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The usefulness of the thought suppression paradigm
in explaining impulsivity and aggression

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Acknowledgement: This study was sponsored by the Netherlands Organization for Scientific Research (NWO).

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Abstract

This study investigated (1) the usefulness of the thought suppression paradigm in understanding impulsivity and aggression and (2) the relation between intrusions, suppression and other control strategies on the one hand, and psychopathology on the other. Ninety undergraduate students filled in the White Bear Suppression Inventory (WBSI), the Thought Control Questionnaire (TCQ), the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), five traits from the Eysenck Personality Profiler (EPP), and the Barratt Impulsivity Scale (BIS). No relationship between intrusion and suppression, and impulsivity was found. However, significant correlations between intrusion and aggression were found. Intrusion, suppression, self-punishment, and psychopathology were all correlated positively. Implications of these findings for the dynamics between intrusion, thought control, and aggression are discussed.

KEYWORDS: intrusive thoughts, suppression, impulsivity, aggression, & psychopathology.

The usefulness of the thought suppression paradigm in explaining impulsivity and aggression.

The young Tolstoy, or so the story goes, was standing in the corner of a room, after his brother had challenged him to stand there until he could stop thinking of white bears (Wegner, 1989). This left him standing there, puzzled, for a considerable amount of time. From this we may conclude that we do not seem to have much control over our minds, especially when it comes to controlling thoughts that are unwanted. The experience of unwanted, so-called intrusive thoughts is a phenomenon found in both clinical and normal populations (e.g. Rachman & de Silva, 1978; Wells & Morrison, 1994). Over 80% of the individuals in the general population experience intrusions. ‘Normal’ intrusions include thinking of cigarettes when one just quit smoking, the death of a loved one, an upcoming medical appointment, and so on. Examples of pathological intrusions are obsessions, addictions, and thought patterns characteristic of depression and panic-states (see Wegner, 1989). Pathological intrusive thoughts have been described as being more frequent, more intense, longer lasting, to produce more discomfort and to invoke more resistance (Rachman & de Silva, 1978; Salkovskis & Harrison, 1984).

What causes the transformation of normal unwanted thoughts into pathological ones?

Wegner (1989) argued that trying not to think about an unwanted thought, that is thought suppression, is exactly the mechanism underlying the thought becoming more intrusive (also, for a competing psycho-biological model on the transformation of normal into pathological intrusions involving serotonin, see Katz, 1991). Wegner, Schneider, Carter, and White’s (1987) ‘white-bear’ experiment sought to investigate this hypothesis. In this experiment, participants in the initial suppression condition were instructed to suppress thoughts of white bears for five minutes and express these thoughts in a second period of five minutes. For participants in the initial expression condition, this order was reversed. All participants were unable to suppress thoughts of white bears when instructed to do so, which was indicated by a mean frequency of almost seven white bear thoughts during the suppression period. Moreover, white bear thoughts were more frequent after

initial suppression instructions compared to initial expression instructions. This effect was named the rebound effect: an increase in thoughts (about a white bear) after first having suppressed this thought (Wegner et al., 1987).

This research became known as the thought suppression paradigm and was originally proposed as an explanatory model of the persistent nature of obsessions found in Obsessive-Compulsive Disorder (OCD; American Psychiatric Association, 1994). Hence, most contemporary experimental psychologists know the thought suppression paradigm as a model of intrusions in OCD. Since then, research on intrusive thoughts has expanded and has involved many different independent variables, included some clinical samples, has included variables such as emotional valence and personal relevance of the target thought and so on (for a meta-analysis, see Abramowitz, Tolin, & Street, 2001). However, intrusions and thought suppression may be even broader concepts than already anticipated and may be worth investigating further. For instance, Abramowitz et al. (2001) suggest that individual differences in psychopathology, which was not included in their meta-analysis, might be a factor contributing significantly to suppression effects. Also, intrusive thoughts may have legal consequences: when intrusive thoughts become violent in nature, these thoughts might lead to aggression and dangerous situations. Thinking about smoking a cigarette can be harmful to one's health, however, repeatedly thinking about killing your neighbour is an intrusive thought of a completely different level. One might think that violent intrusive thoughts or intrusive thoughts leading to violence would have been given much attention in psychological research. However, this is not the case. A literature search (using PsycInfo) into violence and intrusive thoughts led to a very small body of literature. The literature that was found mostly dealt with intrusive thoughts as a symptom of the victim's trauma, not with intrusions as characteristics of the offender (e.g. McDevitt, Balboni, Garcia, & Gu, 2001; Mitchell & Hogg, 1997). In one relevant study (Grisso, Davis, Vesselinov, Appelbaum, & Monahan, 2000) violent thoughts were significantly related to violent acts and to measures of psychopathy, anger, and

