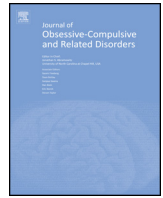




ELSEVIER

Contents lists available at ScienceDirect

Journal of Obsessive-Compulsive and Related Disorders

journal homepage: www.elsevier.com/locate/jocrd

Part 3. A question of perspective: The association between intrusive thoughts and obsessionality in 11 countries



David A. Clark^{a,*}, Jon Abramowitz^b, Gillian M. Alcolado^c, Pino Alonso^d, Amparo Belloch^e, Martine Bouvard^f, Meredith E. Coles^g, Guy Doron^h, Hector Fernández-Álvarezⁱ, Gemma Garcia-Soriano^e, Marta Ghisi^j, Beatriz Gomezⁱ, Mujgan Inozu^k, Richard Moulding^{l,m}, Adam S. Radomsky^c, Giti Shamsⁿ, Claudio Sica^o, Gregoris Simos^p, Wing Wong^q

^a Department of Psychology, University of New Brunswick, Fredericton, NB, Canada E3B 9P8

^b Department of Psychology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

^c Department of Psychology, Concordia University, Montreal, QC, Canada

^d Department of Psychiatry, Bellvitge Hospital, Barcelona, Spain

^e Department of Personality Psychology, University of Valencia, Valencia, Spain

^f Department of Psychology, University of Savoie, Chambéry, France

^g Department of Psychology, Binghamton University, Binghamton, NY, USA

^h Department of Psychology, Interdisciplinary Center, Herzliya, Israel

ⁱ Aigle Foundation, Buenos Aires, Argentina

^j Department of General Psychology, University of Padova, Padova, Italy

^k Department of Psychology, Abant İzzet Baysal University, Bolu, Turkey

^l Department of Psychology, Deakin University, Melbourne, VIC, Australia

^m Brain and Psychological Sciences Research Centre, Swinburne University of Technology, Melbourne, VIC, Australia

ⁿ Department of Psychiatry, Tehran University, Medical Science, Tehran, Iran

^o Department of Human Health Science, University of Firenze, Firenze, Italy

^p Department of Educational and Social Policy, University of Macedonia, Thessaloniki, Greece

^q Departments of Psychiatry and Psychology, Chinese University of Hong Kong, Shatin, Hong Kong

ARTICLE INFO

Article history:

Received 24 June 2013

Received in revised form

6 December 2013

Accepted 9 December 2013

Available online 17 December 2013

Keywords:

OCD

Obsessions

Intrusive thoughts

Obsessionality

Obsessive-compulsive inventory-revised

ABSTRACT

A key assumption of contemporary cognitive-behavioral models of obsessive-compulsive disorder (OCD) is that obsessional thoughts exist on a continuum with “normal” unwanted intrusive thoughts. Recently, however, some authors have challenged this notion. The present study aimed to clarify (a) the extent that different types of intrusive thoughts in nonclinical individuals are associated with obsessionality, (b) the relative contribution of frequency, distress and control ratings to obsessionality, and (c) the extent that existing findings (primarily from North American or European samples) generalize to other countries in the world. Five hundred and fifty-four non clinical individuals from 11 different countries were administered an interview assessing the presence, frequency, distress, and perceived control of different types of intrusive thoughts. Participants also completed measures of obsessional beliefs, obsessive-compulsive (OC) symptoms, and depression. Results from data analyses supported the universality of unwanted intrusive thoughts, the continuity of normal and abnormal obsessions, and the specificity of dirt/contamination, doubt and miscellaneous intrusions to OC symptoms. Implications for intrusive thoughts as a potential vulnerability factor for OCD are discussed.

© 2013 Elsevier Ltd. All rights reserved.

1. Introduction

Cognitive-behavioral researchers and practitioners widely believe that obsessions arise from the normal unwanted intrusive thoughts,

images or impulses that are universally experienced by all individuals. Born out of the seminal study by [Rachman and de Silva \(1978\)](#), showing that the majority of individuals experience occasional unwanted intrusive thoughts that are indistinguishable from the content of clinical obsessions, subsequent cognitive-behavioral treatment (CBT) models of obsessive-compulsive disorder (OCD) have embraced the assumption of continuity between “normal” and abnormal obsessions ([Clark, 2004](#); [Freeston, Rhéaume, & Ladouceur, 1996](#); [Rachman, 1997, 1998, 2003](#); [Rachman & Hodgson, 1980](#);

* Correspondence to: Department of Psychology, University of New Brunswick, PO Box 4400, Fredericton, New Brunswick Canada E3B 5A3.

E-mail address: clark@unb.ca (D.A. Clark).

Salkovskis, 1985, 1989a). CBT models contend that any normal intrusive thought can escalate into an obsession if it is erroneously interpreted as signifying a serious personal threat to self or significant others and the person attempts to reduce or neutralize the distressing qualities of the intrusion by engaging in some futile behavioral or mental activity (Rachman, 1997, 1998). From this perspective, any thought, regardless of content or context, could morph into a clinical obsession if associated with pathological appraisal and neutralization processes (Salkovskis & Freeston, 2001).

Most of the published research on intrusive thoughts has been conducted on western samples and there have been no large scale investigations of intrusive thoughts across a diverse range of nationalities. Thus the universality of unwanted intrusions, their relationship to OC symptoms and, by extension, the cross-cultural relevance of the CBT model of OCD has not been tested in a multinational comparative study. Like the other papers in this special issue, a major objective of the current study is to determine the cross-cultural generalizability of the intrusion/OC symptom relationship in a large multinational comparative study.

Not all OCD researchers readily embrace the continuity of normal and abnormal obsessions, or the universality of obsessive-like intrusive thoughts. Prior to the Rachman and de Silva (1978) research, the prevailing notion in psychiatry was that obsessions represented aberrant thinking that was distinct from normal cognition (Black, 1974; Lewis, 1936; Pollitt, 1957). The view that clinical obsessions are qualitatively distinct from normal cognition is more consistent with the categorical approach to psychiatric nosology represented in DSM-5 than is the continuity assumption of obsessions (American Psychiatric Association, 2013). Moreover, several recent empirical studies have challenged the continuity assumption. In their review of the intrusive thoughts literature, Julien, O'Connor, and Aardema (2007) concluded that intrusive thoughts do not always exhibit a stronger correlation with OCD symptoms than with other anxiety symptoms or depression, nor do the phenomena show the expected distinctiveness from other types of negative cognitions such as worry and negative automatic thoughts. In support of this argument, Rassin and Muris (2006), Rassin, Cogle, and Muris (2007) reported on two studies that appear to indicate that some "abnormal" intrusions have a closer relationship to obsessionality than do other more normal intrusions, with non-clinical participants reporting more of the latter than the former. This finding challenges the assumption of continuity between nonclinical and clinical intrusions.

