

Validation of the Thought-Action Fusion Scale (TAFS) for the Mexican population

Validación de la Escala Fusión Pensamiento-Acción para población Mexicana

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Abstract

The purpose of this study was to validate the cultural adaptation of the Thought Action Fusion Scale (TAFS), which is likely the most common measure of thought action fusion, with a sample of Mexican undergraduate students. 430 undergraduate students, between 18-28 years, from a Mexican university participated in this study ($M = 20.59$, $DE = 1.92$). Based on a factor analysis, support was found for the original three-factor structure with factors measuring TAF-likelihood-for-self (TAF-LS), TAF-likelihood-for-others (TAF-LO) and TAF-Moral (TAF-M), which was consistent with previous studies conducted with non-clinical samples. Further, support was found for the criterion validity of the current version of the TAFS-M. Overall, the findings of the present study indicate that the Mexican version of TAFS exhibits good psychometric properties.

Resumen

Fusión pensamiento-acción se refiere a la creencia de que un pensamiento puede causar una acción indeseada o tener consecuencias morales. La Escala de Fusión Pensamiento-Acción (TAFS) evalúa la disfuncionalidad de los pensamientos en que el individuo vincula sus pensamientos con las acciones. La escala cuenta con tres subescalas, TAF-probabilidad-para-uno mismo (TAF-LS), TAF-probabilidad-para-otros (TAF-LO) y la última escala siendo la de TAF-moral (TAF-M). El objetivo de este estudio fue validar la adaptación del TAFS con una muestra de estudiantes universitarios mexicanos. 430 estudiantes universitarios entre 18 a 24 años de edad, de una universidad de México participaron en el estudio ($M = 20.59$, $DE = 1.92$). Los resultados mostraron que la estructura original de tres factores tiene un buen ajuste con los datos, lo cual fue consistente con estudios previos realizados con muestra no-clínica. Estos resultados indican una buena consistencia interna y una adaptación adecuada de la prueba original para ser utilizada con población universitaria mexicana.

Keywords: *thought action-fusion, thought action-fusion scale, Mexican population, intrusive thoughts, obsessive-compulsive disorder*

Palabras clave: *pensamiento fusión-acción, escala de pensamiento fusión-acción, población mexicana, pensamientos intrusivos, trastorno obsesivo-compulsivo*

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Introduction

Thought-action fusion (TAF) refers to the belief that thoughts and actions are linked, particularly that some thoughts, usually unwanted intrusive thoughts, can increase the likelihood of catastrophic events happening or that they may imply a certain immorality of the individual's character (Berle & Starcevic, 2005; Shafran et al., 1996). Having intrusive thoughts is common among the non-clinical population, with most people being able to dismiss them without having distressing emotions about them (Inozu et al., 2014). According to the cognitive model, it is the belief about the meaning of the thought that can change a benign intrusive thought into an obsession (Bailey et al., 2014; Barrera & Norton, 2011), which is consistent with what the thought-action fusion construct implies. This type of cognitive bias has been commonly associated with obsessive compulsive (OC) symptoms and has been observed in patients with anxiety disorders and obsessive-compulsive disorder (OCD). Furthermore, thought-action fusion may exacerbate and/or maintain OCD symptoms by providing unhealthy reassurance and/or by temporarily decreasing their anxiety symptoms. Other aspects involved in OCD have been found to be related to thought-action fusion, amongst these are thought suppression, neutralizing behaviors and inflated responsibility (Bailey et al., 2014; Berle & Starcevic, 2005).

The concept of thought-action fusion was originally conceptualized through the clinical work and analysis of patients with OCD. The relation between TAF and OCD symptoms has been analyzed in several studies with clinical and non-clinical populations. The following studies describe how these two variables are related and may be present in different groups of people. Aydin et al. (2012) conducted a study with a sample of 263 Turkish undergraduate students

from ages 17 to 40. The authors hypothesized that thought-action fusion would be a detrimental factor in the worsening and severity of OCD symptoms. However, they found that this factor by itself was not a detrimental aspect, but rather it is its combination with other factors that was detrimental. Specifically, thought-action when it is accompanied by maladaptive interpersonal schemas and perfectionist attitudes showed to be a vulnerability agent in the development and severity of OCD symptoms.

Furthermore, in a subsequent study conducted by Amir (2017) with adolescents from Iran with an average age of 12.8, the positive and statistically significant association between thought-action fusion and OCD symptoms was also confirmed, particularly with the symptomatology related to being obsessive. Similarly, another study reported that intrusive and unwanted thoughts about oneself were classified as negative only in people who have reported a high thought-action fusion tendency and OCD symptoms (Hezel et al., 2017).

