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The Risk Propensity Task (PTR): A proposal for a behavioral performance-based computer test for assessing risk propensity

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Título: La Prueba de Tendencia al Riesgo (PTR):Una propuesta para un test informatizado de ejecución conductual para evaluar la tendencia al riesgo.

Resumen: La evaluación de las diferencias individuales en la tendencia al riesgo ha sido tradicionalmente realizada en base a instrumentos de autoinforme. Estos están sujetos a una serie de sesgos y distorsiones que son difíciles de sortear. Este trabajo presenta un nuevo instrumento de evaluación objetiva de la propensión al riesgo basado en la ejecución comportamental ante una tarea: la Prueba de Tendencia al Riesgo (PTR). En el primer estudio (N = 234) se explora la fiabilidad y dimensionalidad de la tarea. Los resultados muestran una alta consistencia interna (alpha = .94) y una adecuada dimensionalidad congruente con el diseño de la prueba. En el segundo estudio (N = 59) se analiza la validez convergente e incremental de la prueba utilizando para ello un cuestionario sobre búsqueda de sensaciones, constructo relacionado con la tendencia al riesgo (SSS-V), autoinformes de comportamientos de riesgo (RTI, SRB) y un test comportamental (BDT). Los resultados muestran correlaciones significativas en mayor o menor medida entre la PTR y las demás pruebas utilizadas. La PTR incrementa en un 6.7% el porcentaje de varianza explicada en estos comportamientos por las otras medidas utilizadas en el estudio. Los resultados indican que la PTR puede ser una herramienta útil para la evaluación de la propensión al riesgo.

Palabras clave: Tendencia al riesgo; test informatizado; evaluación objetiva de la personalidad; test comportamental.

Abstract: Individual differences in risk propensity have been traditionally assessed by self-report. These instruments are sensitive to response distortion which is not easy to deal with. The paper presents a new objective behavioral performance-based assessment instrument for assessing risk propensity: the Risk Propensity Task (PTR), and its psychometric properties. The first study (N = 234) explores reliability and dimensionality of the PTR. Results show high internal consistency (alpha = .94), and adequate dimensionality. The second study (N = 59) analyzes PTR convergent and incremental validity, using a Sensation Seeking questionnaire (SSS-V), risk-taking behavior self-reports (RTI, SRB) and another performance-based test (BDT). Results show significant correlations between PTR scores and the other instrument scores. The amount of variance explained by the other measures used increases by 6.7% with the PTR. These results indicate that the PTR may be a useful tool in the assessment of risk propensity.

Key words: Risk propensity; computer based test; objective personality assessment; behavioral performance-based test.

According to Yates and Stone (1992), the critical elements of the risk construct are: (a) potential losses, (b) the significance of the losses, and (c) the uncertainty of those losses. Thus, risk-taking behavior is defined as the individuals' behavior aimed to obtain a particular benefits (according to how worthy the outcomes are for each individual) but with consequences which also potentially produce losses (Aklin, Lejuez, Zvolensky, Kahler & Gwadz, 2005; Gullone & Moore, 2000; Leigh, 1999) in a relationship in which the resulting benefits and losses are uncertain. Losses refer to any undesired consequences, whilst benefits act as positive reinforcements (Rosenbloom, 2003).

What will determine whether a person exhibits risk-taking behavior? Is risk-taking behavior a reflection of the individual's risk propensity or simply the reaction to environmental conditions? Even though there has been controversy surrounding this since the pioneer Slovic and Lichtenstein's (1968) work, risk-taking behavior research demonstrates there are people who show a relatively stable and consistent tendency to behave in a risky way regardless of the context (Botella, Narváez, Martínez-Molina, Rubio & Santacreu, 2008). In other words, there would appear to exist, at least in some individuals, a risk-taking tendency related to their personality characteristics (Skeel, Neudecker, Pilarski, & Pytlak, 2007).