There are, however, two difficulties with the conclusions reached in these studies. First, there was a very strong correlation between frequency of "normal" and "abnormal" intrusive thoughts ($r = .80$), indicating that people who tended to endorse one type of thought also endorsed the other. Second, their list of "normal" and "abnormal" intrusions may have low content validity because the list of "normal intrusions" included many instances of angry, worrisome, and generally negative automatic thoughts (e.g., "they shouldn't do that"). Thus it is not surprising that the Rassin et al. findings are inconsistent with those of Lee, Lee, Kim, Kwon, and Telch (2005), who found that the more realistic reactive intrusions, which are similar to Rassin and Muris' (2006) "normal obsession" content, had a stronger relation to obsessive compulsive (OC) symptoms than the bizarre, highly aversive and unrealistic "auto-genous" intrusions, which are like Rassin and Muris' abnormal obsessions category.

There have now been several replication studies documenting the almost unanimous presence of unwanted intrusive thoughts in healthy, nonclinical samples (Freeston, Ladouceur, Thibodeau, & Gagnon, 1991; Parkinson & Rachman, 1981; Salkovskis & Harrison, 1984), even when more stringent criteria of intrusions are utilized (Belloch, Morillo, Lucero, Cabedo, & Carrió, 2004; Lee & Kwon, 2003; Purdon & Clark, 1993). Radomsky et al. (2014) found that across 13 countries the vast majority of nonclinical individuals

(93.6%) reported experiencing unwanted intrusive thoughts with obsessional content within the past three months, although some differences were evident between countries. These findings, then, support one of the basic assertions of the cognitive-behavioral model of OCD; that unwanted obsessive-like intrusive thoughts are highly prevalent in the nonclinical population, and this phenomenon may be present regardless of nationality, religion or culture.

A second major premise of the cognitive-behavioral perspective is that the frequency, appraisal and control of intrusive thoughts will exhibit a specific relationship with obsessional symptoms. The most stringent version of this hypothesis argues for a causal relation between intrusions and obsessional symptoms. Although most studies, including the present, are cross-sectional in nature and so cannot investigate causal relations, these studies have been able to test a precondition of causality; that is, whether unwanted intrusive thoughts have a unique and significant relationship with obsessionality. Various studies report that the frequency of intrusive thoughts has a stronger association with obsessional than with anxious or depressive symptoms (Barrera & Norton, 2011; García-Soriano, Belloch, Morillo, & Clark, 2011; Lee et al., 2005; Purdon & Clark, 1993), although failure to find specificity has also been reported (Clark, 1992). Other studies find that it is not the frequency of intrusive thoughts that is uniquely associated with OC symptoms, but rather how the thought is appraised or evaluated (Corcoran & Woody, 2008; Freeston & Ladouceur, 1993; Freeston, Ladouceur, Thibodeau, & Gagnon, 1992). Still other studies report that it is perceived uncontrollability or effort to control intrusions that is specific to obsessionality (Grisham & Williams, 2009; Morillo, Belloch, & Garcia-Soriano, 2007; see Magee, Harden, & Teachman, 2012 for further discussion).

To date several fundamental issues about the relation between unwanted intrusive thoughts and obsessional symptoms remain unresolved. First, it is not clear whether the content of intrusive thoughts is entirely irrelevant to OC symptoms. It may be that some types of intrusions have a closer association with or relevance to obsessionality than do others, but answers to this question have been hampered by studies that use small, relatively homogenous samples and rely on retrospective self-report intrusion and symptom measures that have high levels of shared method variance. Second although the most consistent finding is that frequency of unwanted intrusions is related to OC symptoms, the relative contribution of appraisal and control efforts is still not well understood. Finally, much of the work on intrusions and obsessionality is based on North American or European samples. It is unknown whether these relationships generalize to populations in other regions of the world. Nevertheless, based on the research to date, we can expect that unwanted intrusive thoughts with varying content will have a specific relationship to OC symptoms across all cultures and that perceived distress and control of intrusions will have a significant relationship with OC symptoms even after controlling for the frequency of intrusive thoughts.

To determine content-specificity, generalizability across cultures and contribution of appraisals to the intrusion/OC symptom relationship, the present study focuses on analyses conducted on the frequency, distress, importance of control, and difficulty of control ratings completed for the seven types of intrusive thoughts assessed in the International Intrusive Thoughts Interview Schedule (IITIS; RCIF, 2007). Between-group comparisons across country as well as a series of hierarchical regression analyses investigated the specific relation between frequency, distress and perceived control of unwanted intrusions and distress ratings for OCD symptoms. It was hypothesized that frequency of all seven types of intrusions would have a significantly greater association with OC than with depressive symptoms, and that frequency of intrusions would be

a more significant correlate of OC symptoms than would evaluations of distress or controllability. Moreover it was predicted that the intrusion-OC symptom relation would be evident after controlling for differences between countries.

2. Method

2.1. Participants

The sample was drawn from 554 nonclinical individuals of the 11 countries that were administered the entire questionnaire battery.¹ Data from France and Italy were excluded because translations were not available for some of the questionnaires. Data from the Binghamton and Chapel Hills sites were combined to form the American sample, and the Fredericton and Montreal sites were combined to form a Canadian sample. Radomsky et al. (2014) presents the sample demographics (i.e., Table 1) as well as differences between countries on participant characteristics. Individuals who were not citizens of their host country or who reported a current mental health problem that resulted in professional consultation were not included in the analyses. All participants provided informed consent and the research protocol was approved by the research ethics boards of each research site. See Table 1 in Radomsky et al. (2014) for detailed information on sample demographics as well as analyses of multisite differences.

2.2. Measures

International intrusive thoughts interview schedule, Version 6 (IITIS; RCIF, 2007): A detailed description of the history, development and content of the 101-item IITIS structured interview for obsessive-relevant intrusive thoughts can be found in the first two articles of this issue (Clark & Radomsky, 2014; Radomsky et al. 2014). The current analyses focus on the endorsement, frequency, distress and perceived control ratings for the seven types of intrusive thoughts found within questions 21 to 73 of the IITIS (e.g., contamination/dirt/disease, harm/injury/aggression, doubt, religious/immoral, sexual, victimization, miscellaneous/other). For each intrusion, participants were asked whether they had experienced this type of intrusion in the last three months. For individuals who responded in the affirmative, interviewers then asked participants generally how often they experience this type of intrusion (0=never, 1=occasionally/1–2 a year, to 5=frequently/daily), the degree of distress or interference in daily living caused by the intrusion (0=none to 5=extreme), the importance of thought dismissal (0=not important, 5=extremely important), and dismissal difficulty (0=not difficult to 5=extremely difficult). The frequency, distress, importance, and control ratings were skipped for any intrusion items that a participant failed to endorse.

