Translation, cross-cultural adaptation, and reliability, of the Italian version of the Passive Risk Taking (PRT) Scale

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Abstract

The concept of "passive risk taking", which refers to the risk brought on or magnified by inaction, has recently appeared in the literature on risk taking. Keinan and Bereby-Meyer (2012) have developed a scale to measure the personal tendency for passive risk taking (PRT); the scale has criterion validity and high test-retest reliability; it correlates with reported passive risk taking in everyday life and with the DOSPERT scale. Furthermore, it presents divergent validity from classic risk-taking constructs such as sensation seeking, and convergent validity with procrastination and avoidance. In this paper we propose a validation of the PRT scale in Italian. We performed the linguistic adaptation to Italian via the five steps suggested by Guillemin and colleagues (1993) and Beaton and colleagues (2000); we then submitted the derived questionnaire to a 297-adult sample. Results show that two out of three factors from the original scale were confirmed. However the third factor, originally composed of 6 items, was not consistent. We present the scale derived from such results, and discuss the differences with the original scale.

Keywords: passive risk taking, risk behavior, cross-cultural, cognitive debriefing, reliability.

1 Introduction: The construct of passive risk taking

The concept of "risk taking" has created a great deal of interest in recent years. Classically, literature focusing on risk taking has mostly investigated actions and behaviors of individuals which put them in a risk condition, and less attention has been paid to actions and behaviors that individuals do not do or avoid doing, thus putting them into risky situations. Keinan and Bereby-Meyer have examined that such a tendency, conceptualized as "passive risk taking" (PRT), may be considered a separate domain of risk-taking behavior. To define the concept of passive risk taking, the authors drew inspiration from the most widely-accepted definition of riskier choice as being the choice with the greater outcome variance. They therefore define passive risk taking as "foregoing an opportunity to act in order to reduce outcome variance" (Keinan & Bereby-Meyer 2012, p. 705). Such a concept is a unique domain within risk taking, and it is a separate construct from active risk taking, status quo bias (Samuelson & Zeckhauser, 1988) or inaction biases (Keinan & Bereby-Meyer 2012), and from Protection Motivation Theory (Rogers, 1975).

Whereas risk taking is related with sensation seeking (e.g., Andrew & Cronin, 1997) and with impulsive tendencies (see Zuckerman, 2007 for a review) passive risk taking is related to "inaction" tendencies, such as procrastination, defined as "the act of needlessly delaying tasks to the point of experiencing subjective discomfort" (Solomon & Rothblum, 1984, p. 503), and avoidance, that is the act of refraining from, or escaping from, a disturbing action, person or thing. However, passive risk taking also differs from procrastination, in that "the procrastinator knows that eventually he will have to complete the task at hand, the decision to act has already been established—it is only the actual doing that is delayed. In passive risk taking people decide "not to act", or in some cases "not act for now". (Keinan and Bereby-Meyer 2012, p. 706). Also, passive risk taking differs from avoidance (for a scale that measures avoidance see Mann, Burnett, Radford & Ford, 1997), in that avoidance usually applies when individuals are in stressful situations and experience a decisional conflict, because the action they should perform may lead to harm themselves or someone else. Therefore, individuals avoid making a decision because they are afraid of making mistakes or of harming someone, and are guided by anticipated high level of regret (Nicolle, Fleming, Bach, Driver & Dolan, 2011). Conversely, in passive risk taking the action eventually performed is expected to lead to favorable or neutral results, but not to negative outcomes.

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1.1 The Passive Risk Taking questionnaire

In the study by Keinan and Bereby-Meyer, the passive risk taking attitude is measurable in circumstances involving inaction or inactivity. There are several risky situations in which both action and inaction carry some risk (for instance heart surgery). In this case, for example, the choice individuals have to perform is between taking a risk actively (undergoing surgery) or taking a risk inactively (not undergoing surgery). To maintain the clarity of the experimental design, the authors decided to focus on the individual tendency toward passive risk taking, and not on the comparison between active and passive risk-taking attitudes.

