Relationship between Types of Obsessional Intrusive Thought and Types of Obsessive Compulsive Symptoms in College Student Group

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Abstract

Until now, it is hard to find a study that explores the differential impacts of detailed contents of intrusive thoughts on the expression of different symptom types of OCD(obsessive compulsive disorder). In the previous author's study, six different factors of intrusive thoughts were found. The purpose of this study was to investigate the possible differential relationship between the types of OCD symptoms and the types of obsessional intrusive thoughts among college students. ROII (Revised Obsessional Intrusion Inventory) and OCI-R (Obsessive Compulsive Inventory-Revised) were performed on ordinary college students, and a correlation matrix between six types of intrusive thoughts and six types of OCD symptoms was obtained. Based on the correlation matrix, significance tests were performed on the difference between the correlation coefficients across six symptom domains. This analysis showed not only logically predictable (ex: significant relationship between washing compulsions and contamination intrusions) but also some unpredictable results. Through the exploratory discussion of these results, the enlightenment of the cognitive model of obsessive-compulsive disorder is proposed.

Keywords: OCD, Symptom, Intrusive Thought, Correlation, Cognitive Model

1. Introduction

Obsessive Compulsive Disorder (OCD) is a psychiatric disorder with obsessions and compulsions as its core symptoms. Obsessions are defined as thoughts, images, or impulses that occur repeatedly and feel outside of the person's control. Compulsions are repetitive ritualistic behaviors or mental acts that a person feels driven to perform in response to such obsessions[1]. Since the 1990s, there have been intensive attentions to the cognitive aspects of OCD that explain this disorder in terms of cognitive process and contents as well as biological attributors. The standard cognitive model of OCD has been proposed by integrating the results

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of several key researches which are focused on these cognitive aspects[2]. The core variables of this model are obsessional intrusive thoughts, cognitive appraisal about these thoughts, and obsessional beliefs that seem to be lurking behind such appraisal. Intrusive thoughts (intrusions) refer to unwanted thoughts that suddenly emerging into consciousness, irrespective of one's intentions. Examples are forbidden or taboo thoughts such as harm or attack others, having terrible accident, doing sex related behaviors, blasphemous or obscene images, being infected with deadly germs. According to this model, though it may be different in frequency, intrusive thought itself is universally experienced not only in patients diagnosed with OCD, but also in normal people. Therefore, intrusive thoughts itself does not cause OCD. Whether or not it develops into OCD depends on how they respond cognitively to those intrusive thoughts. People who developed into OCD cause secondary obsessions and compulsions by involving excessive responsibility, perfectionism and excessive controlling over intrusive thoughts.

Various empirical evidences supporting this cognitive model of OCD have been drawn up and this model is evolving into more sophisticated form now. Although not always consistent, it has been shown that there is a relationship between certain themes of obsessive beliefs and specific OCD symptoms. For example, obsessional beliefs involving responsibility, perfectionism or protestant religiosity were correlated with different OCD symptom dimensions[3][4]. Other study reported that only responsibility and threat related beliefs exhibited significant correlation with overall OCD symptoms[5]. One of the areas to be clarified further is not only the cognitive process but also the detailed contents of cognition and the motivational aspects associated with its contents and how these cognitive and motivational aspects are related to various types of OCD symptoms.

In this context, the purpose of this study is to investigate the relationship between the detailed types of intrusive thoughts and the specific symptom types of OCD. While the latent structure of intrusive thoughts was reported in foreign study as a single factor (two factors for women), six sub-factors were identified in the previous study of this author[6] in which Korean college students were participated. Based on this result, this study seeks to explore whether sub-factors of these intrusive thoughts have a particular relationship with the specific symptoms of OCD. If the cognitive model can be further elaborated by integrating research results related to these topics, it will be possible to distinguish subtypes in diagnosing OCD according to various symptom types, and also expected to be helpful in developing a patient-specific treatment module.