As presented in the first paper (Radomsky et al. 2014), the vast majority of individuals (93.6%) reported at least one type of intrusive thought in the past three months, with a mean of 2.77 intrusion types across the total sample. These data indicate that within each site over 80% of individuals completed ratings of frequency, distress and controllability on at least one type of intrusive thought. In order to compare frequency across types of intrusions, individuals who failed to endorse an intrusion were assigned a zero value on the six point frequency rating scale. Except for the analysis of country differences in intrusion frequency, the sample comprised only individuals who reported at least one intrusion on the interview leaving an $N=523^2$ (328 women, 63%; M age=22.86; $SD=5.27$ years).

The 18-item *obsessive-compulsive inventory-revised* (OCI-R; Foa et al., 2002) and the 21-item *depression anxiety stress scale-short version* (DASS-21; Lovibond & Lovibond, 1995) were administered to assess distress associated with obsessive-compulsive symptoms and endorsement of depressive and anxious symptoms, respectively. The 44-item *obsessional beliefs questionnaire* (OBQ-44; Obsessive Compulsive Cognitions Working Group (OCCWG), 2005) was given to assess level of agreement to maladaptive beliefs considered characteristic of OCD. Given the high subscale intercorrelations and factor structure of the OBQ-44 in particular, the present analyses utilized the total score of both the OBQ-44 and the OCI-R, whereas the DASS Depression Score was adopted as a proxy measure for general distress. A fuller description of these measures can be found in Radomsky et al. (2014). Prior established Spanish (Fullana et al., 2005; Gurrola, Balcázar, Bonilla, & Virseda, 2006; Ruiz, Gavino, & Godoy, 2008), Turkish (Akin, & Çetin, 2007; Yorulmaz, Gençöz, & Woody, 2009; Yorulmaz, Inozu, Sayal, & Radomsky, 2012), Hebrew (Doron, Derby, Szepsenwol, & Talmor, 2012; Moulding et al., 2011; Reuven-Magril, Dar, & Liberman, 2008), Chinese (Peng, Yang, Miao, Jing, & Chan, 2011; Taouk, Lovibond, & Laube 2011), Greek (Lyrakos, Arvaniti, Smyrnioti, & Kostopanagiotou, 2011) and Persian (Ghassemzadeh et al., 2011; Shams et al., 2013) translations of

the OBQ-44, OCI-R and DASS were utilized, whereas the English versions were employed at the English-speaking sites as well as Sierra Leone. The Cronbach alpha for the OCI-R Total Score was $\alpha=.89$, DASS-Anxiety was $\alpha=.78$, DASS Depression was $\alpha=.81$, and the OBQ-44 Total Score was $\alpha=.94$ for the total sample.

2.3. Procedure

See Radomsky et al. (2014) for a description of the research protocol and data cleaning procedures followed in this study.

2.4. Data analysis

Multisite differences on the dependent variables were analyzed by within- and between-group univariate and multivariate analysis of variance with alpha set at $p < .001$ to adjust for multiple comparisons. Strength of association between intrusive thoughts and OC symptoms was determined by two hierarchical regression analyses. Country differences and endorsement of OC-related beliefs were entered on the first two steps so the independent contribution of intrusions to OC symptom variability could be determined. Further information on data cleaning and missing values can be found in Radomsky et al. (2014).

3. Results

3.1. Group differences on the OCI-R, OBQ-44 and DASS

Table 1 presents means and standard deviations on the normative symptom and belief measures. A series of oneway ANOVAs compared mean differences between the 11 countries on the belief and symptom measures. Significant country differences were found on OCI-R Total ($F(10, 540)=12.78, p < .001$; partial $\eta^2=.19$), OBQ Total ($F(10, 534)=17.48, p < .001$; partial $\eta^2=.25$), DASS Depression ($F(10, 539)=4.20, p < .001$; partial $\eta^2=.07$), and DASS Anxiety ($F(10, 539)=10.13, p < .001$; partial $\eta^2=.16$). Tukey post hoc comparisons on the OCI-R Total Score indicated that scores from Turkey and Sierra Leone were significantly higher than all other countries, and those from Hong Kong were significantly lower than Iran, Greece, Turkey and Sierra Leone. For the OBQ Total Score, participants from Sierra Leone scored significantly higher than all other countries, and those from Greece scored significantly higher than those from Canada, the USA, Spain, Israel, Australia, and Argentina. On the other hand, participants from Argentina scored significantly lower than all other countries except Spain, Israel and Australia.

On the DASS-Depression scale, Sierra Leone participants again scored significantly higher than those from all other countries except Greece. For DASS Anxiety individuals from Sierra Leone and Turkey were significantly higher than from all other countries except Greece, and participants from Greece were significantly higher than those from Iran and Israel. Scores on DASS Anxiety were significantly lower in Israel than in Canada, Hong Kong, Greece, Turkey and Sierra Leone. In sum greater between-country variability was evident in obsessional beliefs and anxiety symptoms, whereas OC and depressive symptoms had less variability across data collection sites.

3.2. Differences in intrusion frequency across countries

To determine overall frequency of intrusions across the total sample, all individuals who met the study inclusion criteria were included in this analysis regardless of whether or not they endorsed any intrusions. As noted above, those who did not endorse an intrusion type were assigned zero on the frequency rating scale, including individuals who did not endorse any of the 7 intrusions. A 7 (intrusion type) \times 11 (countries) mixed model repeated measures MANOVA was conducted on the frequency ratings of the 7 intrusions. A 7 \times 11 repeated measures MANOVA with frequency of intrusions as the within-subjects factor and country as the between-subjects revealed a significant main effect

¹ The sample size differs from Radomsky et al. (2014) because the Obsessive-Compulsive Checklist-Revised was not administered to the French or Italian samples.

² Sample sizes vary across analyses due to a small amount of missing data on some measures (i.e. < 10%).

Table 1
Means and standard deviations on the beliefs and symptom measures by country.