The notion of risk propensity being an idiosyncratic characteristic of an individual has been set forth in different theoretical models. Thus, Lopes (1987) suggested a two-factor model which included: (a) the security vs. potential factor, and (b) the aspiration level. The first level is a dispositional factor and describes the basic motivation to risk (a desire to avoid bad outcomes instead of aiming for good outcomes or vice versa). The second level is a situational factor, which reflects the individual's hopes and needs to achieve the benefit. From a different perspective, Sitkin and Pablo (1992) identified two key concepts as responsible for the person's risk-taking behavior: individual's risk propensity, and the risk perception of the situation. Risk propensity is conceptualized as a mixture of dispositional tendencies, cognitive styles and past experiences, whilst risk perception is influenced by contextual factors.

Nevertheless, the risk propensity construct has been difficult to define and to assess, though many efforts from different perspectives have been made (Harrison, Young, Butow, Salkeld, & Solomon, 2005). Traditionally, risk propensity has been assessed by self-report (Rubio, Hernández,

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Zaldívar, Márquez & Santacreu, 2010), sometimes appraising related constructs such as sensation seeking (Zuckerman, Eysenck & Eysenck, 1978), adventure seeking (Eysenck, Pearson, Easting, & Allsopp, 1985), and impulsivity (Barratt, 1985; Eysenck, et al., 1985); and at other times using specific inventories (DiClemente, Hansen & Ponton, 1995; Gullone & Moore, 2000; Jessor & Jessor, 1977; Lejuez, Aklin, Zvolensky & Pedulla, 2003; Nicholson et al., 2005). However, it is well known that assessment through questionnaire presents important biases (Houhg, 1998; Robie, Born & Schmit, 2001). It is also assumed that the individual's response to a self-report is fundamentally the verbal synthesis the person makes about his/her experiences and not necessarily an accurate report about how he/she behaves (Rubio, Hernández, Revuelta & Santacreu, 2011). Especially in risk-taking behavior assessments, the self-report could potentially be voluntarily faked due to the expectation of negative consequences if this risk-taking behavior is revealed (Lejuez et al., 2002). Moreover, the examinees would have difficulties in making an accurate appraisal of their risk-taking behavior (Ladouceur et al., 2000).

In order to overcome such difficulties, recent times have seen the development of objective performance-based measures (v.g. Arend, Botella, Contreras, Hernández & Santacreu, 2003; Bechara, Damasio, Damasio & Anderson, 1994; Grant, Contoreggi & London, 2000; Lejuez et al., 2002; Rubio et al., 2010). These measures are based on election situations with several alternatives in which the probability of reaching the desired outcomes are inversely proportional to the reward associated. A person prone to risk–taking behavior will be one who opts for the alternatives with greater benfits though with lower probability of obtaining them and/or greater probability of losses.

Psychometric properties of the instruments based on this approach are promising. Hence, several research studies have shown correlations between behavioral performance-based tasks and specific self-reports of risk-taking behaviors (Aklin et al., 2005; Lejuez et al., 2002, 2003). Studies have also examined the relationship between behavioral performance-based tasks and self-reports measuring constructs related to risk propensity, such as the Eysenck's Impulsivity Scale (Eysenck et al., 1985), the Barrat's Impulsivity Scale (Barrat, 1985; Patton, Standford & Barrat, 1995), and the Zuckerman's Sensation Seeking Scale (Zukerman et al., 1978) though results are contradictory (Aklin et al., 2005; Lejuez et al., 2002, 2003). However, correlations have been found between behavioral outcomes, such as the tendency to guess in a multiple-option test (Rubio et al., 2010).

Therefore, as Aklin et al. (2005) pointed out, the development of behavioral performance–based tasks is needed to complement traditional approaches to measure risk propensity. In this regard, the current paper presents the Risk Propensity Task (PTR). PTR is a computer-based task designed for Internet administration that emulates a game of chance. It consists of obtaining as many points as possible by betting on the position where a red token will appear. There are six squares and the examinee can bet on one, two, three, four or five of the six positions. Points are inversely related to the number of squares chosen.

The present paper is aimed to present the psychometric properties of the PTR. In a first study, reliability and dimensionality are analyzed. In a second study, empirical evidence of the PTR validity is analyzed, with respect to other instruments for assessing risk propensity. It was expected that PTR: (a) would adequately represent the participants' risk-taking behavior, (b) would produce a set of reliable risk-taking behavior indices, and (c) risk propensity estimated by the PTR would be positive and significantly related to other measures and would increase the explanation of the variability shown in self-reported risk-taking behavior.

