

Are unwanted mental intrusions a transdiagnostic variable?

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Abstract

Introduction: Unwanted mental intrusions (UMI) constitute the normal variants of obsessions in Obsessive-Compulsive Disorder (OCD), preoccupations about defects in Body Dysmorphic Disorder (BDD), images about illness in Hypochondriasis (HYP), and thoughts about eating in Eating Disorders (EDs). We sought to investigate the relationships between frequency and discomfort associated with the experience of the four UMI contents, adopting a within-subject perspective.

Method: A group of 438 university students and community participants (Mage= 29.84, SD= 11.41; 70.54% women), completed the Questionnaire of Unpleasant Intrusive Thoughts to assess the frequency and discomfort of four UMI contents related to OCD, BDD, HYP and EDs. **Results:** Just over 76% of participants reported having experienced the four sets of intrusions. The ED-related were the most frequent but the least disturbing, whereas HYP intrusions were the least frequent but the most disturbing. The four UMI were significantly related to each other, both in frequency and discomfort. Women experienced OCD, BDD, and ED-related intrusions more frequently than men. Age was negatively associated with the frequency and distress of the four UMIs. **Conclusions:** UMIs might be a transdiagnostic variable across different disorders such as OCD, BDD, EDs, and Hypochondriasis, and they might contribute to explaining the phenomenological similarities among them.

Keywords: Mental intrusions, transdiagnostic, obsessive-compulsive disorder, body dysmorphic disorder, hypochondriasis, eating disorders.

Resumen

¿Son las intrusiones mentales no deseadas una variable transdiagnóstica?

Antecedentes: las intrusiones mentales (IM) constituyen la variante normativa de las obsesiones en el Trastorno Obsesivo-Compulsivo (TOC), las preocupaciones sobre defectos en el Trastorno Dismórfico Corporal (TDC), las imágenes sobre enfermedad en Hipocondría (TH), y pensamientos sobre alimentación en los Trastornos Alimentarios (TA). Nuestro objetivo es explorar, a nivel intra-sujeto, las relaciones entre la frecuencia y la molestia asociadas a las cuatro modalidades de IM. **Método:** 438 participantes (Medad= 29.84, DT= 11.41; 70,54% mujeres) completaron el Inventario de Pensamientos Intrusos Desagradables (INPIDES), que evalúa la presencia y molestia de IM con contenidos obsesivos, dismórficos, hipocondríacos y alimentarios. **Resultados:** más del 76% de los participantes experimentaron las cuatro modalidades de IM. Las alimentarias fueron las más frecuentes pero las menos molestas, mientras que las hipocondríacas fueron las menos frecuentes pero las más molestas. La frecuencia y malestar de las cuatro IM correlacionaron entre sí. Las mujeres experimentaron las IM obsesivas, dismórficas y alimentarias más que los hombres. La edad se asoció negativamente con la frecuencia y el malestar de las IM. **Conclusión:** las IM pueden ser una variable transdiagnóstica a trastornos como el TOC, el TDC, los TA y la Hipocondría, y ello puede contribuir a explicar las similitudes fenomenológicas entre estos trastornos.

Palabras clave: intrusiones mentales, transdiagnóstico, trastorno obsesivo-compulsivo, trastorno dismórfico corporal, hipocondría, trastornos alimentarios.

Unwanted mental intrusions (UMI) are a universal and common human experience. They have been defined as discrete, untimely, and unexpected conscious cognitive products that can be experienced as thoughts, images, sensations, or impulses. They interfere with the normal flow of thoughts, tend to be recurrent, and promote subjective resistance efforts, although they are highly uncontrollable (Clark, 1992; Rachman, 1981). Their contents "can encompass any topic...that is pertinent to the individual or situation at hand" (Clark & Rhyno, 2005, p. 3).

Current cognitive models of psychopathology postulate that UMI constitute the normal variants of clinically significant symptoms,

such as obsessions, which are conceived as the pathological end of a continuum ranging from normal to pathological UMI. From this perspective, UMI have been a main focus of interest in the cognitive conceptualization of Obsessive-Compulsive Disorder (OCD), showing that obsessions are the extreme variants of normal UMI. Nonetheless, these intrusions have also been described in other disorders, such as Body Dysmorphic Disorder (BDD) (Osman, Cooper, Hackmann, & Veale, 2004), Hypochondriasis or Illness Anxiety (HYP) (Muse, McManus, Hackmann, Williams, & Williams, 2010), and Eating Disorders (EDs) (Blackburn, Thompson, & May, 2012; Roncero, Perpiñá, & Belloch, 2010).