Country	OCI-R Mean	Total SD	OBQ Mean	Total SD	DASS Mean	Dep SD	DASS Mean	Anx SD
Argentina (n=49)	12.93	10.77	113.65	37.31	6.60	8.08	4.24	5.01
Australia (n=40)	13.40	11.30	122.53	33.63	7.85	6.57	6.35	6.31
Canada (n=85)	14.71	10.22	139.48	33.88	7.60	7.47	7.12	6.74
Greece (n=47)	18.43	11.29	163.15	33.48	10.30	8.20	8.21	7.49
Hong Kong (n=55)	9.60	6.58	141.93	33.45	6.47	5.56	7.13	5.92
Iran (n=43)	17.07	9.38	157.47	30.48	7.35	6.80	3.44	4.06
Israel (n=39)	13.25	10.12	127.23	40.09	5.58	5.35	2.79	3.74
Sierra Leone (n=23)	30.92	15.14	211.35	45.70	15.07	7.80	12.86	7.48
Spain (n=47)	14.06	10.12	121.92	29.00	6.04	5.17	4.77	4.58
Turkey (n=44)	26.41	12.58	154.83	39.23	9.00	7.95	12.41	9.25
USA (n=79)	13.91	10.16	136.41	34.61	7.66	7.33	5.81	6.42

Note: Total sample, N=551; OCI-R=obsessive compulsive inventory-revised, OBQ=obsessive compulsive questionnaire, DASS=depression anxiety stress scales.

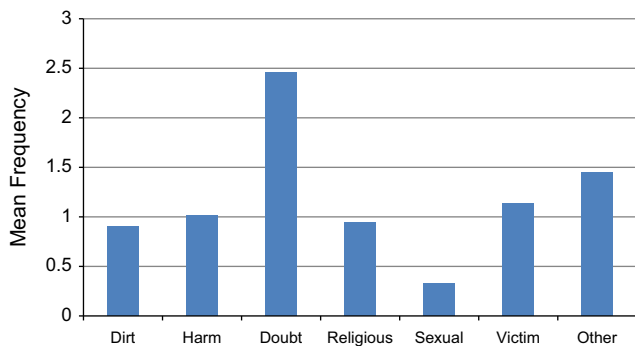


Fig. 1. Average three month frequency of intrusive thoughts for the total sample.

of intrusion type [Wilk's $\lambda=.47$, multivariate $F(6, 538)=100.18$, $p < .001$, partial $\eta^2=.53$], country [$F(10, 543)=10.74$, $p < .001$, partial $\eta^2=.17$], and an intrusion type by country interaction [Wilk's $\lambda=.73$, multivariate $F(60, 2823)=2.86$, $p < .001$, partial $\eta^2=.05$]. However there were no significant contrasts on any of the intrusion type \times country interactions. For the main effect of country, Tukey post hoc contrasts indicated that Greece and Argentina had lower intrusion frequencies than half of the other countries, whereas Canada tended to have a higher intrusion frequency than approximately half of the countries. In terms of the main effect of intrusion type, repeated contrasts revealed that dirt and harm were not significantly different in their frequency, but doubt was significantly more common whereas religious and sexual intrusions were significantly less frequent than all other intrusion types. The category "other" intrusions was significantly more frequent than all intrusion types except doubt. As seen in Fig. 1 doubt and "other" intrusions were rated as more frequent, whereas sexual and religious intrusions were substantially less frequent. This pattern was quite consistent across countries.

3.3. Association between intrusion content and OC symptoms

To investigate the generality of intrusive thought content in relation to OC symptoms, a hierarchical regression analysis was conducted on the total sample (N=545) with the OCI-R Total Score as the dependent variable. To control for country differences, the 11 countries were dummy coded and entered on the first step of the equation. The OBQ Total Score was entered on Step 2, and the frequency ratings for all seven IITIS intrusions were added to the equation on Step 3. The zero-order correlations between the seven IITIS frequency ratings and the OBQ Total Score ranged from $-.03$ to $.18$, whereas the intercorrelation among the IITIS frequency ratings ranged from $.02$ to $.30$. Note that the highest correlation

Table 2
Summary of significant predictors in hierarchical regression analysis of country, OBQ total and IITIS frequency on OCI-R Total Score.

Variables	Correlation (DV)	Beta	t Value	sr ²
STEP 1.				
Ten country				
Variables significant ^a				
STEP 2.				
Five country				
Variables significant				
OBQ Total Score	.56	.53	13.81*	.21
STEP 3.				
Nine country variables				
Significant				
OBQ Total Score	.56	.45	12.25*	.14
IITIS frequency ratings				
Dirt/contamination	.34	.22	6.90*	.04
Harm/aggression	.15	.06	1.69	.00
Doubt frequency	.21	.15	4.37*	.02
Religious/immoral	.09	.06	1.69	.00
Sexual	.10	.04	1.13	.00
Victimization	.07	.04	1.05	.00
Other/miscellaneous	.11	.12	3.66*	.01

Note: N=545.

sr²=squared semi-partial correlation. Country=dummy coded variables for 11 countries; OBQ=obsessive beliefs questionnaire; IITIS=international intrusive thoughts interview schedule.

^a Due to space limitations, the regression statistics for the dummy coded country variables have been omitted but are available from the first author upon request.

* $p < .001$.

was between frequency of harm/aggression and religious/immoral intrusions at $r=.30$.

Table 2 presents the statistics for the independent variables in the regression analysis. Step 1 was significant, accounting for 19% of variance in the OCI-R Total Score [$R=.44$; $R^2=.19$; $F(10, 534)=12.84$, $p < .001$]. All the country variables were significant. Step 2 was also significant [$R=.64$; $R^2=.41$], accounting for an additional 21% of OCI-R Total Score variance [incremental $R^2=.21$; $F\ change(1, 533)=190.68$, $p < .001$]. The full model at Step 3 was also significant [$R=.71$; $R^2=.51$], accounting for an additional 10% of OCI-R variance [incremental $R^2=.10$; $F\ change(7, 526)=15.28$, $p < .001$]. Country differences were again significant, as was the OBQ Total Score and the frequency of IITIS dirt/contamination, doubt, and other/miscellaneous intrusions. The other IITIS intrusions – harm/aggression, religious/immoral, sexual and victimization – were not uniquely related to the degree of distress from OC symptoms. Thus, our hypothesis concerning the generality of intrusive thought content to OC symptoms was not supported by the analysis. Consequently subsequent analyses focused on the

three OC specific intrusions- dirt/contamination, doubt and other/miscellaneous.

To determine whether an interaction between frequency of intrusions and beliefs might be associated with greater obsessionality, a composite IITIS frequency variable was first created by summing the frequency ratings for IITIS dirt/contamination, doubt and other intrusions. A hierarchical regression analysis was then performed with OCI-R Total as the dependent variable, the dummy coded country variables entered on Step 1, the main effects of IITIS frequency and OBQ Total Score on Step 2, and the centered interaction of IITIS frequency and OBQ Total on Step 3. As expected from the previous analysis, the main effects of Country, OBQ Total and IITIS frequency on Steps 1 and 2, respectively, were significant, but the interaction term at Step 3 was not significant. This indicates that obsessional beliefs and frequency of obsession-related intrusions contribute to obsessional symptoms in an additive fashion.