2. Method

2.1 Subject

The questionnaires were performed on 400 college students in G city. In the final analysis, 387 data were used except for the cases where there were many non-responding or certain fixed pattern responding. The gender distribution of the subjects was 144(37.2%) males and 243(62.8%) females, and the mean age of the subjects was 22.93(SD=1.98) and 20.93(SD=1.19) respectively.

2.2 Measurement Tools and Analysis Method

Self-report questionnaires were used to measure intrusive thoughts and OCD symptoms. ROII-K (Korean version of ROII) translated by Lee[7] in Korean language and validated through Korean people from the Purdon and Clark's original version of ROII (Revised Obsessive Intrusions Inventory)[8] was used to measure obsessional intrusive thoughts experienced by normal people. In order to measure OCD symptoms, OCI-R-K which was translated and tested validity and reliability by Lim[9] from Foa et al.'s original short version (OCI-R: Obsessive-Compulsive Inventory-R)[10] was used. The ROII-K consists of 52 items rated on 7-point scale. The reliability coefficient (α) of ROII-K reported by the original authors was .93, and was .96 in this study. OCI-R-K consists of 18 items rated on 5-point scale, and the reliability coefficient (α) reported by Lim[9] was .90, and was .89 in this study.

The result of factor analysis of ROII for general college students in Korea showed that six factors of 'aggression' (AG), 'contamination' (CT), 'checking' (CK), 'sex' (SX), 'accident' (AC), and 'losing control' (LC) were identified[6]. For OCI-R, six factors of washing (W), checking (C), ordering (O), hoarding (H), neutralizing (N), and obsessing (Obs) were reported both by original authors and by Lim[9][10]. In this study, the correlation analysis was performed according to these factors of ROII and OCI-R. Statistical analysis was performed using SPSS(Ver.23) to calculate Pearson's correlation coefficient. Fisher's Z-transformation statistic was used for testing the significance of the difference between the correlation coefficients. Since it was derived from a single (dependent) sample, the statistical significance of difference between the correlation coefficients was tested by the calculation formula proposed by Steiger[11].

3. Results

3.1 Correlation between Types of Intrusions and Types of OCD Symptoms.

The correlation coefficients between six types of OCD symptoms measured by OCI-R-K and six types of intrusive thoughts measured by ROII-K were calculated, and the results are presented in Table 1. The range of all correlation coefficients except correlation with total score was .133 - .441, all of which were statistically significant. The correlation between the total score of OCI-R-K and ROII-K total score was .426, which was moderate intensity in view of the correlation between psychological variables generally reported. In detail, among the six types of

[Table 1] Correlation Coefficients between OCD Symptoms and Intrusions.

(). Z-value

	OCI_C	OCI_H	OCI_N	OCI_Obs	OCI_O	OCI_W	OCI_Sum
INT_AG	.158**	.153**	.217**	.194** (1.340)	.225**	.256**	.267**
INT_CT	.324** (1.976*)	.231** (.319)	.348** (1.877*)	.197** (1.024)	.372** (2.450**)	.441** (3.465**)	.431** (1.974**)
INT_CK	.391** (1.374)	.224** (.461)	.231**	.159** (1.757*)	.250**	.174**	.325**
INT_SX	.133**	.163** (1.646*)	.198**	.213** (.810)	.154**	.161**	.227**
INT_AC	.214**	.249** (.233)	.211**	.255** (.698)	.246**	.261**	.327**
INT_LC	.210**	.238** (.136)	.254** (.421)	.222** (.206)	.231**	.273**	.319**
INT_Sum	.308**	.277**	.328**	.280**	.334**	.372**	.426**

OCI_C: checking, OCI_H: hoarding, OCI_N: neutralizing, OCI_Obs: obsessing, OCI_O: ordering, OCI_W: washing, OCI_Sum: OCI-R-K total score., INT_AG: aggression, INT_CT: contamination, INT_CK: checking, INT_SX: Sex, INT_AC: accident, INT_LC: losing control, INT_Sum: ROII total score.

(): z-value with next higher score within each OCI-R-K six factors.

Numbers with bold type: the correlation coefficient showed significant difference in z-test with next higher correlation coefficient.