The original questionnaire on passive risk taking comprised 25 items that covered the following risk domains: (1) risks regarding resources (money, time and effort), (2) risks regarding health and safety, (3) risks related to leisure and/or recreational activities, and (4) ethical risks. Responses were collected with a 7-point rating scale (ranging from 1, very unlikely, to 7, very likely) indicating to what extent the individual was likely to behave in the manner described in each item.

To validate their questionnaire, the authors submitted it to a sample of 150 adult subjects, who also completed other questionnaires to evaluate the discriminant validity of the PRT scale from other scales that measure other forms of risk taking (namely, "active" risk taking), and to test criterion validity with actual behaviors. Results revealed good discriminant and criterion validity. As the discussion on discriminant and criterion validity of the PRT goes beyond the aims of our paper, we will not go into more detail on this point.

Factor analysis on the original PRT questionnaire extracted three factors, corresponding to the original domains: resources, medical and ethical. As the domain of recreational risk did not show any coherence, nor load logically to any factor, the authors removed it.

The first factor (resources), that contained 12 items, had a Cronbach's alpha of 0.82 and explained 19.87%, of the variance. The second factor (medical), that contained 7 items, had an alpha of 0.73 and explained 10.2% of the variance while the third factor (ethical), that included 6 items explained 7.86% of the variance and had a moderate alpha of 0.60. The authors, in the same paper, also examined the test-retest reliability administering the questionnaire twice, with a three-week interval, to a sample of 100 adults. Results showed that test-retest correlations of the PRT general score, and of the resources, medical and ethical factors were all significant. They also calculated the internal reliability of the three factors extracted in Experiment 1: alphas were 0.78 for "resources", 0.74 for "medical" and 0.37 for "ethical".

Given the increasing need to undertake multinational studies, potentially useful tools such as the PRT must demonstrate cross-cultural invariance, in order to ensure equivalence when data pooling or comparisons are made across countries. We know of only one example in which the construct of passive risk taking has been tested with success. This was a study describing risk attitudes in game-playing in Thailand. The scale was translated and back-translated in Thai and proved to be appropriate and functional (Tangsattayacheepa & Tanlamaib, 2015). In another study exploring process accountability and the use of status quo heuristics, we found that, even though the authors did not use this scale for the purpose of their research, they highlighted the importance of using this scale for future investigations because passive risk taking seemed to represent a very important variable in risk evaluation (Messier et al., 2014).

There are also cultural reasons for an interest in translating this scale. The passive risk-taking tendency, as with any other human behaviors, is presumably influenced not only by personality, emotional and cognitive factors but also by social and cultural development. For this reason, it is important to measure this trait across cultures to better understand how this tendency is expressed, in which areas of every-day life it is more evident than others, and which behaviors may be influenced by cultural factors. It is well known, for example, that "saving money regularly" is often influenced by cultural values and cultural practices and not only by the use of certain strategies or by the impact of emotions (e.g., Guiso et al., 2006).

Cross-cultural adaptation and reliability of the Italian translation of the PRT will contribute towards establishing the PRT as a cross-cultural measure and improving the standardization of data capture in research and treatment evaluation in clinical settings across countries. For these reasons, the objective of the current study was to undertake cross-cultural adaptation and reliability measurement of an Italian language version of the PRT for use in Italy.

2 Methods

2.1 Subjects and design

We conducted a cross-sectional survey with subjects recruited through the University of Milan.

Enrolled subjects came from the university campus and from outside (the city and surrounding area of Milan). They were given information about the study before their written consent was obtained. The study group was available to answer any queries from the subjects.

Subjects met the following inclusion criteria: (1) they were aged 18 or over, and (2) they were native Italian speakers. The study consisted of two phases: the cross-cultural adaptation of the PRT and the cross-cultural validation of the resulting adapted PRT. The Department of Health Sciences of the University of Milan recruited subjects through

the University portal (mailing lists, posts and web advertisements) with a free access also for external users.