3.4. Association of IITIS ratings with the OCI-R Total Score

To determine the relative contribution of specific IITIS ratings in explaining distress related to OC symptoms, mean scores were calculated for ratings of frequency, distress, importance of control, and difficulty of control collapsing across IITIS dirt/contamination, doubt and other/miscellaneous intrusions. Participants who did not endorse any of these three types of intrusions were excluded from this analysis ($n=33$), leaving a final sample of $N=523$. Correlations between IITIS frequency and distress, importance, and control composite ratings were $r=.23$, $.11$ and $.22$ respectively. Correlations of IITIS distress with importance and control composite ratings were $r=.51$ and $.52$, respectively. Importance was correlated at $r=.53$ with control, and IITIS frequency, distress, importance and control correlated at $.14$, $.21$, $.12$ and $.18$, respectively, with the OBQ Total Score. Thus composite ratings of distress, importance of control, and difficulty of control were moderately correlated, but relatively uncorrelated with frequency. As in previous studies (Obsessive Compulsive Cognitions Working Group (OCCWG), 2005), the OBQ subscales were highly correlated (r 's $=.56$ to $.67$), supporting use of the total score in these analyses.

Prior to examining the association of distress and control ratings with OC symptom distress, we determined whether differences existed between countries on these variables. A one-way MANOVA was performed with IITIS frequency, distress, importance, and control mean ratings as dependent variables and country as the between-group factor. The multivariate analysis was significant (Wilk's $\lambda=.75$, multivariate $F(40, 1761)=3.45$, $p<.001$, partial $\eta^2=.07$), with follow-up F tests revealing significant differences on IITIS frequency ($F(10, 467)=2.92$, $p<.001$; partial $\eta^2=.06$), distress ($F(10, 467)=3.26$, $p<.001$; partial $\eta^2=.06$), importance ($F(10, 467)=7.94$, $p<.001$; partial $\eta^2=.14$), and control ($F(10, 467)=3.91$, $p<.001$; partial $\eta^2=.08$). Tukey post hoc comparisons indicated that Canadian participants scored higher on IITIS frequency than did those from Argentina, Iran and Sierra Leone, whereas scores in Iran were lower than Israel, Turkey and Greece on IITIS Distress. Hong Kong scores were lower than those from the USA, Spain, Greece, Israel and Turkey on IITIS importance, whereas Turkey, Israel and Greece scores were higher than in Canada, Argentina, Australia, Sierra Leone and Hong Kong. Sierra Leone scores were significantly lower than Australia, Turkey, Israel and Greece on IITIS Control but Greek scores were significantly higher than Argentina, Iran and Sierra Leone. Because there were a few cross-cultural differences in the frequency, distress and control ratings of dirt/contamination, doubt and other/miscellaneous intrusions, country was entered as a covariate on the subsequent regression analysis.

Table 3 presents the summary statistics for a hierarchical regression analysis with the OCI-R Total score as the dependent

Table 3

Summary of significant predictors in hierarchical regression analysis of country, OBQ Total Score and IITIS scales on OCI-R Total Score.

Variables	Correlation (DV)	Beta	t Value	s^2
STEP 1.				
Ten significant country variables ^a				
STEP 2.				
Seven significant Country variables				
OBQ Total Score	.59	.54	13.47*	.22
STEP 3.				
Nine country variables				
Significant				
OBQ Total Score	.59	.44	11.38*	.13
IITIS frequency composite	.31	.25	7.20*	.05
IITIS distress composite	.30	.09	2.08**	.00
IITIS importance composite	.27	.10	2.38**	.01
IITIS control composite	.23	.00	0.79	.00

Note: $N=469$.

s^2 =Squared semi-partial correlation. Country=dummy coded variables for 11 countries; OBQ=Obsessive Beliefs Questionnaire; IITIS=International Intrusive Thoughts Interview Schedule.

^a Due to space limitations, the regression statistics for the dummy coded country variables have been omitted but are available from the first author upon request.

* $p < .05$.

** $p < .001$.

variable and Country, OBQ Total Score and IITIS frequency, distress, importance and control mean ratings on the three IITIS obsession-relevant intrusions as independent variables. Step 1 involving the 11 dummy coded country variables was significant [$R=.47$; $R^2=.22$]³, accounting for 22% of variance in the OCI-R Total Score [$R^2=.22$; $F(10, 458)=12.75$, $p<.001$]. In Step 2 [$R=.66$; $R^2=.44$], the OBQ Total Score added significantly to the model, [incremental $R^2=.22$; F change(1, 457)=181.42, $p<.001$]. Finally, in Step 3 [$R=.73$; $R^2=.53$], the IITIS frequency, distress, importance and control ratings also added significantly to the model [incremental $R^2=.09$; F change(4, 453)=21.75, $p<.001$]. In the full model, then, country differences, the OBQ Total Score and IITIS frequency accounted for most of the unique variance in the OCI-R Total Score. Thus even after controlling for country differences and maladaptive beliefs, the frequency of intrusions was more important than distress, importance or control ratings in explaining OC symptoms.

3.5. Specificity of intrusion frequency, distress and control ratings

To determine whether IITIS frequency, distress and control ratings were specific to OC symptoms, a hierarchical regression analysis was performed with OCI-R Total as the dependent variable. Country was entered on Step 1, DASS Depression on Step 2, and on Step 3 we entered IITIS frequency, distress, importance and control ratings combined over dirt, doubt and "other" intrusions. Table 4 presents the statistics for the independent variables in the regression equation. In Step 1, Country was a significant predictor of OCI-R scores [$R=.46$; $R^2=.21$; $F(10, 462)=12.62$, $p<.001$]. The addition of DASS Depression scores in Step 2 [$R=.57$; $R^2=.32$], explained significant additional variance [incremental $R^2=.11$; F change(1, 461)=75.60, $p<.001$]. The final step involving the full model [$R=.67$; $R^2=.45$], accounted for an additional 12% of OCI-R Total variance [incremental $R^2=.12$; F change(4, 457)=25.06, $p<.001$]. In this analysis DASS Depression and IITIS Frequency

³ All of the total R and R^2 reported in the following regression analyses were statistically significant.

Table 4
Summary of significant predictors in hierarchical regression analysis of country, and IITIS ratings on OCI-R Total Score controlling for DASS Depression.