impulsiveness; problems that form major threats to society and often lead to aggressive and criminal behaviour. Transferring insights from the thought suppression paradigm, one would expect suppression of (violent) intrusive thoughts to lead to an increase in the frequency of these thoughts, followed by a strengthening of and possibly compliance with the intrusion. Indeed, results from Grisso et al. (2000) suggest that violent behaviour as a response to violent intrusions could be seen as impulsive violence, which is defined as violence as the result of lack of inhibition. A social-cognitive model of aggression by Huesmann (1998; as cited in Grisso et al., 2000) offers a theoretical model for a connection between imagined violence and violent behaviour. In this model, assumptions from social information processing theories are used to explain violent behaviour following imagination. Frequently imagined violence is considered as an elaborate rehearsal that reinforces cognitive schemata or memories through which a person evaluates social situations. Each individual creates schemata based on personal experience, which serves two goals: (1) to attribute meaning to events and (2) to guide the choice of an appropriate response. Repetitive violent thoughts are hypothesized to activate aggressive schemata, which makes them more readily available, thus increasing the likelihood of reactivating aggressive scripts in later situations. Huesmann's model shows some similarities with the "ironic process" theory proposed by Wegner and Erber (1992). In both models the hyper-accessibility of intrusive thoughts is a central feature, although they differ in the process underlying this hyper-accessibility.

In conducting our study we returned to the original paradigm by Wegner, investigating emotionally neutral thoughts. The rationale behind this is twofold. First, in Abramowitz et al.'s meta-analysis (2001) covering 28 studies into paradoxical effects of thought suppression, no differences in effect size -for neither an initial enhancement effect nor a rebound effect- for neither personal relevance nor valence of the target thought were found. Thus, participants did not differ in suppression attempts of emotionally neutral versus emotionally negative thoughts nor in suppression attempts for thoughts about personal events (e.g. the death of a loved one) versus

thoughts without an emotional component (e.g. white bears). Following this finding, the authors suggest that selection of the target thought should depend on the investigator's goals, in which a factorial design would be the ideal experimental set up (Abramowitz et al., 2001). Second, since the current research was the first to explore the relation between intrusion, suppression, aggression and impulsivity, we considered it best to use well-known and validated instruments to assess these variables rather than work with new or adjusted instruments.

In summary, we argue that the thought suppression paradigm could possibly serve as an explanatory model of impulsivity and aggression and that, first of all, exploratory psychological research is called for. Especially since impulsivity and aggression are such major societal problems. We wanted to follow up on Grisso et al. (2000) and explore which, if any, aspects of impulsivity would be linked to intrusive thoughts. Our second goal was to examine the relation between intrusions, suppression and other control strategies on the one hand and psychopathology on the other, following recommendations by Abramowitz et al. (2001).

Method

Participants

Participants ($N=90$) were students enrolled at the Erasmus University Rotterdam, The Netherlands. For participating in this study, participants received course credits or a small financial compensation. Sixty-one participants were female (67.8%), 26 male (28.9%) and 3 failed to provide data on their gender (3.3%). Most were psychology students ($n=72$; 80%), some studied medicine ($n=8$; 8.9%) and ten studied something else (11.1%).

Procedure

Participants were recruited by a notice presented on the message board at the university. The message read: "Students wanted to participate in a questionnaire survey about, among other things, impulsivity". No further explanation about the purpose of the study was given. Since participants did not know the rationale behind the study, we did not expect contamination due to order of

presentation of the questionnaires. Further, no consequences were attached to participating and it was made clear that the data would be analysed anonymously. Therefore, the questionnaires were presented in the same randomly chosen order for all participants. We presented the Barratt Impulsivity Scale first, followed by the Minnesota Multiphasic Personality Inventory-2, the Eysenck Personality Profiler, the White Bear Suppression Inventory and the Thought Control Questionnaire.