*, p<.05, ** p<.01

intrusive thoughts, the highest correlation with OCD symptoms was 'contamination (CT)',

which was ranged from .197 to .441. The next coefficient range was with 'checking (CK)', which was .174-.391. The range of correlation coefficients with 'accident (AC)' and 'losing control (LC)', although not very high, showed an equal degree with six type of OCD symptoms. But 'sex (SX)' generally showed the lowest correlation of .133-.213 range.

3.2 Differences in Correlation Coefficients with Intrusion Types by OCD Symptom Types.

For each of the six OCD symptoms measured by OCI-R-K, the significance of the difference between the correlation coefficients of six intrusive thoughts measured by ROII-K was tested using Z-value (The Z-values are presented in parentheses in Table 1 and are presented only until there is a significant difference between the types of intrusive thoughts that showed the highest correlation coefficient for each of the OCI-R-K symptom types and the next highest correlation coefficient).

First, the type of intrusive thoughts that showed the highest correlation with 'checking (C)' OCD symptom was 'checking (CK)', $r=.391$, $p<.01$. And the 'contamination (CT)' intrusions showed next highest correlation with 'checking (C)' symptoms. All the other types of intrusive thoughts were significantly different from these two factors. These results showed that the types of intrusive thoughts most relevant to all categories of OCD symptoms are 'checking (CK)' and 'contamination (CT)'.

There was a significant correlation between 'hoarding(H)' symptoms and 'accident (AC)', 'losing control (LC)', 'checking (CK)', 'contamination (CT)' intrusive thoughts, but not with 'aggression (AG)'. This suggests that there is no strong correlation among the six types of intrusive thoughts in terms of 'hoarding' symptoms, and that the 'aggression' intrusion is located most remotely from 'hoarding' symptoms.

The type of intrusive thoughts that showed the highest correlation with 'neutralization (N)' OCD symptoms was 'contamination (CT)', which showed significant difference with the next highest correlation of 'losing control (LC)'. This suggests that only the intrusive thought related to 'contamination' is significantly related to the symptoms related with 'neutralization'.

The highest correlation with 'obsessing (Obs)' symptoms was 'accident (AC)' related intrusive thoughts, but there were no significant difference between 'obsessing' and the next highest intrusive thought. With 'obsessing (Obs)' symptom, only 'checking' intrusive thoughts showed significant difference from all other types of intrusive thoughts. These results showed that, except for 'accident' related intrusions, there appears to be no remarkable relationship with 'obsessing' symptoms.

The type of intrusive thoughts that showed the highest correlation with the 'ordering (O)' symptoms was only 'contamination (C)', and there were significant difference from the next highest correlation of 'checking (CK)' intrusive thought. This was unexpected result, but considering the universal strong relation of 'contamination' intrusions with most types of OCD symptoms, the clean/dirty or infection related intrusive thoughts appear to be an indiscriminate strong cognitive variable.

Finally, the type of intrusive thoughts that showed the highest correlation with the 'washing (W)' symptoms was 'contamination', which was the highest correlation ($r=.441$) of all the other types of intrusions. This was a logically predictable outcome, which was most clearly associated with the contamination-related OCD symptoms, and it was once again confirmed that intrusions related to 'contamination' is a cognitive variable that is involved in the process of inducing more wide range of OCD symptoms.

4. Discussion

At present, the diagnostic criteria for OCD are defined only by the core symptoms (obsessions and compulsions), without describing or classifying subtypes according to symptom details, cognitive process or contents. However, even if diagnosed with the same OCD, the type of detailed symptoms varies widely for each person. For example, the Yale-Brown Obsessive Scale (Y-BOCS), which is the semi-structured interview tool most frequently used by clinicians in the diagnosis process, the type of obsessive symptoms is classified into eight categories and the contents of each category are diverse. There are also cognitive factors that seem to contribute to the development of OCD symptoms. Some examples of such factors are obsessional beliefs as a higher dimensional cognitive factor, intrusive thought and coping strategies as a determining factor in the process of forming more specific type of symptoms. Based on the assumption that the types of OCD symptoms can be determined according to the different types of intrusive thoughts, the author performed a statistical analysis to see what particular patterns might occur in the correlation matrix. According to cognitive model of OCD, since the intrusive thoughts are trigger factor of OCD, it is meaningful to know whether the expression of OCD can be determined from the initial stage. Though some unexpected results are drawn from the correlational analysis, some differential relationships between the types of intrusions and symptoms were appeared. The main results and implications of this study are summarized as follows.

