigated the direct effects of levels of compassion towards perceived dangerousness and social distance, and found a significant relationship as higher levels of compassion predicted decreased perceived dangerousness and social distance (towards bipolar disorder). From the findings of the current study, it appears that this relationship may extend to attitudes towards OCD. Increased

sympathy and pity may help individuals feel more care and understanding towards those with a mental illness; however this can often lead to individuals perceiving them as being incapable of making adult-level decisions, by exaggerating the effects of the mental illness (Corrigan, 2016). It is plausible that compassion may allow individuals to elicit a sense of care and understanding towards those with a mental illness, without exaggerating the difference between individuals with a mental illness and those without. There has not been an extensive amount of research exploring this relationship and any conclusions are thus preliminary, however these findings suggest that compassion may be an important element in increasing positive attitudes towards mental illness.

### *Knowledge of Mental Illness*

The results yielded from the current study found that increased mental health knowledge was the strongest significant predictor of increased positive attitudes towards OCD. The significant relationship between higher mental health knowledge and increased positive attitudes towards mental illness is in accordance with a large body of research concerning attitudes towards mental illness (e.g. Dumesnil & Verger, 2009; Gaebel et al., 2002; Jorm, 2000; Jorm et al., 2005; Jorm & Wright, 2008, Kelly et al., 2007; Mas & Hatim, 2002; Stuart & Arboleda-Florez, 2001; Wolff et al., 1996). Mental health knowledge remained to be a significant predictor after controlling for; age, sex, residency, familiarity with mental illness and compassion. Therefore, it is reasonable to suggest that improving mental knowledge may be a crucial factor in improving attitudes towards OCD. Recently, a lack of mental health knowledge has been identified as a possible core factor across cultures that can elicit negative responses towards mental illness (Pescosolido, Medina, Martin & Long, 2013). These results provide further support for the effectiveness of mental health knowledge against negative attitudes towards mental illness as they suggest that this relationship also extends to attitudes towards OCD.

### *Familiarity*

Phelan and Link (2004) suggest that increased exposure and familiarity with mental illness may be used as a possible 'weapon' to combat the negative attitudes that surround mental illness. From the findings of the present study, familiarity with mental illness had a significant impact upon one's attitudes towards OCD. These results provide further empirical support (e.g. Aromaa et al., 2011; Brockington, et al., 1993; Corrigan et al., 2001; Corrigan et



al., 2012; Evans-Lacko, et al., 2013) suggesting that familiarity with mental illness may be one such ‘weapon’ to combat negative attitudes towards mental illness. The results of this study also illustrate an important relationship between familiarity, mental knowledge and compassion, as being familiar with mental illness increased both mental health knowledge (moderate effect) and compassion (weak to moderate effect). Familiarity with mental illness may play an important role in reducing negative attitudes towards OCD and mental illness in general, as both mental health knowledge and compassion significantly predicted increased positive attitudes towards OCD.

According to Haghghat (2001), a concern about increasing public mental health knowledge is that it may diminish over-time as individuals tend to seek out information that confirms their already existing stereotypes and beliefs (e.g. dangerous behaviour depicted in the media). However, it is possible that a combination of both an increase in mental health knowledge and exposure to mental illness (to increase familiarity with mental illness) may decrease the likelihood of individuals making an erroneous generalisation about mental illness, such as perceptions of dangerousness (Corrigan et al., 2002). It is important to note that familiarity with mental illness remained to be a significant predictor of positive attitudes towards OCD, after controlling for; age, sex, residency, mental health knowledge and compassion. Increasing the public’s familiarity with mental illness may be a useful means of improving overall attitudes towards OCD.

#### *Causal Explanation of OCD (Biological or Psychosocial) – Hypothesis 2*

It was hypothesised that there will be a difference in the relationship between causal explanations (biological or psychosocial) that are attributed to OCD and the subsequent attitudes towards OCD that follows. The results of the present found no significant support for this hypothesis, as there was no significant difference between the participants that were either presented with a biological or psychosocial causal explanation of OCD on their attitudes towards OCD. Several studies have found a similar relationship between causal beliefs concerning mental illness and attitudes towards mental illness (e.g. Martin, Pescosolido, Olafsdottir & McLeod, 2007; Nieuwsma & Pepper 2010). This is an important finding as it demonstrates that the biological or psychosocial aetiological factors of OCD do not significantly impact individual’s attitudes towards OCD. Contrastingly, biological (Meiser, Mitchell, McGirr, Van Herten & Schofield, 2005; Schnittker, 2008; Schreiber &

Hartrick, 2002) and psychosocial (Botha & Dozois, 2015; Martin et al. 2000; Read & Harré, 2001; Read et al., 2006; Van't Veer, Kraan, Drosseart & Modde, 2006) causal beliefs have been shown to aid in the reduction of negative attitudes surrounding mental illness. However, these beliefs have been shown to elicit different effects across different disorders (Schomerus, Matschinger & Angermeyer, 2014); therefore it is important to note this relationship when attempting to reduce the negative attitudes that surround OCD (specifically).