Study 1

The aim consisted of showing the metric characteristics of the PTR, as mentioned. For this purpose, reliability and dimensionality of the task are analyzed.

Method

Participants

234 professionals from different Spanish organizations participated in the present study. All worked as middle managers in telecommunications and industry companies and voluntarily participated in a selection process for a training session. 74% were men, mean age 34.5 (ranging from 26 to 46 years old).

Materials

The Risk Propensity Task (PTR) consisted of a 30-trial computer-based task. Each trial included six tokens, one red and five white. The tokens appear on a set of six squares, which, at the start, are shown empty. The examinee is informed the tokens are going to appear randomly on the squares. His/her task consisted of guessing where the red token would appear. However the many times he/she correctly guesses the location of the red token the more points he/she earns. The task was designed according to the risk-return tradeoff. Thus, the participant can bet on one, two, three, four or five out of six empty squares, taking into account the fact that the more squares chosen, the more probability of guessing correctly and the less points earned. The probability of correctly hitting when choosing only one square was $p = 1/6 = .17$, and had a 5 point reward associated. When two squares are chosen, the probability was $p = .33$ and the reward associated 4 points. If three squares are chosen, $p = .50$ and 3 points the reward. If four squares are chosen, $p = .67$ and 2 points rewarded. Finally, if five squares are selected, $p = .83$ and 1 point rewarded. As can be verified, expected values for the five options range from 1.5 if

three squares are chosen and proportionally decrease whether more or less squares are chosen. Thus, from the expected utility theory, assuming a large enough number of trials, the most profitable option is the middle option (three squares). Thus, conservative behavior might be assumed for those who choose, on average, three options or more and a risk-taking behavior for those who choose below.

The outcome table was always available for the examinee, who had 15 seconds to make each bet. The task was divided into three 10-trial blocks:

Block 1: No feedback trials. Once the participant clicks on the square or squares chosen, the system does not provide any feedback and the following trial begins.

Block 2: Controlled feedback trials: This block aimed to induce non-risky behavior. For this purpose, the examinee received bogus feedback according to the following rule: if the participant bets on three or more squares, he/she receives a message informing him/her that they were correct, otherwise a 'missed' message is shown.

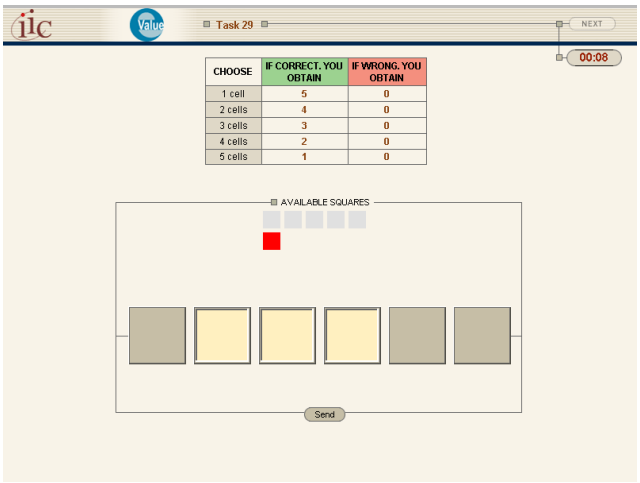

Figure 1: Screenshot of one of the trails of the PTR

Procedure

PTR was administered to the participants together with some other assessment tests included in the Institute of Engineering Knowledge eValue© (2001) system. The administration was carried out during five days in a computer room specifically prepared for these purposes and proctored by the researchers who gave the instructions to the examinees. The participants were informed about the anonymous use for research purposes of the data. No one declined to participate.

Block 3: Post-feedback trials: The last set of trials reproduces the same conditions as the first one (no feedback about performance).

The behavior exhibited in Block 1 trials represents the individual's natural risk tendency. Block 2 trials induce non-risk behavior, rewarding those who bet on three or more squares. Thus, it was expected that a reduction would occur in the variability of the number of squares chosen. Moreover, it was expected that riskier people would show greater changes from Block 1 to Block 2 than non-risk oriented individuals. Finally, it was expected that the effect of Block 2 would be maintained for the duration of Block 3. However, it was predicted that riskier people would still take greater risks than the non-risky participants.

