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Health and Safety at Work in the Transport Industry (TRANS-18): Factorial Structure, Reliability and Validity


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Health and Safety at Work in the Transport Industry (TRANS-18): Factorial Structure, Reliability and Validity

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In this article, we study the psychometric properties of a short scale (TRANS-18) which was designed to detect safe behaviors (personal and vehicle-related) and psychophysiological disorders. 244 drivers participated in the study, including drivers of freight transport vehicles (regular, dangerous and special), cranes, and passenger transport (regular transport and chartered coaches), ambulances and taxis. After carrying out an exploratory factor analysis of the scale, the findings show a structure comprised of three factors related to psychophysiological disorders, and to both personal and vehicle-related safety behaviors. Furthermore, these three factors had adequate reliability and all three also showed validity with regard to burnout, fatigue and job tension. In short, this scale may be ideally suited for adequately identifying the safety behaviors and safety problems of transport drivers. Future research could use the TRANS-18 as a screening tool in combination with other instruments.

**Keywords:** safety behaviors, psychophysiological disorders, transport, scale, instrumental study.

En el presente artículo estudiamos las propiedades psicométricas de una escala breve (TRANS-18) creada con el objetivo de detectar las conductas de seguridad (personales y en el vehículo) y los trastornos psicofisiológicos. Los participantes de la presente investigación son 244 conductores de vehículos de mercancías (comunes, peligrosas y especiales), grúas, pasajeros (línea regular y discrecional), ambulancias y taxis. Los resultados obtenidos constatan, después de realizar un análisis factorial exploratorio de la escala, una estructura constituida por tres factores que hacen referencia a los trastornos psicofisiológicos, a las conductas de seguridad tanto personales como de seguridad en el vehículo. Además, los tres factores obtenidos tienen una fiabilidad adecuada e igualmente se constatan indicios de validez de los tres factores si se toman como referencia el burnout, la fatiga y la tensión laboral. En suma, la presente escala puede resultar idónea para identificar de manera apropiada las conductas seguras y los trastornos que tienen los transportistas. Futuras investigaciones podrían utilizar el TRANS-18 como una herramienta de screening en combinación con otros instrumentos.

**Palabras clave:** conductas seguras, trastornos psicofisiológicos, transporte, escala, estudio instrumental.

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The European Commission’s new strategy for the period 2007-2012 aims to reduce the global occupational accident rate in the EU-27 by 25%. It states that improvements need to be made in employees’ health and safety and that new hazards need to be identified, such as psychosocial hazards, in various sectors, i.e. public works, agriculture, fishing, social services and especially in transport (Eurostat, 2010; European Commission, 2007). In 2009, 8.9% of European employees suffered from health problems. The transport industry was the third most affected of the fifteen industries surveyed by the Eurostat Report (2009). Furthermore, this report shows that the most frequent health problems among these employees are different types of disorders, the most common of which are musculoskeletal and cardiovascular problems, stress, anxiety, depressions, addictions, fatigue and the side-effects of shift work changes.

In Spain, the Comisión Nacional de Seguridad y Salud en el Trabajo (2007) in its guidelines for 2007-2012 says that employees in the transport industry present one of the highest prevalence rates of psychosocial hazards and unsafe behaviors.

The professional driver’s role in the transport industry involves long working hours, handling merchandise (loading and unloading), selling tickets, observing passengers and providing information to passengers (Grössbrink & Mahr, 1998). The demands of this role, as well as the environment that drivers operate in, have been associated with a lack of health (Taylor & Dorn, 2006; Tse, Flin, & Mearns, 2006) and with problems created by this work (Tse, Flin, & Mearns, 2007). For this very reason, this professional niche has attracted the attention of several researchers.