The research about the role of UMI in OCD is extensive and has its roots in the pioneering work of Rachman and De Silva (1978), who verified that normal people reported experiencing UMI that were often indistinguishable from clinical obsessions in content and form. These results have repeatedly been verified in other studies, showing that between 80% and 99% of mentally healthy individuals

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from different cultural contexts reported occasionally having UMI (e.g., Clark et al., 2014; Radomsky et al., 2014). Osman et al. (2004) showed that BDD patients experience recurrent UMI-images about their appearance defects, and Onden-Lim and Grisham (2014) found that up to 84% of non-clinical community individuals had intrusive images with similar contents to those reported by BDD patients. Similarly, hypochondriac patients experienced distressing intrusive images and thoughts about illnesses and death with a frequency of 3 to 4 times per day (Muse et al., 2010). Finally, data from several studies (e.g., Blackburn et al., 2012; García-Soriano, Roncero, Perpiñá, & Belloch, 2014; Lavender, Shubert, de Silva, & Treasure, 2006) indicate that both patients with EDs and non-clinical community individuals experience recurrent cognitions in the form of thoughts, images, and impulses about food, diet, physical exercise, and appearance. Moreover, people scoring high on ED measures experience these UMI more frequently than the general population (Belloch, Roncero, & Perpiñá, 2016).

In sum, OCD, BDD, HYP, and EDs share the occurrence of repetitive UMI with contents related to the core fears of each disorder, although in some cases the UMI contents can even be similar (e.g., health issues, checking needs, order and symmetry, etc.). As several authors note (e.g., Abramowitz & Braddock, 2006; Bartz & Hollander, 2006; Deacon & Abramowitz, 2008), these disorders have a number of phenomenological and functional similarities. They are marked by intense preoccupations, often experienced as intrusive and distressing, which are dysfunctionally appraised as revealing something important to the individuals. Thus, overt and covert behaviors are employed to reduce the distress caused by the UMI (e.g., avoidance, concealment, repeated visits to the doctor, reassurance, checking, suppression, and/or control efforts, etc.). From this perspective, it can be hypothesized that UMI and their functional consequences might operate transdiagnostically in OCD, BDD, HYP, and ED patients.

The suggestion that UMI might operate transdiagnostically must be supported by research. To date, the published research has separately studied the four different intrusive-cognition contents in both non-clinical and clinical samples, but without examining whether the frequency and distress associated with the experience of one specific UMI content correlate with the distress and frequency of other UMI contents. This approach seems to be more appropriate to ascertain whether UMI could operate transdiagnostically across the four sets of disorders and then be a vulnerability factor to the development of mental disorders such as OCD, BDD, HYP, and EDs. To explore this, we sought to examine the experience of the UMIs with contents related to these disorders in the same individual.

With this in mind, our objectives are, first, to analyze the frequency and disturbance of the four sets of UMI in non-clinical individuals, taking gender and age into account; second, to clarify similarities and differences between the four UMI contents based on their respective frequencies and disturbances within the same individuals; and third, to examine the relationships among the four UMI contents in terms of their frequency and the disturbance they provoke.

Method

Participants

The total sample consisted of 438 individuals; 290 were undergraduate university students ($M_{age} = 24.37$, $SD = 6.90$;

range = 18-26 years; 72.90% women), and 148 were community participants ($M_{age} = 40.86$, $SD = 10.75$; range = 19-70 years; 65.8% women). University students and community participants did not differ on gender distribution, years of studies, or socio-economic level, but differences were observed in marital status ($\chi^2 = 119.03$, $p < .0001$) because most of the students were single (81.7%), and most of the community individuals were married (51.35%). University students were younger than community participants ($t = 16.59$, $p < .0001$), and women were younger than men in both groups (Women: $M_{age} = 28.73$, $SD = 11.04$ years; Men: $M_{age} = 32.50$; $SD = 11.90$ years; $t = 3.14$, $p = .002$).