Scores range from 10 (only one square selected per trial in all the trails) to 50 (five squares per trial) for each block. There is also a total score which is the sum of the three blocks. Figure 1 shows a screenshot of one trail.

Results

Table 1 shows descriptive statistics of the indexes obtained. In the three blocks the number of squares is above the medium scale point (30). Figure 2 shows the frequency distribution of squares chosen in each block and in total. As can be seen, the square average chosen in Block 1 is similar to Block 2. However, square average chosen in Block 3 is significantly greater than in Block 1 (t = -2.578; p < .01) and Block 2 (t = -5.406; p < .001). Moreover, Block 2 shows the predicted reduction of number of responses variability. Variance for this Block is significantly lower than Block 1 (t = 2.601; p < .001) variance, though not compared to Block 3 variance.

Table 1 also shows the reliability of each of the blocks and the task as a whole. As can be seen, Cronbach's alpha is greater than .80 in all cases.

Table 1: Descriptive statistics, correlation between PTR blocks and Cronbach's α

		M	SD	1	2	3	4
1	Block 1	27.89	7.66	.88	.57**	.57**	.86**
2	Block 2	27.36	6.21		.85	.69**	.85**
3	Block 3	29.45	6.96			.91	.87**
4	Total	84.93	17.34				.94

M: Mean; SD: Standard Deviation; Cronbach's α in main diagonal;
** p < .01

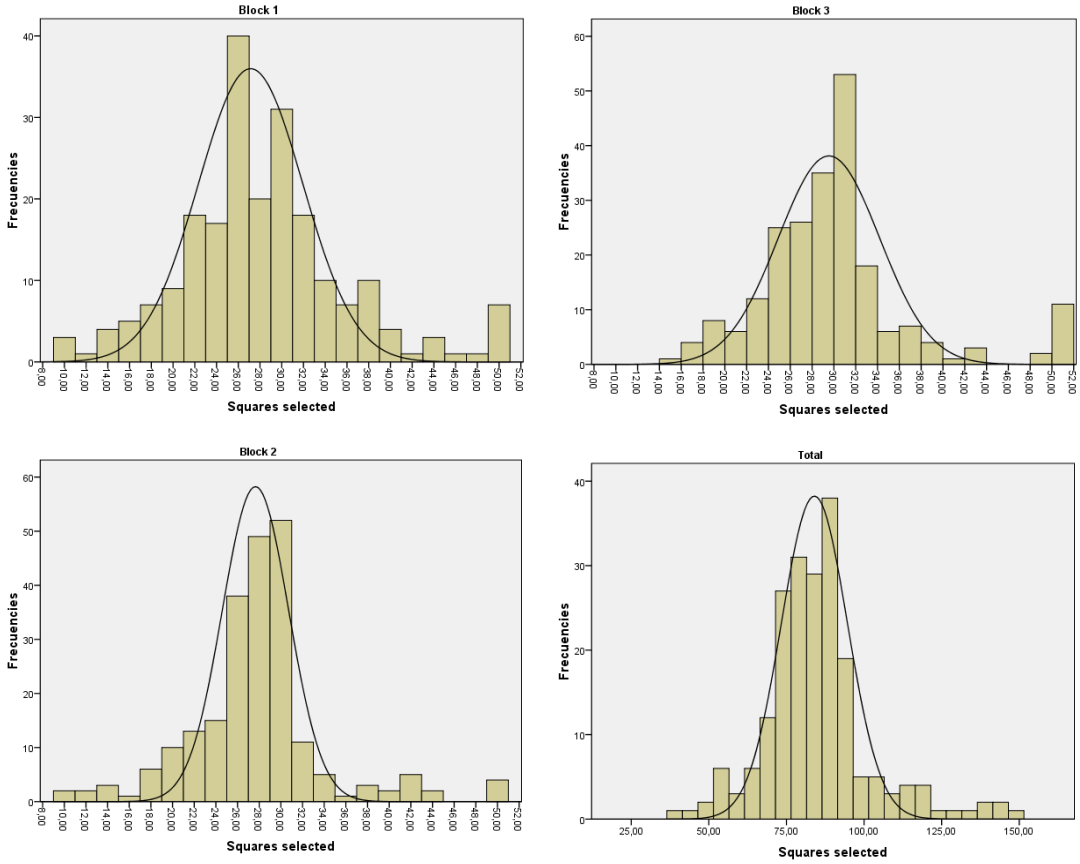

Figure 2: Frequency distributions of squares selected in each of the PTR blocks and the total

