CORRESPONDENCE

What Is the PRISM Visual Tool Measuring? Risk Affiliation?

To the Editor-in-Chief:

Perhaps for the first time, researchers have attempted to formally measure the risk perceptions of travelers compared with expert providers regarding health risks using a psychometric measuring instrument.1 However in both the original article and the associated editorial,2 there was no discussion or referencing of the vast body of knowledge from the field of risk perception within the greater context of risk research.3 Some of the findings from Zimmermann and colleagues1 using the PRISM visual tool could easily be ascribed to established attributes of risk perception documented in the plethora of risk research falling outside of travel medicine. The purpose of this correspondence is to critique the lack of validation of this particular instrument for measuring attributes of risk perception. A coherent risk research agenda is also lacking within the International Society of Travel Medicine (ISTM)4 and the field of travel medicine in general.5

Zimmermann and colleagues used a visual psychometric measuring instrument to record travelers’ risk perceptions.1 This tool is called the “pictorial representation of illness and self measurement” or PRISM6 being successfully validated in the past,7 but solely in the context of subjective burden of suffering in patients with chronic diseases.8–10 The PRISM has never been formally validated in the context of evaluating risk perception in relatively healthy travelers.1 Therefore, it would have been useful for the researchers to have first validated this psychometric tool in the full context of travel medicine practice before conducting applied research and trying to draw conclusions from its findings. Suffering from a chronic disease is a subjective consequence of the condition, whereas risk may be a perceived or technical measure of uncertainty about future events. Thus, the PRISM has been validated under a condition (ie, suffering from chronic disease), which is a very different phenomenon from the concept of risk.

For this visual tool to be considered validated for use in the field of travel medicine, PRISM results need to be compared with the results of other validated methods for measuring risk perception. While there are many models for explaining risk perception, the most popular are the “psychometric paradigm”11 and “heuristics-and-biases” approaches.12 Two potential effects of risk perception may be influencing the PRISM in the recent study, namely the risk attributes of familiarity compared with dread13 and the cognitive bias of unrealistic optimism.14 Typically in other risk research findings, “accidents” and sexually transmitted infections (“STIs”) are perceived as more familiar and less dreaded risks15–18 whereas “terrorist attacks” and vaccine-related adverse events (“VAEs”) may be perceived as less familiar and more dreaded risks.19,20 Even if an individual has a greater affiliation with familiar risks (eg, “accidents”), the person may also feel less concern about such a risk because it is perceived as less dreaded compared with exotic risks.11

In Figure 3 of the Zimmermann article, the general trend of results from the PRISM’s “self-risk separation” or SRS (ie, stated as a proxy for risk perception) appears to be increasing for both the traveler and the expert, from more familiar and less dreaded risks (eg, “accidents,” “mosquitoes,” and “STIs”) to less familiar and more dreaded risks (eg, “terrorist attacks,” “epidemic outbreaks,” and “VAEs”). If the SRS was a valid measure for risk perceptions, one would expect the SRS to measure this trend in the opposite direction, as per established risk research within other fields.3,11,13 For example, injury prevention programs typically find low “outrage” or perceived risk for common accidents, such as motor vehicle collisions15 and sporting injuries.16 The problem here may partly be related to the PRISM having solely been validated for “self-illness separation” (ie, the distance between “self” and the patient’s illness), which is inversely proportional to the perceived importance of a chronic illness and not a travel-related risk.6,7 The authors have made an untested assumption that the PRISM will also measure perceived risk, as it does for subjective suffering.1

This last point is important if we want to use any specific psychometric tool to make observations and corresponding conclusions about pre-travel risk management and risk communication strategies. Are we really measuring risk perceptions among travelers and experts, or are we measuring something else? In the case of PRISM, we may simply be measuring a person’s affiliation with a given risk in the same manner as it is used to measure a person’s affiliation with an illness or chronic symptom that is part of their ongoing suffering.6–10 If so, then the SRS may not be measuring the important characteristics of risk perception that motivate people to take preventive action or inhibit them from addressing travel-related risks (eg, dreaded vs not dreaded, imposed vs voluntary, man-made vs natural, etc.).3,11,13

Some of the results1 may also be affected by unidentified heuristics (ie, mental shortcuts) leading to observable cognitive biases as described in the “heuristics-and-biases” approach.11,21 For example, some differences in SRS scores between the experts and traveler for certain risk categories may be partially explained by unrealistic optimism or “optimistic bias.”14 The PRISM results suggest that travelers are less concerned about contracting STIs compared with the expert providers, yet there is good medical evidence that STIs are a significant...
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travel-related problem. The traveler may feel less likely to contract a STI compared with the “average traveler,” because he or she is overconfident in his or her abilities to avoid unprotected sex. The traveler may also underestimate the risk of contracting an STI following exposures compared with the technical risk of “other” travelers. Optimism bias can also go in the other direction. When the expert provider describes the risk of serious VAEs, a traveler may feel that “I will likely be the person to get that side effect.” Conversely, experts may assess the risk more on a technical basis, as the provider is not the individual receiving the immunization and perhaps not as prone to optimism bias compared to the traveler. The possible effects of risk perceptions and heuristics-biases within the results of the Zimmermann and colleagues article are illustrated in Figure 1.

The Zimmermann and colleagues study also highlights a general lack of coordination of risk research within the field of travel medicine. For this reason, I believe it is time for the ISTM to consider coordinating activities among members toward better quality risk research, such as helping to validate tools like the PRISM to see whether such inexpensive and simple tools could be applied within the scope of many of our travel clinics internationally. The agenda for risk research in travel medicine remains piecemeal, exploratory, and poorly focused. To move forward in a meaningful way, the ISTM could create a regular meeting place for interested researchers and novices by forming a Risk Research Interest Group. Moreover, the ISTM Research and Awards Committee could promote more opportunities specifically for risk research, and perhaps dissuade the need for further knowledge, attitude, and practice (KAP) surveys and other descriptive studies covering topics where we already have more than enough information to guide practice.

Figure 1 Reanalysis of Figure 3 of Zimmermann and colleagues applying the psychometric paradigm approach and heuristics-and-biases approach to illustrate alternative explanations for the observations.

“Educating” travelers is a waste of time and money if we do not properly understand how individuals process that “education,” including the methods that we use to improve communicating such risk information to the traveler. While the attempt by Zimmermann and colleagues to develop a simple method of measuring travel-related risk perceptions is welcomed, the field of travel medicine now needs to take a more robust and coordinated approach to risk research.

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References