Instruments

Socio-demographic data sheet. The data required were as follows: age, gender, years of education, marital status, and current socio-economic level. Two additional questions about their current mental-health status were also included.

Questionnaire of Unpleasant Intrusive Thoughts (QUIT) is a self-report questionnaire, based on the Revised Obsessional Intrusions Inventory (ROII; Purdon & Clark, 1993), to assess the frequency of mental intrusions and their associated discomfort. Similar to the ROII, the QUIT includes a detailed definition of UMI and the different ways they can be experienced (i.e., as images, thoughts/doubts, impulses, or physical sensations). After the initial description, four separate sets of UMI are presented: Obsessional-related (12 items), appearance defect-related (9 items), illness and death-related (10 items), and eating disorder-related (8 items). Respondents must evaluate each UMI on its frequency (from 0= never, to 6= always, frequently throughout the day) and on the discomfort (from 0=not at all, to 4=extremely disturbing) the UMI produces when it occurs.

After completing each set of UMI, the respondent is asked to choose from the previous list the most upsetting UMI he/she experienced during the past three months with a frequency ≥ 1 . Then, this most upsetting UMI is evaluated through 13 items (from 0= never, not at all, to 4= always, frequently) assessing its emotional impact, its interference and egodystonicity, the dysfunctional appraisals the individual attaches to the UMI, and the control and/or neutralizing strategies the subject uses to manage the UMI. The intrusions from each set were selected from self-report questionnaires assessing OCD-related intrusions (García-Soriano, Belloch, Morillo, & Clark, 2011), BDD-related intrusions (Giraldo-O'Meara & Belloch, *in press*), hypochondriac (HYP) or illness and death-related intrusions (Arnáez, García-Soriano, & Belloch, *in press*), and ED-related intrusions (Roncero et al., 2010). Only the most frequently experienced UMI by both the non-clinical and clinical participants in the previous studies were included in the QUIT. In the current study, the Cronbach's alphas of the four UMI contents were satisfactory: OCD intrusions: frequency $\alpha = .846$; disturbance $\alpha = .825$; BDD intrusions: frequency $\alpha = .900$; disturbance $\alpha = .878$; HYP intrusions: frequency $\alpha = .936$; disturbance $\alpha = .958$; EDs intrusions: frequency $\alpha = .917$; disturbance $\alpha = .936$. In this study, only the frequency and discomfort of the four sets of UMI will be examined. The number and frequency of UMI reported by the participant in each set were computed as the average frequency of the intrusions actually experienced by the respondent at least once in his/her lifetime; that is, the total scores for each set were divided by the number of items with a frequency ≥ 1 .

Procedure

Participants were recruited by the authors from the students who attended their lectures at the University, through advertisements on the University Campus, and on the web page of the research group that requested voluntary participation in a study on values and beliefs about thoughts. An email address was included in the advertisements and the web page to contact with the authors. After receiving the email, the authors answered it proposing to attend an assessment session. In this session, participants were first informed about the purpose of the study and the time required to complete it (around 30 minutes). Then, those who explicitly agreed to participate and provided informed written consent completed the socio-demographic data sheet and the QUIT. The assessment sessions were conducted in groups of 25-35 individuals in the presence of one of the authors. Data of subjects reporting current or past mental-health problems or medical illnesses on the socio-demographic data sheet were not included in the study. Participants did not receive any compensation for their participation. The study received the approval of the University Ethics committee.

Data analysis

An alpha level of .05 (two-tailed) was used for all statistical tests. Cohen’s *d* effect sizes were calculated for *t* tests. Pearson correlations between target variables were calculated. Differences in correlations were tested using Fisher’s *r* to *z* transformation. The frequency and disturbance with which each participant experienced the four UMI contents were examined using a repeated-measures within-subject design (MANOVA). Bonferroni adjustments for multiple-comparison *post hoc* analyses were also computed. Effect sizes (η_p^2) were calculated. Separate analyses were performed in women and men.