Table 2 shows Means and Standard Deviations of each block once individuals had been divided into two groups according to the Median of squares selected in Block 1. As can be seen, riskier individuals increase the number of squares chosen from Block 1 to Block 2 and also from Block 2 to Block 3. To the contrary, conservative individuals reduce the number of squares from Block 1 to 2 but then increase the number again from Block 2 to 3. Moreover, riskier individuals show a lower number of squares selected than the conservatives over the three blocks.

Table 2: Descriptive statistics by risk-propensity groups (established splitting by the median.

	Block 1 Mean (SD)	Block 2 Mean (SD)	Block 3 Mean (SD)
Conservative subjects >27 squares selected	34.15 (5.97)	29.94 (5.65)	31.98 (7.00)
Risk prone subjects <= 27 squares selected	22.64 (4.20)	24.94 (5.32)	27.06 (5.61)

Dimensionality of PTR was analyzed using an exploratory factor analysis. Table 3 shows factorial loadings, percentage of variance explained and eigenvalues for the first two factors extracted for each of the blocks. Blocks 1 and 3 show there is only one factor with eigenvalues greater than 1. Block 2 shows two factors with eigenvalues greater than 1. The first factor percentage of explained variance is greater than 40% in each case. This result fits both Reckase's (1979) and Carmines y Zeller's (1979) criteria, therefore, unidimensionality of the PTR can be assumed. Moreover, the quotient between the first and second factors' eigenvalue is close to 5 in Blocks 1 and 3 (not in Block 2). This shows, according to Martinez Arias' (1995) criterion, unidimensionality for Block 1 and 3 but not for 2. In this Block, examinees' non-risky behavior is rewarded. Factor analysis suggests that individuals' responses to this Block do not depend exclusively on individual's risk propensity but also on the sensitivity to controlled feedback, which gives bogus information on missing the hit unless three or more squares are selected. Similar results are observed when comparing the eigenvalues empirically and randomly obtained for each block (see Figure 3) in the scree plot (Horn, 1965).

Table 3: First factor factorial loadings and percentage of variance explained by this first factor. Eigenvalues of the first and the second factors.

	Block 1	Block 2	Block 3
Trial 01	.60	.62	.66
Trial 02	.64	.73	.74
Trial 03	.74	.74	.78
Trial 04	.73	.65	.72
Trial 05	.75	.63	.73
Trial 06	.70	.66	.80
Trial 07	.70	.62	.75
Trial 08	.72	.63	.73
Trial 09	.70	.66	.71
Trial 10	.71	.65	.74
% Explained Variance	49.34	43.60	54.45
Factor I Eigenvalue	4.93	4.36	5.44
Factor II Eigenvalue	0.86	1.25	0.89

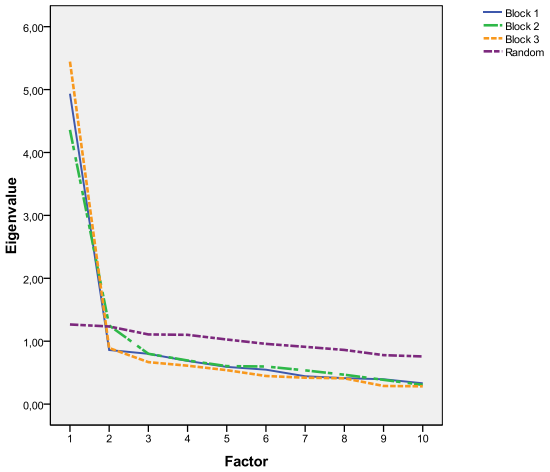

Figure 3: Scree test of PTR each block empirical data and random data

Furthermore, it would be expected that the examinees' responses would be stable in the sense of keeping the individuals rank order over the three blocks, instead of the differences existing in each one. As can be seen in Table 1 the Pearson's correlation coefficient between the number of squares chosen in each block is always positive and significant, with the correlation between Blocks 2 and 3 being greater.