Measures.

Intrusion and suppression. The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994; Dutch translation by Muris, Merckelbach, & Horselenberg, 1996) is a 15-item self-report instrument originally developed to assess the tendency to suppress unwanted thoughts. A typical WBSI-item is “I always try to put problems out of mind”. Items are answered on a 5-point scale (1 = strongly disagree; 5 = strongly agree). Total scores (range: 15 to 75) are obtained by summing across items. Higher scores indicate stronger tendencies to suppress unwanted thoughts. Although originally intended to assess only thought suppression, recent factor analyses (Blumberg, 2000; Höping & de Jong-Meyer, 2003; Rassin, 2003) suggest that the WBSI is best described by a two-factor structure, separating “Thought Suppression” from “Unwanted Intrusive Thoughts”. The intrusion factor deals with the mere occurrence of unwanted thoughts and includes items like “There are images that come to mind that I cannot erase”. The two-factor scores, in addition to WBSI total scores will be used in this study.

The Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989; Dutch translation by Sloore, Derksen, Hellenbosch, & de Mey, 1993) is a standardized personality questionnaire that consists of 567 yes/no statements. The self-descriptions give a quantitative measurement of an individual’s level of psychological adjustment, and attitude towards test taking (Friedman, Lewak, Nichols, & Webb, 2001). We included two MMPI-2 content scales as alternative measures (cross-validation) of intrusive thoughts, that is Obsessiveness (OBS) and Bizarre mentation (BIZ). These scales are categorized in the section

“internal symptomatic behaviour”. OBS measures mostly indecision. People scoring high on this trait are characterized by an overly active but inefficient cognitive activity. Low scores suggest the opposite: people who make decisions with self-confidence and efficacy. High BIZ characterizes people with psychotic thought processes and hallucinations. Also, impaired insight and a grandiose sense of self are common features of people scoring high on this scale. People scoring low on this variable do not report having these tendencies (Friedman et al., 2001). We chose to exclude the profiles with VRIN and/or TRIN ≥ 80 and/or F ≥ 100 because these represent unacceptable response inconsistencies (Sloore et al., 1993). One protocol met these conditions, therefore all analyses including MMPI-2 scores relate to $n = 89$.

The Eysenck Personality Profiler (EPP; Eysenck, Wilson, & Jackson, 1996; Dutch translation by Muris, Schmidt, Merckelbach, & Rassin, 2000) assesses 21 primary personality traits each consisting of 20 items to be answered with yes, no or cannot decide. A total score for each trait is calculated separately (range 0 to 40). Each trait loads on one of three higher personality factors, namely Psychoticism, Extraversion and Neuroticism. Besides these traits, the EPP also includes a Lie scale. Five traits, all loading on Psychoticism, were presented to the participants. One trait, that is Obsessiveness, was included as a concurrent measure of intrusive thoughts. High scorers are (too) careful, conscientious and have a high need for order, routine and ritual. An example is: “Are you always careful to pay back even the most trivial debt?”

The Thought Control Questionnaire (TCQ; Wells & Davies, 1994) was designed to assess individual differences in the use of thought control strategies. The TCQ is a self-report instrument containing 30 items answered on a 4-point scale (1 = never; 4 = almost always). The TCQ taps five strategies of mental control: Distraction (e.g. “When I experience an unpleasant/unwanted thought, I do something I enjoy”), Social coping (e.g. “... I talk to a friend about the thought”), Worrying (e.g. “... I focus on different negative thoughts”), Punishment (e.g. “... I slap or pinch myself to stop the thought”), and Re-appraisal (e.g. “... I try to re-interpret the thought”). Each strategy

(range from 6 to 24) measures the tendency to use this strategy in controlling unwanted intrusive thoughts. Total scores are not used.