### Major Implications

The results of the present study provide additional empirical evidence to the vast subject of attitudes towards mental illness, and as a result provide a number of important implications within the field of clinical psychology. First, as this was the first study to empirically assess a variety of different factors that may affect the public's attitudes towards OCD (specifically), it gives researchers an insight into the factors that directly influence an individual's attitudes towards OCD, therefore allowing for the development of effective campaigns/interventions to reduce these negative attitudes. The results of the current study suggest that these interventions should aim to increase the public's mental health knowledge, compassion, familiarity with mental illness and primarily target young males. According to Reavley and Jorm (2011), in order to effectively decrease negative attitudes towards mental disorders, interventions should target specific disorders and not focus on mental illness in general. Second, the findings of the present study suggest that levels of compassion may play a significant role in the development of positive attitudes towards OCD. Moreover, it is plausible that the effects exhibited by increased levels of compassion may also extend to other disorders. This finding may have important implications for future studies of this nature and for the development of effective interventions to reduce negative attitudes towards mental illness.

Third, a further investigation into the relationship between familiarity with mental illness, mental health knowledge and compassion determined that familiarity with mental illness had a significant impact upon both mental health knowledge and compassion. This finding suggests that interventions targeting negative attitudes towards OCD should incorporate a method of increasing familiarity with mental illness as this will also increase mental health knowledge (strongest predictor) and compassion, which may lead to an overall significant improvement in attitudes towards OCD. Corrigan et al. (2012) suggest that face-to-

face contact with individuals with mental illness is one of the strongest methods of increasing both familiarity and attitudes towards mental illness. Fourth, if these interventions are successful, it may encourage individuals with OCD to seek treatment, as these individuals can often avoid seeking adequate treatment due to the shame and embarrassment endorsed by negative attitudes towards OCD (Coles et al., 2013; Hantouche et al., 2002; Simonds & Thorpe, 2003). Early treatment is crucially important for individuals with OCD as the obsessions/compulsions can often increase in severity if left untreated (Eisen & Rasmussen, 2002).

### Limitations

There are several limitations that should be acknowledged before interpreting these results. First, due to the nature of the study, ‘investigating attitudes towards OCD’, the ‘social desirability effect’ may have produced an overestimation of agreement to certain items of the attitudinal questionnaire. However, one of the major strengths of this study is that it contained a large sample size, which may have helped protect against this factor. The study was also entirely anonymous and conducted online, which may have yielded more honest answers to the questionnaire than in-person (Joinson, 1999). Second, the measurements used in this study consisted of self-report questionnaires and vignettes. One could argue that these measures lack ecological validity as they do not accurately measure the individual’s true interpersonal interactions, for example, vignettes may not produce the same emotional reactions as in a ‘real-life’ situation. However, these types of measurements are extensively used through-out attitudinal research towards mental illness, which allows findings to be compared to a well-established evidence base (Ellison et al., 2015).

Third, the Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010) was shown to have inadequate reliability, therefore the results of this measure should be interpreted with caution. However, Evans-Lacko et al. (2010) note that this measure was not developed to function as a scale, and suggest that the Cronbach’s alpha value should only be used to interpret trends in responses. Fourth, it should be noted that the study was predominately cross-sectional; therefore the results of the study do not infer causality. However, these findings suggest that it may be beneficial to investigate the results of the study using either experimental or longitudinal research in order to fully elucidate the factors

that influence attitudes towards OCD. It is recommended that future studies of a similar nature take these limitations into account.

### Future Recommendations

First, the significant relationship between compassion and attitudes towards OCD should be investigated further, as there is a paucity of research directly assessing the effect of compassion on attitudes towards mental illness. Researchers should also attempt to explore the relationship between compassion and other disorders. Second, future studies may examine attitudinal differences between viewing OCD as being on a continuum from mental health to mental illness, or as a dichotomous relationship, as this has recently been indicated as a potential factor that may influence attitudes towards mental illness (Schomerus et al., 2016). Third, researchers should acknowledge the aforementioned limitations when conducting future studies of a similar nature.