Study 2

Study 2 was aimed to obtain empirical evidence about the PTR validity with regards to other risk propensity assessment instruments. Firstly, PTR scores are compared to risk propensity measures: (a) behavioral performance-based tasks (the Betting Dice Test, Arend, et al., 2003); (b) questionnaires of related constructs usually used as an estimation of risk propensity (the Zuckerman's Sensation Seeking Scale, SSS-V, Zuckerman et al., 1978); and (c), self-reports about risk-taking behaviors (the Risk Taking Index, Nicholson et al., 2005; the Self-report of Risk-taking Behaviours, Lejuez et al., 2003). Secondly, the incremental validity (Husley & Meyer, 2003) of PTR over self-reports is also calculated.

Method

Participants

59 undergraduate students of a Spanish university participated in the study for credits in a psychology course. 76.3% of them were women with a mean age of 22.4 ranging from 18 to 36 years old.

Instruments

- *The Risk Propensity Task (PTR)*, described above.
- *The Betting Dice Test (BDT)* (Arend et al., 2003) consists of a computer-based task in which the examinee should chose one of the four options that are the result of summing the numbers when throwing two dice. Each betting alternative has associated prizes (points): (a) More than 4 (1 point), (b) More than 7 (2 points), (c) More than 9 (5 points), and (d) 12 (30 points). The expected values for each of the options are identical, which means that, in a context of *n* tests, if *n* is sufficiently large (participants are unaware of the number of trials they will have to respond to), any option will provide the same number of points. Thus, it is assumed that individuals who choose the less probable (but highly rewarded) options are showing greater risk-taking behavior. The test consists of ten trials in which participants are not given any feedback about the results of their bets.
- *The Risk Taking Index (RTI)* (Nicholson et al., 2005) is a 5-point 12-item scale in which examinees have to score the frequency in which he/she is involved in risk activities pertaining to six different domains: recreational, health, career, financial, safety, and social. Individuals have to report the frequency of risk behaviors shown in such domains for the present, on the one hand, and for the past, on the other.
- *The Self-report of Risk-taking Behaviors (SRB)*- (Lejuez et al., 2003) is a 10-item measure based on the Centers for Disease Control Youth Risk Behaviour Surveillance System, representing an index of engagement in risk-taking behaviors in daily life. Specifically, participants answered yes or no to being engage in the following behaviors over the past 12 months: (1) smoked a cigarette; (2) drank alcohol; (3) used any illegal drug; (4) gambled for real money; (5) had sexual intercourse without a condom; (6) stolen anything from a store; (7) carried a weapon such as a gun, knife, or club outside home; (8) been in a physical fight; (9) ridden in a car without wearing the seatbelt; (10) ridden a bicycle or motorcycle without a helmet. Summing the number of affirmative responses derived a total risk behavior index score.

- *The Sensation Seeking Scale, Form V (SSS-V)* (Zuckerman et al., 1978). the Spanish version was employed (Pérez & Torrubia, 1986). It consisted of a 40-item scale which is answered in a yes/no format.

The RTI and the SRB were translated into Spanish and back-translated again in order to keep the original meaning of the items of both scales (Brislin, 1970, 1986).

Procedure

All the instruments were administered in a proctored session. Firstly, PTR and BDT were administered using personal computers. Once the computer-based administration had finished, participants completed a booklet of the printed questionnaires. The participants were informed about the anonymous use for research purposes of the data. At the end of the study, students were informed about the specific objectives of the study and the previous results. No one declined to participate.

Results

Table 4 shows descriptive statistics of the different measures as well as Cronbach's α (principal diagonal) and cross correlations between them. BDT shows a mean, S.D. and reliability similar to those reported by Arend et al. (2003). Similarly, RTI and SRB mean and S.D. are similar to those reported in the original studies (Alkin et al., 2005; Lejuez et al., 2003; Nicholson et al., 2005). Finally, SSS-V mean, S.D. and reliability are also similar to those reported in different studies (Pérez & Torrubia, 1986). PTR shows a total mean of 71.6 squares chosen whilst the mean for each block is 23.4 (Block 1), 23.5 (Block 2), and 24.7 (Block 3). Reliability of each Block and the total test is quite satisfactory ($\alpha > .85$). It should be noted that the four internal consistency coefficients as well as the cross correlations between blocks are very similar to those obtained in Study 1. However, each block mean of squares chosen are significantly lower in this study compared to the first although no significant differences appear in the total.