Impulsivity. Despite the fact that many psychological theories and personality systems consider “Impulsivity” a major aspect of human psychology, the concept is not defined uniformly and equivocally. This is illustrated by difficulties in clinical practice where clinicians often have problems finding the exact behavioural dimensions on which to rate their patients’ impulsivity. Also, in research areas validity issues arise when a construct is not defined clearly. Whiteside and Lynam (2001) argue that impulsivity should be seen as an “artificial umbrella term” (p. 687), describing distinctly different facets of psychological processes leading to impulsive behaviour. In accordance with Whiteside and Lynam (2001), we chose to use several measures of impulsivity in an effort to explore which, if any, psychological processes of impulsivity were connected to measures of intrusive thoughts.

The Barratt Impulsivity Scale (BIS; Barratt, 1994) is 30-item self-report inventory, to be answered on a 4-point scale (Rarely/Never, Occasionally, Often, Almost Always/Always). The BIS assesses impulsivity in three domains: an ideomotor subtrait (e.g. “I do things without thinking”), a careful planning subtrait (e.g. “I act on the spur of the moment”), and a future-oriented coping stability subtrait (e.g. “I get easily bored when solving thought problems”). A high score on one of the subdomains suggests a tendency to be impulsive in the specified domain. Total scores range from 30 to 120.

From the MMPI-2 (Sloore et al., 1993) the clinical scale Hypomania (Ma, scale 9) was used. Ma is related to energy level, irritability and egotism. High scorers’ activities may become fragmented and scattered due to very high energy levels (Friedman et al., 2001).

From the EPP (Eysenck et al., 1996) three traits measuring impulsivity were included. (1) Risk-taking: high scores indicate a tendency to live dangerously and to seek rewards with little concern for the possibility of adverse consequences. These people can be characterized as gamblers

who believe that excitement adds spice to life. A typical item is: “Do you quite enjoy taking risks?” (2) Impulsiveness: high scorers are inclined to act on the spur of the moment, make hurried, often premature decisions and are usually carefree, changeable and unpredictable. A typical item is: “Do you mostly speak before thinking things out?” (3) Sensation-seeking: high scorers are seeking thrills in life, have an insatiable thirst for novel experiences and require excitement and adventure to keep boredom away. A typical item is: “Would you like to try parachute jumping?”

Aggression. The subtrait “Aggression” of the EPP (Eysenck, et al., 1996) was used. This trait loads on the Psychoticism personality factor. High scorers are prone to express aggression directly as well as indirectly through behaviour such as temper tantrums, fighting, violent arguments and sarcasm. An example is: “Would you hesitate to shoot a burglar who was escaping with some of your property?”

The clinical scale Psychopathic deviate (Pd, scale 4) and the content scale Anti-Social Practices (ASP) of the MMPI-2 (Butcher et al., 1989) were used. Pd relates to the level of an individual’s social adjustment, the (lack of) behavioural control, impulsivity, hostility and aggressive behaviour. Individuals scoring high on Pd are more inclined to act out. ASP is categorized in “external aggressive tendencies” (Groth Marnat, 1997) and provides -among others- an indication of prior criminal activities (Butcher et al., 1989).

Psychopathology. As measures of psychopathology, we used the clinical main scales of the MMPI-2. We followed the widely used standard of a K-corrected T-score of ≥ 65 as representing clinical elevations (Sloore et al., 1993).

Results

Intrusive thoughts, thought suppression, impulsivity and aggression

We calculated correlations between the traditional measure of intrusions and suppression (WBSI) and concurrent measures of intrusive thoughts (MMPI-2 OBS & BIZ, and EPP Obsessiveness) and found strong relationships between the WBSI scores and both OBS and BIZ

(range: $r = .42$ to $.52$; $p < .004$). Correlations between WBSI scores and EPP Obsessiveness did not reach significance, although a trend was found ($r = .24$ to $.27$; $p < .02$). Second, we calculated correlations between measures of intrusions and suppression and measures of impulsivity and aggression. Results are presented in Table 1.