First, 'checking' and 'washing' symptoms, which are known to be the most frequent occurrences in the clinical settings, showed dominant correlation with 'checking' and 'contamination'-related intrusive thoughts. This is a predictable result in that, according to the cognitive model, OCD symptoms are understood as the result of evaluation and interpretation about the intrusive thoughts. However, while the 'washing' OCD symptoms showed a marked correlation with a logically related intrusions of 'contamination', the 'checking' OCD symptoms showed equally conspicuous correlation with the intrusion of 'contamination' as well as 'checking'. But the 'washing' OCD symptoms had a significantly lower correlation with the 'checking'-related intrusions. These results are difficult to explain logically and require refinement of existing cognitive model through subsequent studies. One possibility is that the 'checking' symptoms may belong to a higher level of symptom dimension that includes the symptoms of both 'washing' and 'checking', but 'washing' symptoms may be located in the more narrow and specific symptom area. So it is necessary to establish the hypothesis of symptom hierarchy for more specific explanation about the interrelationship between OCD symptoms and intrusive thoughts.

In view of the above results, another related result must be explained in this context. 'Washing' symptoms correlated more strongly with 'accident', 'losing control', and 'aggression' than 'checking'-related intrusive thoughts. This was another result difficult to explain. Logically, the relationship between these variables cannot be found easily, but searching for the psychological meanings of these variables may reveal hidden relevance. In other words, it has been argued that 'washing' or 'cleaning'-related OCD symptoms, which seem to be formed for the purpose of maintaining cleanliness and preventing infection, may be directly related not only to physical contamination but also indirectly to 'mental contamination' in the moral level[12].

It is also difficult to explain logically that 'ordering' and 'neutralization' OCD symptoms have the highest correlation with 'contamination'-related intrusive thoughts. The behavior of organizing things and environment is related to perfectionism or self-control desire, and it is logically more directly related to the desire of 'losing control'-related intrusive thoughts. One possible explanation, as shown in the correlation matrix in this study, would be understood with the widespread correlation of 'contamination'-related intrusions with various types of OCD symptoms, not one particular one.

On the other hand 'obsessing' OCD symptoms did not show strong correlation with any particular intrusive thoughts. This can be understood to some extent that this symptom itself is a widespread problem that is difficult to relate to a specific type of intrusive thoughts. But, in

this study, the 'hoarding'-related symptoms also showed similar pattern. Hoarding is not officially included in the current diagnostic criteria for OCD diagnosis. Considering the fact that there are also heterogeneous features that distinguish 'hoarding' symptoms from general OCD symptoms on onset or symptom pattern, it is necessary to search for the unique cognitive processes characteristic of 'hoarding' symptoms in the future.

Finally, intrusive thoughts related to 'sex' showed the lowest correlation with all types of OCD symptoms among the six types of intrusive thoughts. This may be related to another result that the intrusions of 'aggression' showed similar pattern. Both results can be explained in the context of moral factors. In other words, intrusive thoughts related to 'sex' or 'aggression' are all factors that conflict with moral standards. Therefore, there is a possibility that through the self-reporting type questionnaire, the respondents could not report it exactly as they experience those thoughts in daily life, or that they could not detect their inner experience of conflictual area because of repression defense mechanism. This is an unavoidable fundamental issue when measuring internal cognitive processes such as conflicting intrusive thoughts, using self-report questionnaire. Therefore, it is necessary to explore the detailed content of cognitive processes through various detecting method including experimental study design in the future.

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