2.2 Cross-cultural adaptation: The Passive Risk Taking adaptation

The original version of the PRT scale was translated and adapted to the Italian language following the rules of Guillemin et al. (2000), which are specific for self-report instruments:

Step 1. Forward translation: The questionnaire was decoded into Italian by two qualified translators having Italian as their mother tongue.

Step 2. Synthesis: The two translators discussed their work and approved a shared Italian version. Incongruities between the two versions were examined and solved by consensus between the two operators.

Step 3. Back translation: Two English mother-tongue qualified translators, who were unaware of the construct of the scale and had no psychological background, independently translated the questionnaire into English, thus generating two back translations of the questionnaire.

Step 4. Expert Committee: A Committee was set up, composed of the four translators, social professionals (five psychologists with expertise in risk studies, a social scientist, one methodologist-biostatistician and one linguist). The back translations were matched with the original version in terms of semantic, idiomatic, experiential and contextual correspondence, to identify incongruities. The prefinal version of the questionnaire was obtained with the consensus of the expert committee.

Step 5. Test of the prefinal version: The prefinal version was administered to a sample of volunteers, who were Italian native speakers recruited in Italy. At this phase, each subject was asked to carry out a cognitive debriefing, and assigned the following tasks:

- To complete a copy of the translated PRT (the time taken to complete the PRT was also documented).
- To comment on the response options within the back-translated PRT (response mapping).
- To comment on any wording that was difficult to understand.
- To suggest alternative wording/phrasing for any wording that was difficult to understand.
- To describe in their own words what the wording meant to them.

These responses were recorded verbatim and translated into English.

In this phase, subjects were required to compare questions in terms of acceptability of content (whether the wording and content of the question was suitable according to the context), precision of wording, and utility, using a 3-point scale, and were asked to provide annotations and suggestions.

2.3 Further testing of the adapted version: Statistical reliability

After the translation and adaptation process, we performed additional testing to guarantee that the new version would have adequate measurement properties (Guillemin et al. 2000). For this purpose, we used data from a new sample of volunteers recruited via the University of Milan.

3 Results

3.1 Sample characteristics

A total of 297 subjects completed the PRT questionnaire, 124 male (41.8%) and 173 female (58.2%). Mean age was 41 years (SD=14.1). Among these subjects, 84 subjects did the test-retest; 32 male (38.1%) and 52 female (61.9%). Mean age of test-retest was 47 years (SD=13.2)

3.2 Factor analysis

The Exploratory Factor Analysis (EFA) method was used to examine the relationships among variables in order to define the construct. The form used was the Principal Component Analysis (PCA) in which all the variances of a variable (total variance) were analyzed. To guarantee an adequate sample size, two principles were considered: 1) Kaiser-Meyer-Olkin (KMO) sampling adequacy; 2) Factor loadings and factor correlation between a variable and a factor. The KMO sampling adequacy on the PRT was good and ranked at level of 0.79 (Kaiser, 1974).

On the first analysis of PCA, the total variance of the PRT factors was 67% and the number of factors extracted was eight. While the first three factors counted for the great majority of total variance (45.3%), factors from 4 to 8 explained a very small quota of total variance oscillating from 4% to 6%. The communalities of the items on the PRT were > 0.5. Details are described in the Appendix. A scree plot was computed on the first PCA and showed there were eight factors. According to Steven (2002) and Field (2005), the scree plot and eigenvalues are precise indicators to determine how many factors should be retained when the sample is > 250 and communalities (variance of the variables) are > 0.6. Items were eliminated from the factor pattern matrix of

Table 1: PCA with three factors extracted.