### Conclusion

The aim of the present study was to further strengthen the research conducted in the area of attitudes towards mental illness and provide additional empirical evidence by investigating the potential factors that may influence attitudes towards OCD, specifically. In order to achieve this aim, two research hypotheses were investigated. First, it was hypothesised that age, sex (male/female), residency location (rural/urban), whether the individual considers themselves to be familiar/non-familiar with mental illness, mental health knowledge and levels of compassion will significantly predict attitudes towards OCD. Second, it was hypothesised that there will be a difference in the relationship between causal explanations (biological or psychosocial) that are attributed to obsessive compulsive disorder and the subsequent attitudes towards OCD that follows. The results of the present study were generally consistent with the first hypothesis (excluding residency location) and provided somewhat novel information about the factors that can influence attitudes toward OCD. With regards to the second hypothesis, the results of the present study did not support this hypothesis as it was found that either a biological or psychosocial causal attribution to OCD did not appear to significantly impact an individual's attitudes towards OCD.

In conclusion, these results further strengthen research regarding attitudes towards mental illness by investigating the potential factors that influence attitudes towards OCD,

specifically. These findings have a number of important clinical implications as it appears that there are various factors that contribute to an individual's attitudes towards OCD. These findings should be further investigated and researchers should utilise them to the best of their ability in the development of effective interventions to reduce negative attitudes towards OCD, as a reduction in negative attitudes towards mental illness will increase the likelihood of individuals with OCD engaging in treatment seeking behaviours.

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## **Appendices**

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### **Appendix A**

Adapted Version - Community Attitudes towards Mental Illness (CAMI; Taylor & Dear, 1981).

*Likert-scale ranges from 1 – 5 (strongly disagree - strongly agree).*

*Higher scores indicate more favourable attitudes towards OCD.*

*\* = Item that to be recoded/is negatively phrased. .*

*Instructions: Please rate your agreement to the following statements. Ranging from 1 (strongly disagree) to 5 (strongly agree).*

- 1.** One of the main causes of OCD is a lack of self-discipline and will power.\*
- 2.** People that suffer from OCD should not be treated as outcasts of society.
- 3.** The best way to handle people that suffer from OCD is to keep them behind locked doors.\*
- 4.** As soon as a person shows signs of OCD, they should be hospitalised.\*
- 5.** Virtually anyone can develop OCD.
- 6.** Less emphasis should be placed on protecting the public from the mentally ill.
- 7.** Those with OCD need the same kind of control and discipline as a young child.\*
- 8.** There is something about people that have OCD that makes it easy to tell them from normal people.\*
- 9.** OCD is an illness like any other.
- 10.** Mental hospitals are an out-dated means of treating the people with OCD.
- 11.** The mentally ill have for too long been the subject of ridicule.

12. Our mental hospitals seem more like prisons than like places where people with severe OCD can be cared for.
13. It is best to avoid those that suffer from OCD.\*
14. People that suffer from OCD don't deserve our sympathy.\*
15. We have a responsibility to provide the best possible care for people who suffer from OCD.
16. People with OCD are a burden on society.\*
17. Increased spending on mental health services is a waste of tax income.\*
18. We need to adopt a far more tolerant attitude towards people that have OCD in our society.
19. There are sufficient existing services for people with OCD.\*
20. More tax money should be spent on the care and treatment of people with OCD.
21. People that suffer from OCD should not be given any responsibility.\*
22. Those that have OCD are far less of a danger than most people suppose.
23. Those that have OCD should be encouraged to assume the responsibilities of normal life.
24. Those that have OCD should be isolated from the rest of the community.\*
25. I would not want to live next door to someone with OCD.\*
26. People that suffer from OCD can be trusted as babysitters.
27. Anyone with a history of OCD should be excluded from taking public office.\*
28. Those who suffer from OCD should not be denied their individual rights.
29. A woman would be foolish to marry a man who previously suffered from OCD, even though he seems fully recovered and vice versa.\*
30. No one has the right to exclude people that suffer from OCD from their neighbourhood.

## Appendix B

### Santa Clara Brief Compassion Scale (SCBCS; Hwang et al., 2008)

*Likert-scale ranges from 1 – 7 (Not at all true of me – Very true of me).*

*Higher scores indicate higher levels of compassion.*

Instructions: Please answer the following questions.

*The following questions range on a 7 point scale from 1 (not at all true of me) to 7 (very true of me). Please choose whether you agree or disagree with the following statements by clicking on the appropriate option.*

1. When I hear about someone (a stranger) going through a difficult time, I feel a great deal of compassion for him or her.
2. I tend to feel compassion for people, even though I do not know them.
3. One of the activities that provide me with the most meaning to my life is helping others in the world when they need help.
4. I would rather engage in actions that help others, even though they are strangers, than engage in actions that would help me.
5. I often have tender feelings toward people (strangers) when they seem to be in need.