Variables	Correlation (DV)	Beta	t Value	sr ²
STEP 1.				
Nine significant country variables ^a				
STEP 2.				
Nine significant country variables				
DASS Depression	.42	.34	8.69*	.11
STEP 3.				
Ten significant Country variables				
DASS Depression	.41	.26	6.89*	.06
IITIS frequency composite	.31	.28	7.45*	.07
IITIS distress composite	.30	.11	2.53**	.01
IITIS importance composite	.27	.08	1.72	.01
IITIS control composite	.23	.04	0.89	.00

Note: N=473.

sr²=Squared semi-partial correlation; Country=dummy coded variables for 11 countries; DASS=depression anxiety stress scales; IITIS=international intrusive thoughts interview schedule.

^a Due to space limitations, the regression statistics for the dummy coded country variables have been omitted but are available from the first author upon request.

* $p < .05$.

** $p < .001$.

were significant unique predictors of OCI-R Total, with IITIS Distress also making a significant but less substantive contribution. A complementary hierarchical regression was performed with DASS Depression as the dependent variable and OCI-R Total entered as a covariate on Step 2. Entry of the IITIS frequency, distress and control ratings on the third step [$R=.45$; $R^2=.21$], accounted for only 1% of additional variance and was not statistically significant [incremental $R^2=.01$; F change(4, 457)=1.91, *ns*]. Thus we conclude from these analyses that IITIS frequency and evaluative ratings did evidence a specific relationship with OC symptoms.

4. Discussion

The continuity or dimensional nature of normal and abnormal unwanted intrusive thoughts is a key assumption of cognitive-behavioral models of OCD. A cornerstone of this assumption is that intrusive thoughts about dirt/contamination, doubt, repugnancy and loss of control should have a closer association with obsessive and compulsive symptoms than with other types of symptoms. Generally, past studies have supported this view, although the findings have been limited by restricted samples, measurement error, and some inconsistency across studies. Furthermore there is lack of agreement in whether it is the *frequency* of intrusions or their appraisal that is uniquely related to OC symptoms.

The main finding from the present study is that some, but not all, intrusions are specifically related to OC symptoms in nonclinical populations. Indeed, only intrusions regarding dirt/contamination, doubt, and other/miscellaneous themes were significantly related to the OCI-R Total score. Moreover this relationship was evident after controlling for country differences and beliefs in obsessiveness. Our regression analyses also indicated that it was the frequency of dirt/contamination, doubt and other/miscellaneous intrusions that was significantly related to OC symptom distress (i.e., OCI-R Total Score) rather than intrusion distress itself or ratings of perceived control. The appraised importance of dirt, doubt and other intrusions was a significant, but minor, predictor of OC symptom distress since it accounted for only one percent of unique variance in the OCI-R Total

Score. Finally frequency of the OC-relevant intrusions exhibited a unique and specific relationship to obsessiveness as indicated by its lack of association with depressive symptoms.

Dirt/contamination, doubt, and other/miscellaneous obsessions may have emerged as the most significant variables for obsessiveness because of their elevated base rate. Intrusions of harm/aggression, sex, and religion/immorality were much less common in our nonclinical samples, thereby limiting variability and the potential for associations with other variables in our dataset. As well, repugnant obsessions are poorly represented in the OCI-R, which again could account for the lack of association between IITIS harm/aggression, sex and religion/immoral intrusions and the OCI-R Total Score.

One of the more unexpected findings was the emergence of other/miscellaneous intrusions. A review of the qualitative data collected under this category revealed that the most common intrusions were repeated songs or phrases, superstitious ideas or numbers, unwanted thoughts about death to self or others, and negative memories of arguments, conflict and the like. In a few instances, worries (e.g., concerns about real life “everyday” circumstances as opposed to senseless obsession-like intrusions) were recorded in this category. Even though this category of intrusive thought was somewhat more heterogeneous than the others, it is interesting that these miscellaneous intrusions should have such a significant relationship with OC symptom distress, at least in this nonclinical sample. In the future OCD researchers and practitioners alike might want to pay closer attention to individuals' appraisal and control of miscellaneous intrusions.

In sum our findings are highly supportive of the continuity of normal and abnormal obsessions. Dirt/disease/contamination and doubt are by far the most common presentations of obsessions in clinical OCD samples (Rasmussen & Eisen, 1998), and this was the intrusive thought content most prevalent in our large international sample of nonclinical individuals. In addition, our OC symptom-specific intrusions would fall into Lee et al.'s (2005) category of reactive obsessions, which again exhibited a closer relation to OCD symptoms than what has been labeled autogenous intrusions (i.e., our sex and religious intrusions). The current findings, then, are much more supportive of the early Rachman and de Silva (1978) conclusion about the continuity of normal and abnormal obsessions than they are the discontinuity conclusion of Rassin and Muris (2006). Of course it would be important to extend these analyses to a more mixed sample that included clinical, subclinical and nonclinical OCD individuals.

We found considerable similarity across diverse countries in the frequency and evaluation of unwanted intrusions as well as a strong relation to OC symptom distress after controlling for country differences. Although the repeated measures ANOVA revealed significant country differences in the frequency of various intrusive thoughts, there was no consistent pattern or discernible reason that a particular country such as Canada, for example, might report more intrusions than some countries, but not others. What was clear is that with the exception of Sierra Leone, which had the smallest and oldest sample, there were considerable similarities in the samples' report and experiences of unwanted intrusive thoughts. As noted by Radomsky et al. (2014) unwanted intrusive thoughts were common in all our samples and the majority of individuals were able to identify a most distressing intrusive thought. In our second paper, Moulding et al. (under review) found that the relationships between intrusion frequency, appraisals and control strategies were similar across countries. Together, then, these findings provide the strongest evidence to date of the universality of unwanted intrusive thoughts, images and impulses.

It is also noteworthy that relative to the control ratings or intrusion distress, the *frequency* of intrusions was more closely

associated with OC symptom distress. This should not be interpreted that judgments of perceived control are unimportant in the intrusion–symptom relationship. It could be that variability in frequency is more important in a nonclinical sample, but that distress and controllability would be more significant predictors of symptoms in an OCD sample where higher frequency rates would be present. Also, the current analysis was limited to three ratings per intrusion and focused on a narrow aspect of intrusive experience: that of perceived distress, controllability and its importance. Nevertheless, we did test a stringent version of the intrusion–symptom relationship by partialling out the effects of obsessional beliefs. What these results indicate is that the experience of frequent unwanted intrusive thoughts in the general population has a specific relationship with OC symptoms. The next question to address is whether intrusion frequency might have etiological significance in its own right rather than a mere reflection of generalized vulnerability. Just as the presence of subclinical or minor depression increases risk for a subsequent major depressive disorder (e.g., Eaton, Eaton, & Ford, 2005), could the presence of frequent intrusive thoughts constitute a risk factor for OCD? Naturally questions about the etiological role of intrusion frequency, distress and perceived control can only be settled by longitudinal research on OCD onset.