INSERT TABLE 1 ABOUT HERE

Surprisingly, as can be seen in Table 1, neither intrusive thoughts nor thought suppression were related to any of the impulsivity measures. Significant correlations between WBSI total scores and two of the three aggression measures, namely EPP aggression and MMPI-2 Psychopathic deviate were found ($r = .37$ and $r = .34$ respectively; $p < .004$). A non-significant trend was found for WBSI total scores and MMPI-2 AntiSocial Practices. Interestingly, when examining these correlations further, we found that mostly WBSI items measuring intrusion were related to aggression.

Intrusive thoughts, coping mechanisms and psychopathology.

Next, we calculated correlations between measures of intrusive thoughts and coping strategies. WBSI total scores were correlated significantly with TCQ-Punishment ($r = .30$; $p < .004$). When examining this correlation further, it was found that mostly items measuring intrusion were related significantly to Punishment ($r = .27$; $p < .004$), although for suppression, a non-significant trend was found ($r = .26$; $p = .013$). WBSI suppression items were related to the coping style Distraction ($r = .30$; $p < .004$). Non-significant negative trends between WBSI total, intrusion and suppression and Social coping were found. All correlations between WBSI and TCQ measures are presented in Table 2.

INSERT TABLE 2 ABOUT HERE

To analyse the association between intrusive thoughts and psychopathology, participants were divided in two groups based on scores on MMPI-2 clinical main scales, with a cut-off point at 65. The strongest relations were found for the WBSI intrusion factor, indicated by significantly higher mean scores for participants scoring ≥ 65 on the Depression, Psychopathic Deviate, Paranoia and Psychasthenia scales. WBSI total scores were significantly higher for participants scoring ≥ 65 on Psychopathic deviate and Psychasthenia, and WBSI suppression scores were significantly higher for participants scoring ≥ 65 on Psychopathic deviate. Results are presented in Table 3. Significant t 's indicated that participants scoring ≥ 65 on the MMPI-2 scale, scored higher on the WBSI.

INSERT TABLE 3 ABOUT HERE

Finally, as part of secondary analyses, we examined the usefulness of strategies to cope with intrusive thoughts by correlating TCQ coping styles with MMPI-2 psychopathology. As can be seen in Table 4, only the use of Punishment was significantly correlated with more psychopathology; more specifically, with Depression, Psychopathic deviate, Paranoia, Psychasthenia, and Schizophrenia. Several non-significant trends were found for the other coping styles. Results are presented in Table 4.

INSERT TABLE 4 ABOUT HERE

Discussion

The present study was the first in examining the relation between intrusive thoughts and thought suppression on the one hand and behavioural disinhibition (impulsivity and aggression) on the other. Intrusive thoughts and thought suppression were significantly related to most measures of

aggression but not to measures of impulsivity. Hence, the thought suppression paradigm might be useful in explaining (aspects of) aggression.

Wegner and Erber's ironic process model (1992) can be used to explain this link. The mechanisms used to suppress an intrusive thought instead illicit it. These two mechanisms are the "controlled distractor search", which is a search for a distracting thought to replace the target thought, and the "automatic target search", a search for failures in suppression. As a person tries to search his mind for other thoughts, the target thought will pass once in a while as well. These failures are detected by the automatic target search and instead of suppression more target thoughts are evoked. The social-cognitive model by Huesmann (1998) offers an alternative explanation. In Huesmann's model, frequently imagined violence leads to activation of cognitive schemata involving aggression that in turn lead to more aggression.

Contradictory to our hypotheses and to findings by Grisso et al. (2000), we did not find a connection between intrusive thoughts and any of the different facets of impulsivity that we measured. One explanation could be that people who think about something extensively, that is, people who experience many intrusive thoughts, will not be likely to score high on cognitive measures of impulsivity. However, this does not explain why other facets of impulsivity were not significantly related to intrusive thoughts.

The fact that we found a relation between intrusion and aggression but not between intrusion and impulsivity, might indicate a relation with a specific type of aggression not involving impulsivity, namely premeditated aggression. Aggression can be defined in many different ways, one of which distinguishes between impulsive and premeditated aggression. Impulsive aggression involves "spur of the moment" aggression whereas premeditated aggression involves thinking before acting. In a study examining these two types of aggression in 216 college students, impulsive aggression and premeditated aggression appeared as two independent constructs (Barratt, Stanford, Dowdy, Liebman, & Kent, 1999).