Nevertheless, there are studies that indicate that thought-action fusion is not exclusive to OCD and that it can be observed in other disorders, such as anxiety and depression (Abramowitz et al., 2003; O'Leary et al., 2009). In a study consisting of 37 patients with diverse anxiety disorders (excluding those with OCD), a positive and statistically significant correlation was found between Generalized Anxiety Disorder and thought action fusion within the subcategory of severity of the symptoms (Thompson-Hollands et al., 2013). A similar result was found in another study, where the authors have explored in more detail the nature of this relationship with OCD patients, notably investigating the link between the intensity of the reaction to the probability of a particular outcome within any situation (Odrizola-González et al., 2016).

Thought Action Fusion Scale

Thought-action fusion can be evaluated through the use of the *Thought-Action Fusion Scale* (TAFS) (Shafran et al., 1996), a self-report measure consisting of 19 items. Two forms of TAF are often described, moral TAF and likelihood TAF (Berman et al., 2011; Rassin et al., 2001; Shafran et al., 1996). Likelihood TAF is the belief that having a thought about a disturbing or unwanted event will increase the probability of the occurrence of that event (Shafran et al., 1996). This type of belief can be about oneself (e.g., “*If I think about being in a car accident, it makes it more likely that I could be in one*”), which is referred to as “Likelihood-self”; or it can be about an event that involves someone else (e.g., “*If I think about my sister being in a car accident, it will be more likely that she could be in one*”), which relates to as “likelihood-other” (Rachman & Shafran, 2004). Nevertheless, moral TAF, refers to the tendency to believe that having an unacceptable or unwanted thought is morally equivalent to the real action (e.g., believing that thinking about hitting someone is in itself as bad as the action of actually hitting them) (Coughe et al., 2013). It is possible that the misinterpretation in this type of belief revolves around the idea that this thought reveals the “true” nature of the person, being that they may be “wicked” or “bad” (Shafran et al., 1996).

Originally, the TAFS consisted of 34 items and was validated with a clinical and a non-clinical sample of undergraduate students, both from Canada. The internal consistency was found to be high for both samples ($\alpha = .95, .96$, respectively). A two factor solution, moral TAF and likelihood TAF, was supported for the clinical sample and a three-factor solution for the student sample: moral TAF, likelihood-self TAF and likelihood-other TAF. The measure was later revised by the same authors and reduced to 19 items. It was validated

again with a clinical and a non-clinical sample of undergraduate students from Canada. Just as with the first version, a two-factor solution was found for the clinical sample and a three-factor solution for the student sample and the internal consistency was found to be also high for both samples ($\alpha = .85$ to $.96$) (Shafran et al., 1996).

The TAFS has also been revised and standardized for Spanish-speaking population from Spain (Jáuregui-Lobera et al., 2013) with a clinical sample of patients with eating disorders and a non-clinical sample of university students. In this study, the TAFS and its subscales showed a good internal consistency of $\alpha = .88$ for patients and $\alpha = .90$ for students. Results in this study demonstrated that a three-factor solution was best for both clinical and non-clinical samples, as opposed to earlier studies that found a two-factor structure for the clinical samples.

There was also an evaluation of an extended version of the TAFS conducted by Amir et al. (2001) in order to include a subscale that assessed the likelihood of events happening to others, and also subscales to rate the responsibility and cost for having these thoughts. In order to do this, they added eight subscales to the original version. The *TAFS-R* comprises 11 subscales with 30 items in total, and was validated with a sample of 424 undergraduate students from the United States. Results of this study showed that all subscales had adequate coefficient alphas and that the *TAFS-R* was well adapted to assess the role that thought action fusion has in OCD symptoms. The *TAFS-R* was later revised and standardized for the use of it with an Iranian sample of students (Pourfaraj et al., 2008). The reliability coefficients of the total scale were calculated by two methods: internal consistency and test-retest, which were $.81$ and $.61$, respectively. This revised version was later tested with an American clinical sample of adults with OCD symptoms receiving treatment at an outpa-

tient clinic. The reliability of this version was tested through a confirmatory factor analysis and was found to have high scale reliability ($p = .97$) (Myer & Brown, 2012).