The present study has several limitations that must be acknowledged. The 18-item version of the OCI-R was the sole measure of obsessional symptoms. Compulsive symptoms are overrepresented in the measure while obsessions are underrepresented. The intrusion-OC symptom relation might look entirely different with another OCD measure that places greater emphasis on obsessional symptoms or on the functional link between obsessions and compulsions. Although every effort was made to adhere to a strict definition of intrusive thoughts, we did not employ independent raters to evaluate the intrusive thought data collected by interviewers. It is therefore possible that interviewer drift occurred and intrusive thought entries were contaminated by the inclusion of a broader class of negative cognitions. Finally it is possible that any differences between countries were due to translation and methodological differences across sites. Insuring inter-rater consistency would be a highly costly research expense that exceeded the modest funds available for this project.

Despite these limitations, the present study represents the largest and most culturally diverse investigation of unwanted intrusive thoughts and obsessional symptoms in nonclinical individuals. Moreover, a detailed structured interview methodology was employed to increase the probability that truly intrusive thought data were collected. The findings support the universality of unwanted intrusive thoughts, the continuity of normal and abnormal obsessions, and the specificity of dirt/contamination, doubt and miscellaneous intrusions for OC symptoms. These results join past studies in suggesting that unwanted intrusive thoughts might be a good candidate for future prospective vulnerability research on OCD.

Acknowledgements

We are grateful for financial support for this research provided by an International Opportunities Fund grant awarded to Drs. Clark and Radomsky from the Social Sciences and Humanities Research Council of Canada (grant #861-2009-0076) and to Adriana del Palacio-Gonzalez for assistance during the data collection phase of the study.

References

Akın, A., & Çetin, B. (2007). Depression, anxiety and stress scale (DASS): The study of validity and reliability. *Educational Science: Theory & Practice*, 7, 241–268.

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). DSM-V. Washington, DC: American Psychiatric Association.
- Barrera, T. L., & Norton, P. J. (2011). The appraisal of intrusive thoughts in relation to obsessional–compulsive symptoms. *Cognitive Behaviour Therapy*, 40, 98–110.
- Belloch, A., Morillo, C., Lucero, M., Cabedo, E., & Carrió, C. (2004). Intrusive thoughts in non-clinical subjects: The role of frequency and unpleasantness on appraisal ratings and control strategies. *Clinical Psychology and Psychotherapy*, 11, 100–110.
- Black, A. (1974). The natural history of obsessional neurosis. In: H. R. Beech (Ed.), *Obsessional States* (pp. 19–54). London: Methuen & Co.
- Clark, D. A., & Radomsky, A. S. (2014). Introduction. A global perspective on unwanted intrusive thoughts. *Journal of Obsessive Compulsive and Related Disorders*, 3, 265–268.
- Clark, D. A. (1992). Depressive, anxious and intrusive thoughts in psychiatric inpatients and outpatients. *Behaviour Research and Therapy*, 30, 93–102.
- Clark, D. A. (2004). *Cognitive-behavioral therapy for OCD*. New York: Guilford Press.
- Corcoran, K. M., & Woody, S. R. (2008). Appraisals of obsessional thoughts in normal samples. *Behaviour Research and Therapy*, 46, 71–83.
- Doron, G., Derby, D. S., Szepeswol, O., & Talmor, D. (2012). Tainted love: Exploring relationship-centered obsessive compulsive symptoms in two non-clinical cohorts. *Journal of Obsessive-Compulsive and Related Disorders*, 1, 16–24.
- Eaton, J., Eaton, W. W., & Ford, D. E. (2005). Minor depression as a predictor of the first onset of major depressive disorder over a 15-year follow-up. *Acta Psychiatrica Scandinavica*, 113, 36–43.
- Foa, E. B., Huppert, J. D., Leiberg, S., Lagner, R., Kichic, R., Hajcak, G., et al. (2002). The obsessive–compulsive inventory: Development and validation of a short version. *Psychological Assessment*, 14, 485–495.
- Freeston, M. H., & Ladouceur, R. (1993). Appraisal of cognitive intrusions and response style: Replication and extension. *Behaviour Research and Therapy*, 31, 185–191.
- Freeston, M. H., Ladouceur, R., Thibodeau, N., & Gagnon, F. (1991). Cognitive intrusions in a non-clinical population. I. Response style, subjective experience, and appraisal. *Behaviour Research and Therapy*, 29, 585–597.
- Freeston, M. H., Ladouceur, R., Thibodeau, N., & Gagnon, F. (1992). Cognitive intrusions in a non-clinical population. II. Associations with depressive, anxious, and compulsive symptoms. *Behaviour Research and Therapy*, 30, 263–271.
- Freeston, M. H., Rhéaume, J., & Ladouceur, R. (1996). Correcting faulty appraisals of obsessional thoughts. *Behaviour Research and Therapy*, 34, 433–446.
- Fullana, M. A., Tortella-Feliu, M., Caseras, X., Andión, O., Torrubia, R., & Mataix-Cols, C. (2005). Psychometric properties of Spanish version of the obsessive–compulsive inventory-revised in a non-clinical sample. *Journal of Anxiety Disorders*, 19, 893–903.
- García-Soriano, G., Belloch, A., Morillo, C., & Clark, D. A. (2011). Symptom dimensions in obsessive–compulsive disorder: From normal cognitive intrusions to clinical obsessions. *Journal of Anxiety Disorders*, 25, 474–482.
- Ghassemzadeh, H., Shams, G., Abedi, J., Karamghadiri, N., Ebrahimkhani, N., & Rajabloo, M. (2011). Psychometric properties of a Persian-language version of the obsessive–compulsive inventory-revised: OCI-R-Persian. *Psychology*, 2, 199–204.
- Grisham, J. R., & Williams, A. D. (2009). Cognitive control of obsessional thoughts. *Behaviour Research and Therapy*, 47, 395–402.
- Gurrola, G. M., Balcázar, P., Bonilla, M., & Virseda, J. A. (2006). Estructura factorial y consistencia interna de la Escala de Ansiedad, Depresión y Estrés (DASS-21) en una muestra no clínica. *Psicología y Ciencia Social*, 8, 3–7.
- Julien, D., O'Connor, K. P., & Aardema, F. (2007). Intrusive thoughts, obsessions, and appraisals in obsessive–compulsive disorder: A critical review. *Clinical Psychology Review*, 27, 366–383.
- Lee, H.-J., & Kwon, S.-M. (2003). Two different types of obsession: Autogenous obsessions and reactive obsessions. *Behaviour Research and Therapy*, 41, 11–29.
- Lee, H.-J., Lee, S.-H., Kim, H.-S., Kwon, S.-M., & Telch, M. J. (2005). A comparison of autogenous/reactive obsessions and worry in a nonclinical population: A test of the continuum hypothesis. *Behaviour Research and Therapy*, 43, 999–1010.
- Lewis, A. (1936). Problems of obsessional illness. *Proceedings of the Royal Society of Medicine*, 24, 13–24.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy*, 33, 335–343.
- Lyrakos, G. N., Arvaniti, C., Smyrnioti, M., & Kostopanagiotou, G. (2011). Translation and validation study of the depression anxiety stress scale in the greek general population and in a psychiatric patient's sample. *European Psychiatry*, 26(Suppl. 1), 173.
- Magee, J. C., Harden, K. P., & Teachman, B. A. (2012). Psychopathology and thought suppression: A quantitative review. *Clinical Psychology Review*, 32, 189–201.
- Morillo, C., Belloch, A., & Garcia-Soriano, G. (2007). Clinical obsessions in obsessive–compulsive patients and obsession-relevant intrusive thoughts in non-clinical, depressed and anxious subjects: Where are the differences? *Behaviour Research and Therapy*, 45, 1319–1333.
- Moulding, R., Anglim, J., Nedeljkovic, M., Doron, G., Kyrios, M., & Ayalon, A. (2011). The obsessive beliefs questionnaire (OBQ): Examination in nonclinical samples and development of a short version. *Assessment*, 18(3), 357–374.
- Moulding, R., Coles, M. E., Abramowitz, J. S., Alcolado, G. M., Alonso, P., Belloch, A., et al. Part 2. Do we dislike intrusive thoughts for the same reasons? Links between appraisals, control strategies and intrusions across countries. *Journal of Obsessive Compulsive and Related Disorders* (under review).