## Appendix C

### Mental Health Knowledge Schedule (MAKS, Evans-Lacko et al., 2010)

*Likert-scale ranges from 1 – 5 (strongly disagree – strongly agree).*

*Higher scores indicate increased knowledge of mental illness.*

*\* = Item that to be recoded/is negatively phrased.*

Instructions: Please answer the following questions.

*The following questions range on a 5 point scale from 1 (strongly disagree) to 5 (strongly agree). Please choose whether you agree or disagree with the following statements by clicking on the appropriate option.*

1. Most people with mental health problems want to have paid employment.
2. If a friend had a mental health problem, I know what advice to give them to get professional help.
3. Medication can be an effective treatment for people with mental health problems.
4. Psychotherapy (e.g. talking therapy or counselling) can be an effective treatment for people with mental health problems.
5. People with severe mental health problems can fully recover.
6. Most people with mental health problems go to a healthcare professional to get help.\*

## Appendix D

### Demographic Questionnaire

*Instructions: Please answer the following questions*

1. Age \_\_\_\_\_

2. Sex: Male/Female

3 Which do you currently reside in?

Urban/Rural

4. Do you consider yourself to be familiar with mental illness? \*

\*For example: A close relationship with someone who has a mental illness

Yes/No

## Appendix E

### Biological Vignette

#### *Obsessive Compulsive Disorder (OCD)*

*Please read the following description and explanation of OCD.*

Obsessive Compulsive Disorder (OCD) is an often chronic and debilitating condition that can have severe implications on an individual's life. According to the Diagnostic and Statistical Manual, Fifth Edition (DSM-5), the criteria of OCD include; obsessions (thoughts/feelings/impulses which are generally unwanted/intrusive) that are suppressed by performing a compulsion (repetitive behaviours such as washing, checking or repeating words silently) that the individual feels driven to perform.

Examples: A person may wash their hands several times, in a certain way after coming in contact with an object/person that they believe carry a lot of germs.

A person may feel the need to lock all their doors three times, before going to bed.

A person may have reoccurring thoughts about harming their loved ones, several times a day. As a result, they put any sharp objects in the house out of reach.

OCD is believed to have several psychological and social causes. People who suffer from OCD often experience highly stressful and/or traumatic life events prior to the onset of the disorder. They often experience highly distressing obsessional thoughts following a prolonged period of stress in their lives. In order to relieve the distress provoked by these obsessional thoughts they engage in repetitive compulsive behaviours. OCD can be successfully treated using psychotherapy. Cognitive-behavioural therapy is particularly effective as individuals learn to control their obsessional thoughts and compulsive behaviours.

**Please tick this box if you have read the above piece.**

Psychosocial Vignette

*Obsessive Compulsive Disorder (OCD)*

*Please read the following description and explanation of OCD.*

Obsessive Compulsive Disorder (OCD) is an often chronic and debilitating condition that can have severe implications on an individual's life. According to the Diagnostic and Statistical Manual, Fifth Edition (DSM-5), the criteria of OCD include; obsessions (thoughts/feelings/impulses which are generally unwanted/intrusive) that are suppressed by performing a compulsion (repetitive behaviours such as washing, checking or repeating words silently) that the individual feels driven to perform.

Examples: A person may wash their hands several times, in a certain way after coming in contact with an object/person that they believe carry a lot of germs.

A person may feel the need to lock all their doors three times, before going to bed.

A person may have reoccurring thoughts about harming their loved ones, several times a day. As a result, they put any sharp objects in the house out of reach.

OCD is believed to have several psychological and social causes. People who suffer from OCD often experience highly stressful and/or traumatic life events prior to the onset of the disorder. They often experience highly distressing obsessional thoughts following a prolonged period of stress in their lives. In order to relieve the distress provoked by these obsessional thoughts they engage in repetitive compulsive behaviours. OCD can be successfully treated using psychotherapy. Cognitive-behavioural therapy is particularly effective as individuals learn to control their obsessional thoughts and compulsive behaviours.

**Please tick this box if you have read the above piece.**



## Appendix F

### Consent Form

The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and you will not be subjected to reprimand or any other form of reproach.

In order to aid in the discovery of the relationship between a variety of variables and attitudes towards Obsessive Compulsive Disorder (OCD), you are being asked to complete several questionnaires. Your participation in this study, and any answers you provide, will remain anonymous. The data generated during this study will be stored by the researcher and will only be accessed by the researcher. This data will not be given to any outside body.

“I have read the above statement and have been fully advised of the procedures to be used in this study. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risk involved. I likewise understand that I can withdraw from the study at any time without being subjected to reproach”.

Please tick this box if you agree to the above statement.