Item		Component		
		1	2	3
1	Buy an expensive product (computer, refrigerator) only after comparing prices in several stores	.756		
6	Save receipts and warranty documents of major items in an organized fashion	.740		
5	Read the fine print on any major document like a lease, an insurance policy or loan application	.725		
7	Check tolls and prices before calling long distance or overseas	.716		
4	Inquire all about a course before signing up (who is the lecturer, what are the topics, the assignments etc.)	.700		
8	Back up all important files on the computer, including documents, pictures or videos	.676		
11	Buy clothes without trying them on	.658		
2	Install an up to date anti-virus on my computer	.647		
3	Check the credit card bill in detail every month	.645		
9	Not save money regularly	.571		
12	Buy a used car only after taking it to a complete check up in a licensed auto shop	.521		
10	Always lock the house door when going to sleep	.517		
18	Ask the person I am dating about his/her sexual history		.697	
13	Immediately go to the doctor's when something in my body is aching or bothering me		.673	
16	Install an anti-collision device in the car		.645	
15	Get vaccinated for the flu in the winter		.602	
14	Have regular general medical check-ups every one or two years		.533	
19	Buy serious medical insurance when traveling to another country		.302	
17	Drive straight to the auto repair shop when the car makes a strange noise		.302	
22	Change some part in the car (filter, strap, etc.) because the mechanic said it was old and due to fail			.439
21	Pay when parking in a blue-white zone as directed by the parking meter			.323
23	Go through customs without declaring about goods I am bringing which are supposed to be taxed			.319
20	Always wear a seatbelt when sitting in the back seat			.316
25	Not say anything when receiving too much change at the store			.315
24	Report to social services about a child from the neighborhood that is being seriously neglected by his parents			.307

the PRT when the factor loading was $< \pm 0.29$, as the number of subjects was higher than 250 (Stevens, 2002). However this initial solution did not guarantee an appropriate solution due to a high presence of items which were cross-loaded on two or more factors. Details are included in the Appendix. We therefore decided to repeat the PCA using a fixed number of factors as a method of extraction. We set the number of factors as three according to the original scale of PRT. At the second round, the total variance of the draft PRT factors was 45.5% and this result was still considered good (Field, 2005). The factor loadings of the final PCA and their factorial weights are shown in Table 1. The first factor contained 12 items and accounted for most of the variance (23.1%). The second factor contained 7 items and accounted for the 12.5% of the total variance while the third factor accounted

for the 9.5% and it was composed of 6 items.

According to the original scale, we named the first factor "Resources", the second factor "Medical" and the third factor "Ethical".

3.3 Reliability

Internal consistency. Internal consistency was computed with the intent both to measure the inter-item correlations within the scale and to specify how well the items fit together theoretically (Nunnally & Bernstein 1994; DeVon et al., 2007). Alpha was calculated for the Italian PRT after construct validation and was 0.81, indicating a good correlation among the items and a consistent reliability (DeVellis

Table 2: Test-retest results.

	t	df	p (2-tailed)
1	.092	168	.927
2	.079	167	.937
3	.041	168	.967
4	.443	168	.659
5	.502	168	.616
6	.640	168	.523
7	.053	168	.958
8	.500	168	.618
9	.148	144	.883
10	.842	168	.401
11	.606	168	.546
12	.451	168	.652
13	.214	168	.831
14	−.245	168	.807
15	−1.120	166	.264
16	.023	168	.981
17	−.362	168	.718
18	−.226	168	.822
19	.195	168	.845
20	−.219	168	.827
21	.461	168	.645
22	.202	168	.840
23	−.251	168	.802
24	−1.122	168	.264
25	−1.207	167	.229

1991; DeVon et al. 2007). There exists literature indicating that the alpha should be at least 0.90 (Nunnally & Bernstein 1994) while other literature suggests that also lower values (alpha around 0.70) are acceptable for a new instrument (DeVellis 1991; DeVon et al. 2007). Cronbach's alpha was also computed for each single factor and was 0.78 for the first factor, 0.71 for the second factor and 0.54 for the third factor.

Test-Retest. As Cortina's works show, "Although alpha is sometimes referred to as the 'estimate' of reliability, it is not the only estimate of reliability" (Cortina, 1993, p. 98). Test-retest may be used to evaluate the reliability of a scale. For the current study, a subgroup of 84 adults completed the PRT test and retest in a period of eight weeks and Wilcoxon Non-parametric Statistical Test showed no significant differences between the two tests (Table 2).