Although previous studies about TAFS have been conducted with samples of undergraduate students, there is still a paucity of research focused on the evaluation of the psychometric properties TAFS in Spanish-speaking non-clinical populations. It is particularly noteworthy that the psychometric properties of the TAFS have not been examined in Latin-Speaking countries. Consequently, the purpose of the current study was to examine the psychometric properties of the first known Spanish version of the TAFS for the Mexican population (TAFS-MV).

The purpose of this study was to culturally adapt the TAFS through a back-to-back translation process and the selection of wording and phrases that could capture the cultural and linguistic nuances of the Spanish language spoken in Mexico. The psychometric properties of the TAFS-MV were evaluated in a sample of Mexican undergraduate students attending a university in the northern part of Mexico, using the adapted Spanish measures of the Yale-Brown Obsessive-Compulsive Scale – Self-Report Version (YBOCS-SR) and the White Bear Suppression Inventory (WBSI-MV) for Mexican population to examine convergent validity. It was hypothesized that the original three factor structure that has been found in non-clinical samples would be maintained in the TAFS-MV, along with a good reliability and convergent validity.

Method

Participants

430 students from a university in northern Mexico volunteered to participate in this online survey-based study in exchange for extra credit.

Inclusion criteria included that the participants must be 18 years or older and had to be enrolled in an undergraduate program in order to participate in this study. As the data was collected in a community sample, data collection did not include gathering information about an existing psychiatric diagnosis, use of psychiatric medication or psychiatry history. The sample was 79.4% females, most of them Hispanic (91.2%), with an average participant age of 20.59 (SD = 1.92).

Measures

Thought-Action Fusion Scale – Mexican Version. The TAFS is a 19-item self-report measure designed to evaluate the construct of thought-action fusion (Shafran et al., 1996). This measure has been reported in its original version as an internal consistency of $\alpha = .93$, with a Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The measure has three subscales, one of which is the Moral-TAF that assesses the TAF relation to morality: “*Having violent thoughts is almost as unacceptable to me as a violent act*”. Next, is the TAF-Likelihood-others which assesses negative outcomes for others: “*If I think of a relative/friend falling ill this increases the risk that he/she will fall ill*”. Lastly, the TAF-Likelihood-Self, which assesses the concerns of negative outcomes for themselves: “*If I think of myself falling ill, this increases the risk I will fall ill*”. The measure has shown good psychometric properties, including good internal consistency and good criterion validity, as the TAFS has been found to be associated with symptoms of OCD (Cogle et al., 2013; Rachman & Shafran, 2004).

This measure was back-to-back translated from the original English into Spanish. Within the translation process, language was adapted and cultural aspects were revised by two professors

from the School of Psychology at a Mexican university, in order to make the items more accurate and representative to the Mexican population. The back-translated version of the measure was evaluated by native English speakers (See Appendix B). Cronbach's alphas with the current sample are provided in the results section.

White Bear Suppression Inventory – Mexican Version (WBSI-MV). The WBSI is among the most commonly utilized measures to assess thought suppression (Wegner & Zanakos, 1994). This self-report measure consists of 15 items with response options on a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The WBSI exhibits good psychometric properties, including excellent internal consistency ($\alpha = 0.93$), and validity, as the WBSI has been found to be positively and significantly associated with measures of anxiety and depression (Wegner & Zanakos, 1994). For the purpose of this study, this measure was also translated from English into Spanish and back-translated. Within the translation process, language was adapted and cultural aspects were revised by two professors from the School of Psychology at a Mexican university, in order to make the items more accurate and representative. The back-translated version of the measure was evaluated by native English speakers. The internal consistency of the WBSI-MV for the current sample was excellent, $\alpha = .90$ (Gallegos-Guajardo et al., 2020). In the current study, this measure was used to assess concurrent validity, as thought-action fusion has been constantly associated with thought suppression.

Yale-Brown Obsessive Compulsive Scale Self Report Version (Y-BOCS-SR). The Symptom Severity Scale of the Y-BOCS-SR was administered in this study (Baer, 1991; Ólafsson et al., 2010). The Y-BOCS-SR assesses components of symptom severity together with the amount of distress, interference, time spent on obsessions or compulsions,

and perceived control of obsessions and compulsions. The Y-BOCS-SR severity scale includes a total of seven items to measure obsessions and seven items to measure compulsions; each question has a Likert scale ranging from 0 to 4. For the purpose of this study, this measure was also translated from English into Spanish and back-translated. Within the translation process, language was adapted and cultural aspects were revised by two professors from the School of Psychology at a Mexican university, in order to make the items more accurate and representative. The back-translated version of the measure was evaluated by native English speakers. The internal consistency of the Y-BOCS-SR in Spanish for the current sample was excellent, $\alpha = .93$. In the current study, this measure was used to assess concurrent validity, as thought-action fusion has consistently found to be associated with OCD symptoms.