Results

Frequency and discomfort of OCD, BDD, HYP, and ED-related mental intrusions

A little over three quarters (76.48%) of participants (241 women and 94 men) reported having experienced the four sets of UMI once or more than once in their lives. The rates of university students and community participants who had experienced the four UMI were comparable ($Z = -.579, p = .563$). Consequently, only data from the participants who had experienced all four sets of UMI will be considered for analyses, and the data from the students and community participants will be merged. However, women experienced OCD, BDD, and ED-related intrusions more frequently than men, and the ED-related intrusions caused women greater discomfort (see Table 1). These between-gender differences indicate that data from women and men must be examined separately. Additionally, because university students and community participants differed on age, this variable will be covariate in the corresponding analyses.

As Table 1 shows, the mean frequency of the four sets of UMI was between moderate (“occasionally: a few times a year”) and low (“rarely: once or twice in my life”) for both women and men. The most frequent intrusions experienced by women were about doubts, concealing the defect, physical symptoms, and the need to do physical exercise, for OCD, BDD, HYP and EDs

intrusions, respectively. For men, the most frequent intrusions were about doubts, defective bodily functions, physical symptoms, and the need to diet, for OCD, BDD, HYP and EDs- intrusions, respectively. The most disturbing intrusions experienced by women were related to doubts, social-appearance, death, and figure, for OCD, BDD, HYP and EDs-intrusions, respectively. In the men’s group, the most disturbing intrusions were about doubts, defective bodily functions, illness, and dieting, for OCD, BDD, HYP and EDs-intrusions, respectively.

In the women’s group, age was negatively associated with the frequency of the four sets of UMI ($r = -.152, r = -.265, r = -.168$, and $r = -.194$, for OCD, BDD, HYP, and EDs related intrusions, respectively; all p ’s $\leq .01$). Nonetheless, the correlation coefficients were low, with R^2 ranging from .02 to .07. Similar results were obtained in the men’s group for OCD, BDD, and EDs intrusions ($r = -.331, p \leq .01; r = -.311, p \leq .01; and r = -.196, p \leq .05$), but no correlations were observed between age and HYP intrusions ($r = -.153$). Regarding discomfort, age was negatively associated with BDD and ED intrusions in women ($r = -.297, p \leq .01; and r = -.189, p \leq .01$) and with EDs intrusions in men ($r = -.325, p \leq .01$).

Within-subject differences in the frequency and disturbance of the OCD, BDD, HYP, and ED-related mental intrusions

The frequency results for the women’s group and the men’s group appear on Table 2. The *F* values were significant, indicating that the four sets of UMI were experienced with different frequencies. The post-hoc analyses in the women’s group indicate that the EDs intrusions were the most frequently experienced, and the HYP intrusions were the least frequent, but no differences were observed between the frequency of the OCD and BDD intrusions. In the men’s group, the OCD and EDs intrusions were the most frequent and similarly experienced, whereas the BDD and HYP

Table 1
Gender differences in the frequency and disturbance of four sets of mental intrusions

Intrusive contents	Women (n = 309)		Men (n = 129)		t	d
	n	M (SD)	n	M (SD)		
<i>Frequency</i>						
Obsessive-compulsive Disorder	299	2.24 (.69)	124	2.04 (.75)	-2.693**	.277
Body Dysmorphic Disorder	279	2.21 (.96)	108	1.87 (.91)	-3.076**	.363
Hypochondria	284	1.97 (.92)	112	1.82 (.75)	-1.682	-
Eating Disorders	280	2.58 (1.10)	104	2.18 (.95)	-3.443***	.389
<i>Disturbance</i>						
Obsessive-compulsive Disorder	252	2.04 (.66)	105	1.97 (.73)	-0.884	-
Body Dysmorphic Disorder	237	2.01 (.83)	91	1.97 (.92)	-0.365	-
Hypochondria	235	2.36 (.91)	94	2.19 (.98)	-1.533	-
Eating Disorders	223	2.05 (.85)	74	1.71 (.71)	-3.387***	.434
** $p < .01$; *** $p < .001$						

intrusions were the least frequent, with no differences between them.

Table 2 also shows the results obtained for the discomfort caused by the four UMI contents. The *F* values were significant for both the women (medium effect size) and men (large effect size), indicating that the different UMI contents provoked different disturbance levels. The HYP intrusions caused the greatest discomfort in both women and men, but they were the least frequent. The OCD, BDD, and EDs intrusions caused similar disturbances in women, but the EDs intrusions were the least disturbing to men, who experienced the OCD and BDD intrusions with similar disturbance levels.