3.4 The final PRT Questionnaire

The final PRT Scale includes three subscales composed of the items as described in Appendix. In the Italian version, the three new subscales maintained the same name as in the original version:

Subscale 1: This factor includes twelve items and reflects information about passive risk taking in the domain of recreation and usual activities. The highest loading items were item 1, "Buy an expensive product (computer, refrigerator) only after comparing prices in several stores" (factor loading of 0.756), item 6, "Save receipts and warranty documents of major items in an organized fashion" (loading of 0.740) and item 5, "Read the fine print on any major document like a lease, an insurance policy or loan application" (loading of 0.725).

Subscale 2: This factor includes seven items and reflects information about passive risk taking in the domain of medical and health context. The highest loading items were item 18: "Ask the person I am dating about his/her sexual history" (factor loading of 0.697), item 13, "Immediately go to the doctor's when something in my body is aching or bothering me" (loading of 0.673).

Subscale 3: This factor includes six ethical items and reflects information about passive risk taking in the domain of ethical issues. The highest loading item was item 22: "Change some part in the car (filter, strap, etc.) because the mechanic said it was old and due to fail" (factor loading of 0.439).

4   Discussion

The stability of research is highly correlated with the accuracy of the methods chosen, particularly when studying complex phenomena such as risk taking. Here we examined the cross-cultural adaptation and the reliability of the Passive Risk Taking Scale applying rigor and accuracy in our methods.

Based on psychometric analysis of the instrument, we conclude that the original 25-item Passive Risk Scale has a stable linguistic adaptation but it has not reached a structured equivalence in Italian. In term of adaptation, the process of translation and back translation from English to Italian was successfully completed. The process used to validate the PRT was rigorous and appropriate. Back-forward translation and content validity helped assess whether the content was relevant to the concept of risk taking defined for the study. In terms of equivalence, factor analysis was performed to assess the theoretical construct of the PRT. We investigated possible 8 and 3-subscales versions of the scale but we found that the 3-subscales version possessed better psychometric properties. However, the Ethical scale presented sub-optimal psychometric properties. Therefore, we

conclude that the Italian PRT did not reach a stable equivalence.

It is not easy to identify the reasons behind the statistical frailty of "ethics" domain. We attempted to identify a possible explanation about the low reliability of this sub-scale evaluating more in depth the content of what ethics means. Ethics generally investigates questions about human morality, by describing dimensions such as good and evil, human integrity and individual values (Darwall, 1998). In our questionnaire, while some items of the "ethical" domain appear to be properly related to ethics and human morality such as "Report to social services about a child from the neighborhood that is being seriously neglected by his parents." or "Go through customs without declaring about goods I am bringing which are supposed to be taxed" and "Not say anything when receiving too much change at the store", other items such as "Always wear a seatbelt when sitting in the back seat" and "Change some part in the car (filter, strap, etc.) because the mechanic said it was old and due to fail" seem seem more related to conventions, and they do not appear quite as closely related with issues concerning morality, individual values or integrity.

However, we decided to maintain the structure of this scale as valid at this stage following different methodological reasons. Firstly, according to some of the psychometric literature, the absence of full reliability of a specific sub-scale in works of questionnaire adaptation is not so relevant (e.g., Loevinger, 1957). Secondly, the internal reliability (alpha) for the whole scale reached the recommended level for research use. Moreover, the test-retest indicated stability of the responses to the items on the PRT over time. Thirdly, we accepted the cross-culturally Italian version of the scale partly because our psychometric results appeared in line with results obtained by the authors of the original work. In the original work, the authors obtained a low internal reliability for the ethical factor, even lower than what we found in our current work.

Last but not least, the results of the trans-cultural adaptation indicated the PRT is a specific construct measurable in different everyday life situations. While risk taking has been recently recognized as an important aspect of behavior, researchers often find it difficult to measure it when assessing behavior and decision processes; largely because risk is in general highly difficult to define, often confused with other constructs (e.g., fear, danger), and domain-specific. This paper describes a specific domain of risk according to a specific definition and context of passive risk taking: renouncing an opportunity or relinquishing an action in order to reduce outcome variance which might have undesirable consequences in connection with usual problems, dangerous situations, or unexpected events.