Analyses of the relation between intrusive thoughts, thought suppression, and psychopathology resulted in significant differences between participants scoring ≥ 65 compared to those scoring < 65 on the MMPI-2 main scales Depression, Psychopathic Deviate, Paranoia and Psychasthenia. It seems that people with hostile, aggressive behaviour and a lack of behavioural control (Pd) are specifically vulnerable for experiencing both intrusion and suppression (as indicated by significant correlations with WBSI total scores, intrusion and suppression). Further, people who have a tendency to be paranoid and suspicious (Pa), people with obsessive-compulsive tendencies (Pt) and people with depressive mood state (D) score higher on the intrusion factor. People with obsessive-compulsive tendencies (Pt) also score higher on WBSI total scores. In this manner, it seems useful to follow Abramowitz et al.'s (2001) recommendation of taking into account individual differences in pre-existing psychopathology when examining intrusion and suppression.

The experience of intrusive thoughts was associated with a more frequent use of punishment as a control strategy. However, punishment does not appear to be a very useful control strategy. This is illustrated by our finding that punishment was correlated with several types of psychopathology, indicating that people who use punishment as a coping strategy have more emotional problems. Punishment has been found to correlate with psychopathology in several other recent studies as well (e.g. Amir, Cashman & Foa, 2002; McKay & Greisberg, 2002; Reynold & Wells, 1999). However, at present the exact nature of the relation is not known. Identifying control strategies associated with effective versus maladaptive psychological adjustment might help in understanding the way intrusive thoughts become pathological. Also, several treatment approaches for dealing with intrusive thoughts may be useful whereas others may not (Wells & Davies, 1994).

A number of shortcomings to this study can be identified. First, our study relied solely on self-report measures. This might have led to reporter bias due to participants' tendency to present themselves in a positive manner. However, for the students participating in this study there were no

consequences attached to the information given, moreover, students knew all data would be analysed anonymously. Also, two out of three aggression scores were taken from the MMPI-2, an instrument that corrects for deceptive response styles (Butcher et al., 1989). Only one person was identified as trying to present himself favourably, and was excluded from the analyses, indicating that in our study participants did not try to present themselves in a socially desirable manner.

Second, the relation between intrusion and suppression on the one hand and aggression on the other, was found in a student and largely female sample. It is commonly accepted that women compared to men are less aggressive, especially when physical aggression is the criterion (Geen, 2001). Therefore, aggression will have been only moderately present in our sample. This makes generalisation of the results difficult. However, it could be argued that this makes the results even stronger: if the connection can be found in a modestly aggressive population one can expect an even stronger relation in a population known for its aggressive behaviour. Still, caution is warranted in generalising the results and an important expansion of our research could be to study the phenomenon in a truly disinhibited population.

Third, this research dealt with intrusive thoughts of which the content or emotional valence was not known. A second expansion of this study could be directed specifically at violent intrusive thoughts. It is possible that different results will be found. However, as a preliminary investigation of the phenomena, we felt that the use of existing scales on suppression was appropriate. A study measuring aggressive violent thoughts is currently being set up at our institute.

In conclusion, the present findings are in line with previous research suggesting a link between thought suppression and certain types of psychopathology. Moreover, the findings suggest a link between intrusion, suppression, and aggression, and it seems important to investigate this relation further.

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Table 1. Pearson Correlations between Intrusive Thoughts, Impulsivity and Aggression

	WBSI total	WBSI intrusion	WBSI suppression
<u>Concurrent validity</u>			
MMPI-2 OBS	.51*	.50*	.42*
MMPI-2 BIZ	.52*	.52*	.42*
EPP Obsessiveness	.27	.24	.26
<u>Impulsivity</u>			
BIS total	.19	.17	.17
BIS ideo-motor	.24	.24	.19
BIS careful planning	.09	.10	.07
BIS future oriented	.14	.10	.15
EPP risk-taking	.11	.10	.07
EPP impulsiveness	.16	.16	.12
EPP sensation-seeking	.19	.16	.16
MMPI-2 Ma	.24	.23	.20
<u>Aggression</u>			
EPP aggression	.37*	.39*	.28
MMPI-2 Pd	.34*	.35*	.26
MMPI-2 ASP	.24	.23	.21

Note: WBSI = White Bear Suppression Inventory; EPP = Eysenck Personality Profiler; MMPI-2 = Minnesota Multiphasic Personality Inventory, second edition: OBS = Obsessiveness, BIZ = bizarre mentation, Ma = Hypomania, ASP = Antisocial practices, & Pd = Psychopathic deviate; BIS = Barratt Impulsivity Scale.