Relationships between the frequency and distress provoked by OCD, BDD, HYP, and ED-related mental intrusions

In these analyses, age was introduced as covariate, given the correlations previously observed with the frequency and disturbance of most of the UMI, as well as the age differences found between university students and community participants.

In the women’s group, the four sets of UMI were correlated, both on frequency (*r* range from .430 to .241; all *p*’s ≤ .01) and on disturbance (*r* range from .471 to .214; all *p*’s ≤ .01). Regarding frequency, the largest coefficients were found between the OCD and HYP intrusions (*r* = .430) and between the EDs and BDD intrusions (*r* = .426). As for the disturbance, the largest coefficient was obtained for the association between BDD and EDs intrusions (*r* = .471) and the smallest was for the relationship between HYP and EDs intrusions (*r* = .214), with a significant difference between these two correlation coefficients ($\tau = 2.7, p = .006$).

Significant relationships among the frequencies of the four UMI contents were also found in the men’s group, with coefficients ranging from *r* = .548, *p* ≤ .01, for the frequency of OCD and BDD intrusions, to *r* = .294, *p* ≤ .05 for the frequency of OCD and HYP intrusions. However, the frequency of BDD and HYP intrusions did not correlate (*r* = .240). Regarding disturbance scores, the four UMI contents were significantly related, ranging from *r* = .732, *p* ≤ .01 for the association between the disturbance of OCD and BDD intrusions, to *r* = .343, *p* ≤ .01 for the relationship between the disturbance scores of EDs and HYP intrusions. The correlation between OCD and BDD intrusions was significantly higher than the observed between the BDD and EDs intrusions ($\tau = 2.59, p = .009$), between the HYP and the EDs intrusions ($\tau = 2.91, p = .003$), and the found between the OCD and HYP intrusions ($\tau = 2.45, p = .01$).

The main aim of this study was to ascertain whether unwanted mental intrusions are a transdiagnostic variable across clinically different mental disorders. We focused the analysis on four specific disorders, OCD, BDD, HYP, and EDs, because these disorders share some characteristics, such as age at onset, treatment response, and comorbidity. To date, the research has examined the putative role of UMI separately in each disorder. Findings generally show that UMI are common in patients with OCD, BDD, HYP, and EDs. However, a more stringent perspective to analyze the transdiagnostic nature of UMI across the four disorders would be to examine the presence and distress of the four UMI contents in the same individual. To the best of our knowledge, this is the first study to use this perspective.

The results indicate that more than three quarters of the participants reported experiencing the four UMI contents. This is a high rate and supports the Clark and Rhyno (2005) suggestion that UMI are a nearly universal phenomenon, and that they can deal with any topic or theme that can be relevant to individuals. In between-group comparisons, women reported higher frequency of OCD, BDD, and EDs related intrusions than men, which agrees with epidemiological studies indicating a higher rate in women of the disorders to which those intrusions refer (e.g., APA, 2013). However, both women and men have HYP intrusions with similar frequency, which coincides with a similar rate of hypochondriasis in both genders. The discomfort associated with OCD, BDD and HYP related intrusions was similar in both genders, but women reported more discomfort than men about EDs intrusions. This result would suggest a lower tolerance to the distress caused by unwanted thoughts in women, compared to men.

The aforementioned results should be nuanced in light of the within-group comparisons. We found that some UMI contents are frequent but slightly disturbing, whereas other UMI are less frequent but more disturbing. In both men and women, the HYP intrusions were the least frequent but the most disturbing. By contrast, the EDs intrusions were the most frequent in both genders, but hardly disturbing in the men’s group and as disturbing as the OCD and BDD intrusions in the women’s group.