Design and Procedures

The study was internet-based, in which participants completed a number of self-report measures. Before participating in the study, potential participants were required to complete and sign an informed consent form. As part of the informed consent, potential participants were reminded that their involvement was voluntary. Those who agreed were then asked to complete a demographic questionnaire and Spanish versions of the measures described below. The study was approved by the appropriate university Institutional Review Board.

Data Analysis Plan

Confirmatory factor analyses (CFAs) were planned by using Mplus version 8.1 to determine

the degree to which data obtained in the current sample fits with the previously established models. In particular, the purpose of the first CFA was to examine the degree to which the three-factor model obtained in the original study with non-clinical population (Shafran et al., 1996) fit with the current data. The cut-off to determine a

good adjustment was .95 or greater. Items with loadings of .30 or greater on a single factor were to be retained.

Following establishment of the factor structure, an assessment of reliability was planned by examining Cronbach's alphas: .7 and above was considered acceptable, .8 and above good and .9

Appendix A

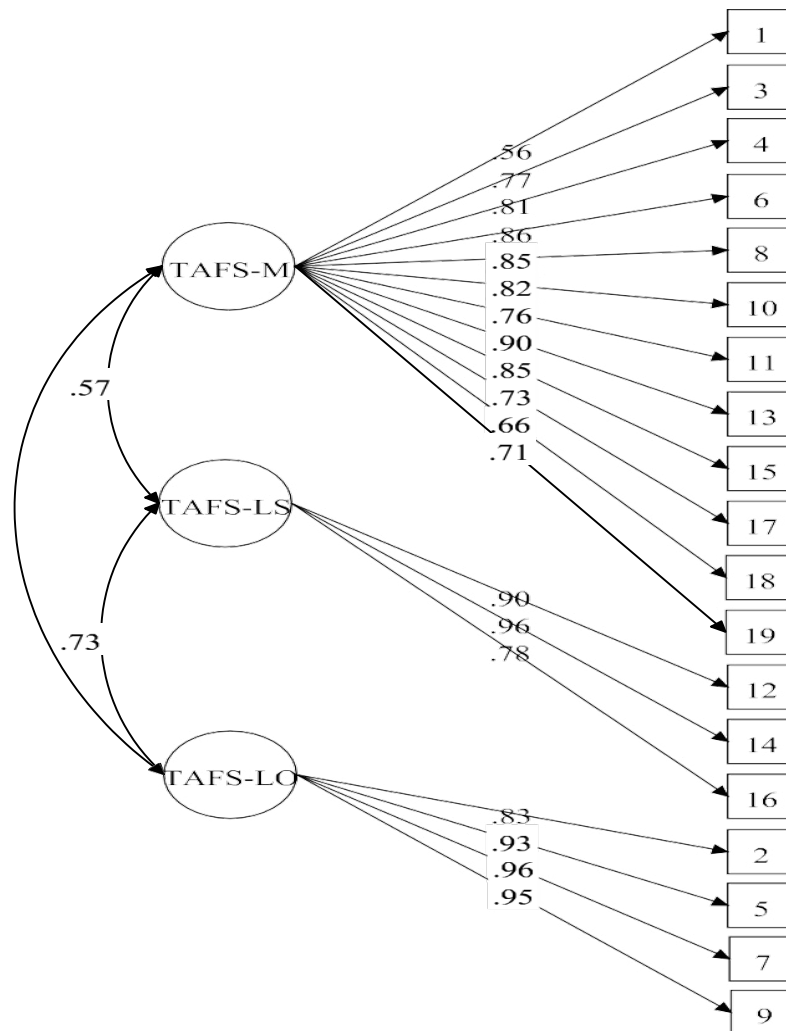


Figure 1.

Standardized Factor Loadings for the Thought Action Fusion Scale based on Confirmatory Factor Analysis.

and above excellent. An examination of the validity of the TAFS-MV was planned by assessing the magnitude of the association between the TAFS-MV and the designated validation measures (i.e., Y-BOCS-SR and WBSI-MV). Correlations were expected to be at least moderate in magnitude, .3 or greater. The SPSS version 26.0 was to be utilized for the bivariate correlations. Finally, qualitative analysis was conducted to determine if the translation process produced substantive differences and improved utility, for use in a Mexican sample, relative to the previously translated Spanish version of the TAFS with the Spanish sample.