A Bonferroni correction was applied to adjust for the number of correlations that were performed.

The alpha (.05) was divided by 14. Correlations were considered significant when $p < .004$, as indicated by *.

Table 2. Pearson Correlations between Intrusive Thoughts and Coping Mechanisms (N = 90)

	WBSI total	WBSI intrusion	WBSI suppression
TCQ distraction	.24	.16	.30*
TCQ social	-.21	-.23	-.14
TCQ worry	.14	.15	.08
TCQ punishment	.30*	.27*	.26
TCQ re-appraisal	.04	.08	-.05

Note. WBSI = White Bear Suppression Inventory; TCQ= Thought Control Questionnaire.

A Bonferroni correction was applied to adjust for the number of correlations that were performed.

The alpha (.05) was divided by five. Correlations were considered significant when $p < .01$, as indicated by *.

Table 3. Independent Sample t Tests between MMPI-2 Clinical Scales and WBSI (t(87))

	WBSI total	WBSI intrusion	WBSI suppression
MMPI Hs ¹	.99	1.47	.92
MMPI D ¹	2.78	3.03*	1.92
MMPI Hy ¹	1.74	1.96	1.08
MMPI Pd	4.54*	4.25*	3.94*
MMPI Mf ¹	.46	.14	.75
MMPI Pa	2.75	3.39*	1.36
MMPI Pt	4.08*	4.42*	2.79
MMPI Sc	1.98	2.23	1.23
MMPI Ma	.94	.81	.81
MMPI Si ¹	1.13	.96	1.13

Note. MMPI= Minnesota Multiphasic Personality Inventory-2; MMPI Hs = hypochondriasis; MMPI D = depression, MMPI Hy = hysteria, MMPI Pd =psychopathic deviate, MMPI Mf = masculinity-femininity, MMPI Pa = paranoia, MMPI Pt = psychasthenia, MMPI Sc = schizophrenia, MMPI Ma = hypomania, MMPI Si = social introversion.

A Bonferroni correction was applied to adjust for the number of analyses that were performed. The alpha (.05) was divided by ten. T values were considered significant when $p < .005$, as indicated by *.

¹ The number of participants scoring ≥ 65 on these scales was $n < 12$, therefore, caution should be taken when interpreting these results.

Table 4. Pearson Correlations between Coping Mechanisms and Psychopathology (N=89)

	TCQ Distraction	TCQ Social	TCQ Worry	TCQ Punishment	TCQ Re-appraisal
MMPI 1	.04	.06	.16	.26	.17
MMPI 2	.04	.04	.17	.34*	.23
MMPI 3	.01	.23	.11	.22	.16
MMPI 4	.09	.12	.07	.32*	.16
MMPI 5	-.04	-.04	-.06	-.05	.05
MMPI 6	.09	.09	.28	.38*	.11
MMPI 7	.03	.23	.24	.47*	.20
MMPI 8	.16	.16	.24	.40*	.19
MMPI 9	.27	-.07	.12	.22	.15
MMPI 0	.05	-.12	.13	.12	.10

Note. MMPI= Minnesota Multiphasic Personality Inventory-2; MMPI 1 = hypochondriasis; MMPI 2 = depression, MMPI 3=hysteria, MMPI 4 =psychopathic deviate, MMPI 5 = masculinity-femininity, MMPI 6 = paranoia, MMPI 7 = psychasthenia, MMPI 8 = schizophrenia, MMPI 9 = hypomania, MMPI 0 = social introversion. TCQ= Thought Control Questionnaire.

A Bonferroni correction was applied to adjust for the number of correlations that were performed.

The alpha (.05) was divided by ten resulting in an alpha of .005. Correlations were considered significant when $p < .005$, as indicated by *.