In relation to the above, a series of causes may be outlined which are adversely linked to the health of transport workers such as shift work (Spencer, Robertson & Folkard, 2006), the demands of the job (Gimeno, Benavides, Mira, Martínez, & Benach, 2004; Vahtera, Kivimäki, Pentti, & Theorell, 2000), the lack of safety motivation (Newnam & Griffin, 2008) and excessively long working hours (Tucker & Rutherford, 2005). Furthermore, there are other variables which have potentially non-positive effects on psychosocial health in the occupation in question, such as the reference to occupational stress among bus drivers (Komppier, Van den Berg, Aust, & Siegrist, 2000), taxi drivers (Berraho et al., 2006) and bus drivers’ vulnerability when choosing coping strategies (Garwood & Dorn, 2003). Stress has also been related with a higher accident rate in drivers (Blasco, Prieto, & Cornejo, 2003). Among lorry drivers, occupational stress and fatigue have also been associated with job dissatisfaction (De Croon, Blonk, de Zwart, Frings-Dresen, & Broersen, 2002), and stress with higher voluntary turnover (De Croon, Sluiter, Blonk, Broersen, & Frings-Dresen, 2004). Other studies have found negative effects on drivers’ work health associated with job fatigue (Ahsberg, 2000; Dorrian, Hussey, & Dawson, 2007; Lal & Craig, 2001; Machin & Hoare, 2008; Wright & Cropanzano, 1998), job stress (Strahan, Watson, & Lennonb, 2008), psychological and physical symptoms (Machin & Hoare, 2008), states of depression (Da Silva-Junior, Nunes de Pinho, Tulio de Mello, Sales de Bruin, & Carvalhede de Bruin, 2009), drowsiness (Philip, 2005), lower back pain (Issever, Onen, Sabuncu, & Altunkaynak, 2002), hypertension (Brison, 2000) and coronary diseases (Krantz & McCeney, 2002).

The behavioral sciences, and Safety Psychology in particular (Meliá, 2007), investigate human behavior in systems exposed to hazards, using various theoretical models and approaches (Meliá, Ricarte, & Arnedo, 1998a; 1998b) that highlight the importance of safe and hazardous behaviors at work. On the one hand, the domino sequences approach to safety (Adams, 1976; Hammer, 1972; Heinrich, Petersen, & Roos, 1980; Petersen, 1984; Weaver, 1971), which focuses on machinery, highlights the importance of unsafe behaviors as being responsible for the majority of accidents and/or injuries. On the other, the behavioral approach to safety (Carter, 1992; Chhokar, 1990; Cooper, Phillips, Sutherland, & Makin, 1994; Hathaway & Dingus, 1992) with its psychosociological focus, says that unsafe behavior tends to perpetrate itself and/or is reinforced due to associated efforts (for example, immediate rewards in the form of salary remuneration) and to their adverse consequences which tend to appear later or much later on (for example, the onset of physical and/or psychological health problems). Both the abovementioned approaches focus on safe and unsafe behaviors, and it is the latter that we intend to evaluate on the measurement scale we have designed for professional drivers.

An employee’s safe behavior is the outcome of a process of social influence (Meliá, 2007). The behavior’s degree of safety therefore helps us to determine the real risk level of a specific work activity. Real risk is also determined by the baseline risk that inherently or specifically characterises an activity (Meliá, 1995). The theoretical model that Meliá puts forward (1995, 1998 1999, 2003, 2004 and 2007) is psychosociological and conceives of risk as a double condition which affects the health of transport industry employees (Salas & Meliá, 2004). First, baseline risk refers to the risk that is intrinsic and inherent to the job, irrespective of and prior to risk reduction (or increase) actions which are linked to organisational behavior. Second, real risk is defined as the worker’s probability of experiencing an incident/pain/accident within the workplace environment and the conditions, for example the materials s/he handles, the type of work s/he does (baseline risk) plus the presence or absence of other factors such as the safe or hazardous work routines with which the worker regularly carries out his/her tasks (Meliá, Sospedra, & Rodrigo, 1993).

Based on the abovementioned studies, which point to the existence of both safe and unsafe behaviors (Chhokar, 1990; Heinrich, Petersen, & Roos, 1980) as well as real risks (Meliá et al., 1993) affecting the health
of employees in the transport industry, we deemed it necessary to draw up a brief instrument to evaluate these, given that there are none in Spanish, and this is therefore something new.

We drew up a short version (TRANS-18) because it has the following advantages: (1) it reduces the time taken to reply to the items, (2) it reduces the response bias due to tiredness with a lengthier instrument, (3) it enables us to quickly evaluate the items and their factors and (4) it provides initial valuable information as a screening (Lelito, Palumbo, & Hanley, 2001; Tucker, Ogle, Davidson, & Eilenberg, 1987).