Results

Results showed that the original three-factor structure was a good fit with the data, $\chi^2/df = 3.10$, CFI = .98, TLI = .98, RMSEA = .070 (see Figure 1 in Appendixes). Also, reliability analyses were performed to explore the internal consistency of the Spanish version of the TAFS-MV, reporting good internal consistency for the three subscales: TAFS- MV- Moral subscale (TAFS-MV-M), TAFS- MV- Likelihood- Other subscale (TAFS-MV-LO), and TAFS- MV-Likelihood-Self.

In order to assess the convergent validity, Pearson correlations were conducted with the TAFS-MV and Y-BOCS-SR and WBSI-MV. Results showed that all three TAFS-MV subscales were found to be significantly associated with the

WBSI-MV and with the Spanish version of the Y-BOCS-SR (see Table 1).

Discussion

The purpose of the current study was to examine the psychometric properties of the Thought Action Fusion Scale for the Mexican population (TAFS-MV). Consistent with previous studies conducted with non-clinical samples, results from our current study supported a three-factor structure, being these factors: TAFS-MV Moral, TAFS-MV Likelihood to others and TAFS-MV- Likelihood to self (Jáuregui-Lobera et al., 2013; Pourfaraj et al., 2008; Shafran et al., 1996). As well, consistent with previous research, the TAFS-MV showed good internal consistency and support was found for the validity of the TAFS-MV as the three factors were found to be positively and significantly associated with thought suppression and OCD symptoms.

The present data indicates a good internal consistency for the use of TAFS-MV and a good adaptation of the original measure to be used in the Mexican population. This indicates a good fit with the original sample and that TAFS-MV is an effective tool to assess thought action fusion tendency in a non-clinical population. Particularly in Mexico, the importance of evaluating the presence of risk factors, such as thought action fusion, relays in the fact that the rates of anxiety disorders and

Table 1

Correlations between TAFS subscales and the WBSI-M and Y-BOCS-SR.

	TAFS-LS	TAFS-LO	TAFS-M
WBSI	.42**	.27**	.29**
Y-BOCS-SR	.21**	.25**	.16**

Note. ** = $p < .001$. TAFS-LS = Thought Action Fusion Scale- Likelihood-Self subscale; TAFS-LO = TAFS- Likelihood-Other subscale; TAFS-M = TAFS- Moral subscale. WBSI = White Bear Suppression Inventory and Y-BOCS-SR= Yale Brown Obsessive Compulsive Inventory.

OCD have been increasing very fast in the young and adult Mexican populations (Caraveo-Anduaga & Colmenares, 2004; Lozano-Vargas, 2017; Ulloa et al., 2011). By assessing this particular risk factor, mental health professionals could be better prepared to conduct an accurate diagnosis for the individual and provide a more effective treatment, as well as to track the patient's progress on risk factors that may be maintaining the disorder (Ulloa et al., 2011). Henceforth, it is encouraged that future research, in addition to measuring outcome variables, such as anxiety or OCD symptoms, also focuses on gathering valuable information of risk and protective factors for these disorders. For instance, factors such as emotional regulation (De la Rosa-Gómez et al., 2021) and mindfulness (Gustin-García & Alegre-Bravo, 2021), will be of great value to assess, as well as flourishing and wellbeing (González-Rivera, 2018).

In relation to the specific differences found between the Spanish European (Jáuregui-Lobera et al., 2013) and Mexican Spanish version of the TAFS, a detailed qualitative analysis that compares the items of both versions highlighted several differences. It was found that specific items meant different things in each version or used different words, one example can be observed in items 5 and 14 with the term for car “*carro*” which applies more to the Latin-American population as opposed to “*coche*” which is used specifically in the Spanish population. Moreover, in item 6 “*Tener un pensamiento desagradable sobre alguien, es casi igual de malo que llevar a cabo una acción desagradable*” the word “*desagradable*” is an accurate representation of an unpleasant thought to have about someone, which is more commonly used in Mexican population instead of the word “*repugnante*” which is used in the Spanish version and means abhorrence and complete hatred thought or action. Therefore, it was important to culturally adapt the measure in order to be more

accurate and relevant for the Mexican population. Moreover, having the psychometric properties explored in a Mexican sample can ensure precise results in further investigations for this specific population, as opposed to using adaptations or norms from a different country.