Independently of the results of the three subscales, the present work gives us the possibility to reflect upon the "face validity" of a scale, i.e. the transparency or relevance of a

test as it appears to test subjects. In other words, a test can be said to have face validity if it "looks like" it is going to measure that which it is supposed to measure (Holden, 2010). According to Hayes. Nelson and Jarrett (1987, p. 972). "a measure could readily have treatment utility without internal consistency . . . high internal consistency should not necessarily be expected." We think that this scale, although it has some weaknesses in the ethical domain, is "ecological" because it investigates a peculiar aspect of risk behavior and therefore, it maintains a face validity. For this reason, we have decided not to modify the original by adding new items or deleting old ones at this stage. A future study, focusing more on psychometrics properties and the confirmatory validity of the PRT scale, will clarify possible modifications from the original structure.

The PRT Scale proposed in this paper will provide these researchers with a measure of the construct that is precise, brief and cross-culturally compared. The ability to measure risk in different situations of everyday life makes this questionnaire a practical instrument applicable to several contexts, and provides an exhaustive picture of people's risk attitudes.

4.1 Future directions

The cross-cultural adaptation and the validation process of the PRT scale did not recognize a perfect equivalence of the instrument in the Italian version. In the future, we propose to examine validity in detail confirming or disconfirming the original structure of this scale, applying a confirmatory analysis with a new sample of subjects.

However, this work, even with methodological limitations, recognizes passive risk as an original construct and it recognizes the PRT scale with a face validity. While the scale gave the opportunity to measure *when* passive risk taking is applied and in what circumstances, it remains to be investigated *why* people take passive risks. One avenue for future research should focus on the cognitive aspects of passive risk taking and examine the roles that are played in passive risk situations by personal perception and known preference anomalies, such as sensation seeking (Zaleskwi, 1984), loss aversion (Kahneman et al., 1991) or procrastination (Ottenbreit & Dobson, 2004). Recently, the construct of risk is spreading across the border of other disciplines, such as medical decision making (Riva et al., 2012; Riva et al., 2011; Gorini & Pravettoni, 2011). The new translated and validated version of PRT could be an useful measure to better study medical decisions of patients in relation toseveral aspects such as the type of treatment, the type of regimen, and the type of communication with the physician (Riva et al 2014)

Another future direction for research is to examine the motivational aspects of passive risk taking and the role of personal accountability. It is well-known from the literature

that risk aversion often increases with personal accountability (Tetlock & Boettger, 1994), since accountability motivates self-critical forms of judgment processes (Lerner & Tetlock, 1999). It seems plausible that, once people do feel accountable, they process information better, they realize that they are in a risky situation, and they are motivated to act to avoid unwanted risk. On the other hand, regret seems to be the emotion that supports personal accountability and, therefore, risk attitudes. As Passyn and colleague (2006, p. 584) posit, "cognitions of self-accountability motivate intentions, but the drive for implementation or completion requires the additional impetus of an emotional experience." When facing with the possibility of encountering a negative outcome, the anticipation of regret guides behavior by improving the decision-making process, also including a justification finding process. From this perspective, regret induces people to search for more information and to think more carefully about the choice, making the decision process more justifiable (Reb, 2008). Future research should examine the role played by self-accountability emotions in passive risk taking and explore relations between the two constructs in different social and cultural environments.

4.2   Conclusion

Having a valid and reliable instrument with which to measure the passive risk-taking tendency in different cultures should enhance the empirical and conceptual work on what this construct means and what it implies about people's decision strategies and decision satisfaction. If we can learn more about this construct with new research, and better understand the underlying mechanisms that may perpetuate such risk taking, we may be able to develop educational projects and public strategies directed towards inhibiting avoidable risk taking.

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