Regarding the relationships between PTR and the other risk propensity measures, it can be observed (Table 4) that the Global PTR score as well as Block 1 and 3 scores significantly correlate with BDT ($r = .31$; $p < .05$; $r = .26$; $p < .05$; and $r = .43$; $p < .01$, respectively). The Global PTR score also significantly correlates with RTI ($r = -.27$; $p < .05$) and SRB ($r = -.34$; $p < .01$), but not with SSS-V. In this case there is only a significant correlation between PTR Block 1 score and the Sensation Seeking measure ($r = -.28$; $p < .05$). On the other hand, as expected, there is a positive significant correlation between the two self-reported risk propensity scales ($r = .29$; $p < .05$) and between both and the SSS-V ($r = .36$; $p < .01$, and $r = .26$; $p < .05$, respectively).

Table 4: Mean, Standard Deviation, Cronbach's α and correlations between the Study 2 tests

	M	SD	1	2	3	4	5	6	7	8
1 PTR Global	71.6	18.9	*.94*	.88**	.90**	.88**	.31*	-.27*	-.34**	-.17
2 PTR 1	23.4	7.9		*.87*	.69**	.63**	.26*	-.23	-.25	-.28*
3 PTR 2	23.5	6.6			*.85*	.76**	.16	-.29*	-.33*	-.16
4 PTR 3	24.7	6.7				*.87*	.43**	-.20	-.34**	.00
5 BDTv2	1.05	0.3					*.72*	-.25	-.12	-.13
6 RTI	24.5	6.1						*.70*	.29*	.36**
7 SRB	2.8	2.1							*.68*	.26*
8 SSS-V	20.1	5.5								*.76*

M: Mean; SD: Standard Deviation; Cronbach's α in main diagonal;
* p < .05; ** p < .01

In order to perform an in depth analysis of the relationships of PTR and specific risk-taking behavior domains, several t-tests were carried out comparing PTR scores in each of the domains included in the SRB. Table 5 shows that PTR scores were able to discriminate risk behaviors such as drinking alcohol (PTR Global, Block 1 Block 2, and Block 3 scores), carrying a weapon such as a gun or knife (PTR Global, Block 2, and Block 3 scores), being involved in a physical fight (PTR Global, and Block 2 scores), riding in a car without wearing the seatbelt (PTR Block 2 score), and riding a bicycle or motorcycle without a helmet (PTR Block 3 score).

Table 5: t-tests of PTR scores according to showing or not SRB risk-taking behaviors.

	PTR Total	PTR 1	PTR 2	PTR 3
	t	*t*	*t*	*t*
Smoking cigarettes	1.6	2.4	0.1	2.0
Drinking alcohol	6.6*	4.2*	4.4*	7.1**
Using illegal drugs	0.6	0.8	0.4	0.2
Gambling for real money	1.3	0.6	2.1	0.7
Having sexual intercourse without condom	1.9	1.3	1.6	1.5
Stealing anything from a store	0.1	0.0	0.0	1.0
Carrying weapons	4.7*	1.7	5.2*	5.2*
Being in a physical fight	4.6*	2.3	9.6**	1.6
Riding in a car without seatbelt	3.4	1.1	6.0*	2.5
Riding a bike without helmet	2.4	0.4	2.5	4.5*

* p < .05; ** p < .01

Finally, in order to determine the SRB risk-taking behaviors proportion of variance predicted by the PTR, a hierarchical regression analysis was carried out. In the first step, RTI and SSS-V were introduced. BDT was not introduced due to the lack of correlation between this test and the SRB. The Global PTR score was introduced in a second step. As can be seen in table 6, the percentage of explained variance when PTR is introduced increases to 6.7% ($R^2\Delta = 0.067$; $p < .05$).