In general, having the TAFS-MV is useful for researchers and clinicians, allowing them to study thought action fusion in both non-clinical and clinical samples in Mexico, by having a validated adaptation with accurate translation that applies specifically to the Mexican population. In addition, having this scale validated in Mexico serves as an opportunity to conduct more research regarding anxiety and OCD symptoms in clinical and non-clinical samples. For instance, research in Mexico about OCD is very scarce (i.e., Caraveo-Anduaga & Colmenares, 2004; Lozano-Vargas, 2017), and it has been shown that the symptoms reported by the clinical sample do not always match with those symptoms stated by the general population. Having a validated measure with the Mexican population may facilitate the study of thought action fusion and the specific patterns in which it predicts anxiety and/or OCD symptoms. It would also provide a more comprehensive view of how these symptoms manifest in this particular population.

Some limitations regarding this study need to be addressed further on and are related to the sample of this study. The sample is limited to a specific age range and by only including undergraduate students, therefore, narrowing down the generalizability of these results to the general population in Mexico. Another limitation is the demographics of the sample, as it is only composed of undergraduate students from northern Mexico, which is expected to display cultural differences to the southern and central regions of the country, again limiting its generalizability. Also, the current study did not include a clinical

sample, as it focuses only on the general population, some of them experiencing a wide range of OCD symptoms. Further research should evaluate this measure by including a clinical sample from Mexico, as previous studies have done this in different countries (Jáuregui-Lobera et al., 2013; Pourfaraj et al., 2008; Shafran et al., 1996). It is also of importance to continue exploring the TAFS-MV with samples of different age ranges, as well as different educational levels, SES lev-

els and living in both, rural and urban areas from across the country.

In summary, current findings indicate that the TAFS-MV is a useful and valid tool to assess thought action fusion in the Mexican population as the measure showed good internal consistency and a three-factor structure supporting the factor structure reported in the original measure with non-clinical samples.

Appendix B

Escala de Fusión Pensamiento-Acción

Instrucciones: A continuación, se enumeran 24 afirmaciones. Por favor utiliza la siguiente escala para indicar si estás de acuerdo o en desacuerdo con cada una de ellas.

En completo desacuerdo 1	En desacuerdo 2	Neutral 3	De acuerdo 4	De acuerdo completamente 5
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1. Pensar en hacer una observación extremadamente crítica a un amigo es casi igual de inaceptable como decirlo.
2. Pensar que un pariente/amigo perderá su trabajo aumenta el riesgo de que suceda.
3. Para mí, tener un pensamiento blasfemo es casi igual de pecaminoso como la acción de la blasfemia en sí.
4. Para mí, pensar en maldecir a alguien es casi igual de inaceptable como en verdad maldecirlo.
5. Pensar que un pariente/amigo tendrá un accidente de auto aumenta el riesgo de que suceda.
6. Tener un pensamiento desagradable sobre alguien, es casi igual de malo que llevar a cabo una acción desagradable.
7. Pensar que un pariente/amigo se lastimará en una caída aumenta el riesgo de que la caída suceda y se lastime.
8. Para mí, tener pensamientos violentos es casi igual de inaceptable que llevar a cabo acciones violentas.
9. Pensar que un pariente/amigo se enfermará aumenta el riesgo de que la enfermedad suceda.
10. Cuando pienso en hacer una observación o gesto obsceno en un lugar de oración, es casi igual de pecaminoso que realmente hacerlo.

11. Desear que alguien se haga daño es casi igual de malo que causar el daño en sí.
12. Si yo pienso en que me haré daño en una caída, esto aumenta el riesgo de que me caiga y me lastime.
13. Pensar cruelmente sobre un amigo es casi igual de desleal que llevar a cabo un acto cruel.
14. Si yo pienso que tendré un accidente automovilístico, va a aumentar el riesgo de que tenga un accidente automovilístico.
15. Si yo pienso en hacerle un gesto obsceno a otra persona, es casi igual de malo como hacerlo.
16. Si yo pienso que me voy a enfermar, aumenta la posibilidad de que me vaya a enfermar.
17. Si tengo un pensamiento de celos, es casi igual de malo que hacer un comentario de celos.
18. Para mí, pensar en engañar a una persona con la que se tiene una relación amorosa, es casi igual de inmoral que en verdad engañarla.
19. Para mí, es inaceptable tener pensamientos blasfemos en un lugar de oración.

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