- Obsessive Compulsive Cognitions Working Group (OCCWG) (2005). Psychometric validation of the obsessive belief questionnaire and interpretation of intrusions inventory—Part 2: Factor analyses and testing of a brief version. *Behaviour Research and Therapy*, 43, 1527–1542.
- Parkinson, L., & Rachman, S. (1981). Part II. The nature of intrusive thoughts. *Advances in Behaviour Research and Therapy*, 3, 101–110.
- Peng, Z-w., Yang, W-h., Miao, G-d., Jing, J., & Chan, R. C. K. (2011). The Chinese version of the obsessive-compulsive inventory-revised scale: Replication and extension to non-clinical and clinical individuals with OCD symptoms. *BMC Psychiatry*, 11, 129–134.
- Pollitt, J. (1957). Natural history of obsessional states: A study of 150 cases. *British Medical Journal*, 1, 194–198.
- Purdon, C., & Clark, D. A. (1993). Obsessive intrusive thoughts in nonclinical subjects. Part I. Content and relation with depressive, anxious and obsessional symptoms. *Behaviour Research and Therapy*, 31, 713–720.
- Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, 16, 233–248.
- Rachman, S. J. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy*, 35, 793–802.
- Rachman, S. J. (1998). A cognitive theory of obsessions: Elaborations. *Behaviour Therapy and Research*, 36, 385–401.
- Rachman, S. J. (2003). *The treatment of obsessions*. Oxford: Oxford University Press.
- Rachman, S. J., & Hodgson, R. J. (1980). *Obsessions and compulsions*. Englewood Cliffs, NJ: Prentice-Hall.
- Radomsky, A. S., Alcolado, G. M., Abramowitz, J., Alonso, P., Belloch, A., Bouvard, M., et al. (2014). You can run but you can't hide: Intrusive thoughts on six continents. *Journal of Obsessive Compulsive and Related Disorders*, 3, 269–279.
- Rasmussen, S. A., & Eisen, J. L. (1998). The epidemiology and clinical features of obsessive compulsive disorder. In: M. A. Jenike, & W. E. Minichiello (Eds.), *Obsessive-compulsive disorders: Practical management* (pp. 12–43). St. Louis: Mosby.
- Rassin, E., Cogle, J. R., & Muris, P. (2007). Content differences between normal and abnormal obsessions. *Behaviour Research and Therapy*, 45, 2800–2803.
- Rassin, E., & Muris, P. (2006). Abnormal and normal obsessions: A reconsideration. *Behaviour Research and Therapy*, 45, 1065–1070.
- RCIF (2007). *The international intrusive thoughts interview schedule, Version 6*. Barcelona, Spain.
- Reuven-Magril, O., Dar, R., & Liberman, N. (2008). Illusion of control and behavioral control attempts in obsessive-compulsive disorder. *Journal of Abnormal Psychology*, 117(2), 334.
- Ruiz, C., Gavino, A., & Godoy, A. (2008). Adaptación española del Inventario de Creencias Obsesivas (OBQ). *Ansiedad y Estrés*, 14, 175–185.
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive-behavioural analysis. *Behaviour Research and Therapy*, 23, 571–583.
- Salkovskis, P. M. (1989a). Cognitive-behavioural factors and the persistence of intrusive thoughts in obsessional problems. *Behaviour Research and Therapy*, 27, 677–682.
- Salkovskis, P. M., & Freeston, M. H. (2001). Obsessions, compulsions, motivation, and responsibility for harm. *Australian Journal of Psychology*, 53, 1–6.
- Salkovskis, P. M., & Harrison, J. (1984). Abnormal and normal obsessions—a replication. *Behaviour Research and Therapy*, 22, 1–4.
- Shams, G., Karamghadiri, N., Esmaili, Y., Ebrahimkhani, N., Yousefi, Y., & McKay, D. (2013). Psychometric properties of the Persian language version of the obsessive beliefs questionnaire (OBQ-44) in Iranian general population. manuscript accepted for publication. *Acta Medica Iranica*
- Taouk, M., Lovibond, P. F., & Laube, R. (2011). *Psychometric properties of a Chinese version of the 21-item depression anxiety stress scales (DASS21)*. Unpublished manuscript, school of psychology, Australia: University of New South Wales.
- Yorulmaz, O., Gençöz, T., & Woody, S. R. (2009). OCD cognitions and symptoms in different cultural and religious contexts. *Journal of Anxiety Disorders*, 23, 401–406.
- Yorulmaz, O., Inozu, M., Sayal, E., Radomsky, A. (2012). *Obsesif Kompulsif Envanteri ve Vancouver Obsesif Kompulsif Envanteri'nin psikometrik özelliklerinin incelenmesi: kültürler arası karşılaştırmalı bir ön çalışma [The psychometric properties of the obsessive-compulsive inventory-revised and Vancouver obsessive-compulsive inventory: A pilot study with a cross-cultural comparison]*. Paper presented at XVII. National Congress of Psychology, Istanbul, Turkey.