The higher frequency of EDs intrusions indicates their universality, as observed in other studies (Belloch et al., 2016; García-Soriano et al., 2014; Roncero et al., 2010). The universality of these UMI probably reflects social pressures about one’s figure

Table 2
Within-subjects differences in the frequency and disturbance of four sets of mental intrusions

Women (n = 241)				Men (n = 94)							
OCD	BDD	HYP	EDs	F (3,720)	η^2_p	OCD	BDD	HYP	EDs	F (3,279)	η^2_p
<i>Frequency</i>											
2.29 (.68) ^a	2.25 (.96) ^a	1.96 (.88) ^b	2.65 (1.09) ^c	35.25***	.128	2.14 (.75) ^a	1.88 (.89) ^b	1.85 (.75) ^b	2.11 (.84) ^a	5.31**	.054
<i>Disturbance</i>											
2.15 (.64) ^a	2.04 (.84) ^a	2.39 (.90) ^b	2.09 (.86) ^a	10.099***	.054	2.01 (.69) ^a	1.93 (.79) ^a	2.23 (.97) ^b	1.70 (.75) ^c	9.338***	.135

** *p* < .01; *** *p* < .001. Data are Mean (SD). Superscripts ^{a,b,c} indicate post-hoc within-group differences (Bonferroni)
OCD: Obsessive-compulsive Disorder; BDD: Body Dysmorphic Disorder; HYP: Hypochondriasis; EDs: Eating Disorders

and appearance in our socio-cultural context (Striegel-Moore & Bulik, 2007). These pressures are greater for women than for men, and the fact that nearly two-thirds of the participants in the study were women might help to explain our results. Additionally, data about the low disturbance attributed to the EDs intrusions are coherent with findings indicating that these UMI are usually experienced as coherent with one's self-view and moral values (Belloch, Roncero, & Perpiñá, 2012), which probably contributes to the maintenance of EDs (Schmidt & Treasure, 2006).

The high scores on the disturbance caused by the HYP intrusions, in spite of their low frequency, are coherent with the negative emotions associated with illnesses and death, which are the main themes of these intrusions. It seems that the mere presence of an intrusive thought or image about death or a severe illness produces negative emotions and appraisals, as found in the Muse et al. (2010) study, where these intrusive images were associated with thought-action fusion beliefs in hypochondriac patients. It is also possible that the high comorbidity between hypochondriasis and depression (e.g., Weck, Bleichhardt, Witthoft, & Hiller, 2011) could lie behind this result. Additionally, the fact that most participants were young could also explain, at least in part, the higher disturbance caused by the intrusion in the conscious awareness of thoughts about severe illnesses and about the own and/or the loved ones' death.

The third objective was to examine the relationships among the four IM contents in terms of their frequency and the disturbance they provoked. The results support the notion that having UMI about a specific theme or content is associated with having UMI about other different contents. Similarly, feeling disturbed by a specific UMI content is associated with feeling disturbed when experiencing other different UMI contents. In the women's group, the high association found between the OCD and HYP intrusions supports the assumption that a close relationship exists between OCD and Hypochondriasis (e.g., Abramowitz & Braddock, 2006; Deacon & Abramowitz, 2008; Stein et al., 2016). Moreover, the high association found between the disturbance scores of EDs and BDD intrusions agrees with the high comorbidity rates between EDs

and BDD (Dingemans, Rood, Groot, & Furth, 2012; Grant, Kim, & Eckert, 2002; Kollei, Schieber, Zwaan, Svitak, & Martin, 2013). In the men's group, the high association between OCD and BDD intrusions on both the frequency and disturbance scores supports the phenomenological similarity between the two disorders (Osman et al., 2004; Phillips et al., 2010), as well as the high comorbidity rates between them (Bienvenu et al., 2012), supporting the inclusion of BDD in the OCD spectrum (APA, 2013).

Several limitations of our study should be mentioned. First, the participants were mainly young women with university studies. Consequently, the frequency with which they experience UMI is generally low, and this means that our data are not free of floor effects, which could presumably have confounding effects on the results. Although the use of non-clinical samples is common in exploratory studies dealing with a scarcely investigated topic, it is necessary to confirm the data obtained with clinical participants. Second, the study results rely exclusively on a self-report questionnaire. We have tried to overcome this limitation by designing the QUIT on the basis of previously validated self-report questionnaires, but future studies should include other collection methods, such as structured interviews to record intrusive thoughts and narratives associated with the four UMI contents studied.

Taken together, our results support the notion that UMI might be a transdiagnostic variable across different disorders, such as OCD, BDD, EDs, and Hypochondriasis, thus helping to explain the phenomenological similarities and comorbidities found among these disorders. Moreover, the tendency to experience UMIs could be a vulnerability factor to the development of mental disorders in which these cognitive products play a key role. Nonetheless, future studies with clinical samples must support this suggestion.

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