Table 6: Hierarchical regression analysis over SRB risk-taking behaviors

		dF	*F*	$R^2\Delta$	*β*
Step 1		2. 54	3.28	.108*	
	RTI				.242
	SSS-V				.153
Step 2		1. 53	4.27	.067*	
	RTI				.175
	SSS-V				.132
	PTR				-.269*

* $p < .05$

Discussion

The current paper attempted to present the psychometric properties of the Risk Propensity Task (PTR). For these purposes, two different studies were carried out. Results of Study 1 show that PTR is a reliable instrument in terms of internal consistency. Additionally, positive and statistically significant correlations between blocks also support the consistency of the behavior exhibited. The analysis of dimensionality shows that individuals' behavior depends on their idiosyncratic way of solving the task, and the different scores proposed adequately express the risk-taking behavior shown in the different blocks the task consists of.

The results obtained in Study 2 emphasize the convergent and incremental validity of the PTR regarding some other risk propensity measures. Thus, the PTR scores are significantly correlated with the diverse risk propensity criteria used. Regarding the self-reported risk-taking behaviors, there are significant correlations between PTR and both the number of risk-taking behaviors reported by the SRB and by the RTI (negative correlations in this case due to the fact that the greater the PTR score, the lower the risk assumed). This result is particularly relevant bearing in mind the fact that many studies have found very low or even nil convergence between self-reported and objective performance-based measures (Skinner & Howarth, 1973; Santacreu, Rubio & Hernández, 2006). Specifically, using the risk-taking behaviors included in the SRB, it can be observed how people reporting drinking alcohol, carrying weapons, being involved in physical fights, riding a car without a seatbelt or riding bikes without a helmet are those who demonstrate greater risk-taking behaviors in the PTR. The hierarchical regression analysis shows that using PTR scores in predicting SRB risk-taking behaviors significantly increases (6.7%) the percentage of variance explained.

Results have also shown a clear relationship between PTR and BDT scores. This result should be highlighted bearing in mind the lack of convergence between behavioral risk propensity measures which has been found. For instance, Aklin et al. (2005) did not find a correlation in risk propensity estimated through two different behavioral performance-based measures: the Bechara Gambling Test and the Balloon Analogue Risk Task. Authors have tried to explain the absence of correlation in terms of the logic behind and organization of both tests, as each one would involve different aspects of risk propensity. However, the lack of convergent validity among objective behavioral measures has questioned the power of this sort of instrument to estimate risk propensity and even the notion of risk propensity itself (vid Rubio et al., 2010). The results here obtained support the contrary. Particularly, the lack of correlation between PTR Block 2 scores (in which controlled feedback is provided) and BDT suggests that when the situation does not prescribe a "correct response" (that is, when the situation does not prescribe just one and only one response as acceptable or valid), risk propensity would emerge as an idiosyncratic behavioral pattern. This is not possible when one response is rewarded more than the others.

Nevertheless, when comparing PTR with the SSS-V, there is a significant correlation only between SSS-V scores and PTR Block 1 scores. These results corroborate those from previous studies in which there is no clear relationship between self-

reported sensation seeking and behavioral performance-based measures. In fact, neither Aklin et al. (2005) nor Lejuez et al. (2003) found significant correlations between two behaviorally based measures (the IGT and the BART) and the sensation seeking scale, though Lejuez did in a previous study (Lejuez et al., 2002). The results clearly show the need for an in depth analysis of the relationship between self-reported sensation seeking and behavioral performance-based tests regarding risk propensity assessment. It would be possible that sensation seeking taps just only a small facet of risk propensity.

In conclusion, the results obtained constitute evidence for the reliability and the validity of the PTR as well as demonstrating its use for assessing risk propensity. Nevertheless, several limitations of the design should be considered. Firstly, in spite of the convergent and incremental validity found, the correlation study carried out does not allow an accurate analysis of the predictive validity of the instrument. This can be determined through subsequent follow up studies on risk-taking behaviors individuals engage in. Secondly, the effects of controlled feedback, which provides the message of getting the token location correct only when three or more squares have been chosen, should be carefully analyzed. The current design with the same condition for all the participants does not determine the characteristics of individuals' feedback sensitivity that arose as a component different to risk propensity. This will be studied in future work. Finally, it should be noted that Study 2 has been carried out with a limited sample size made up of university students. Future directions should test the results with different and larger sample sizes.

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