In short, the objective of this study is to analyse the factor structure, reliability and validity of the TRANS-18 scale, which will enable us to evaluate the safe behaviors for personal protection and safety in the vehicle among drivers in the transport industry, in accordance with a psychosociological model drawn up by Meliá (1995, 1998, 1999, 2003, 2004, & 2007) based on the European Commission’s guidelines for improving the health protection and safety of professional drivers (Eurostat, 2010; European Commission, 2007). The study also considers psychophysiological disorders (Apparie, Rinio, & Porges, 1998) given that their prevalence in drivers is significant, and that they have been associated with their professional work, as shown by the research done on anxiety (Issever, Onen, Sabuncu, & Altunkaynak, 2002), depression (Tse et al., 2006), stress (Aronsson & Rissler, 1998) as well as digestive disorders (Winkleby, Ragland, & Syme, 1988), musculoskeletal problems (Robb & Mansfield, 2007) and cardiac risk (Belkic, Pavolic, Djordjevic, Ugljesic, & Mickovic, 1992) in professional drivers.

Method

Participants

A total of 244 transport drivers, who were residents of Catalonia and Castile-Leon, took part in the study. The drivers were distributed as follows: general freight (50.8%), dangerous freight (5.0%), line passengers (5.5%), charter passengers (2.1%), ambulances (8.3%), taxis (12.1%) and others (9.9%). They work in transporting in the following areas: Europe (12.0%), Spain (26.2%), Autonomous Regions (28.2%) and Provinces (33.6%). 92.9% of participants were men and 7.1% were women. The average age was 39.13 (SD = 11.41). The drivers had various educational levels: no completed education (2.9%), 3-year university degree (2.5 %) and a 5-year university degree (1.7%). The average distance between their place of work and their place of residence was 28.06 km (SD = 92.71). Their average experience in their current job was 9.22 years (SD = 8.83), and in their profession this figure was 13.21 years (SD = 10.8) and in their current company, it was 2.53 years (SD = 1.99).

Instruments

The TRANS-18 scale was drawn up using the following sequence. To begin with, a team of six research psychologists used group techniques such as brainstorming (Osborn, 1953; Canto, 2000; Gil, 2004; Sánchez, 2002) and the focus group (Morgan, 1998a; 1998b) which they applied to various groups of transport drivers. They used these techniques to obtain and draw up the items. The sessions were recorded in audio in order to extract the information more efficiently. Then, in order to validate the contents the initial items were subjected to the judgement of six expert drivers, who chose 36 items. Finally, these 36 items were analysed and a definitive questionnaire consisting of 18 items was drawn up. The response format is a five-point scale (1 = never, 2 = almost never, 3 = sometimes, 4 = almost always, 5 = always).

The Spanish version of the Maslach Burnout Inventory-General Survey (MBI-GS; Salanova, Schaufeli, Llorens, Peiró, & Grau, 2000; Schaufeli, Leiter, Maslach, & Jackson, 1996) consists of 15 items and three sub-scales. The exhaustion subscale consists of 5 items (for example, “6.- I am ‘burnt out’ by the job”), the cynicism subscale consists of 5 items (for example, “9.-I have lost enthusiasm for my job”) and the professional efficacy subscale contains 6 items (for example, “12.-I have accomplished many worthwhile things in this job”). The responses were anchored using a 6-point scale (from never to every day). The internal consistency was .87 (exhaustion), .85 (cynicism) and .78 (professional efficacy).

The Spanish version of the Swedish Occupational Fatigue Inventory (SOFI; Ahberg, 2000; Ahberg, Gamberale, & Kjellberg, 1997; González, Moreno, Garrosa, & López, 2005) enables us to diagnose occupational fatigue. It has 15 items and five subscales, which are: lack of energy (3 items; α = .82; e.g. “2.-Exhausted”), physical tiredness (3 items; α = .55; e.g. “9.-I feel hot”), physical discomfort (3 items; α = .80; e.g. “3.-Numb”), lack of motivation (3 items; α = .81; e.g. “10.-Indifferent”), and drowsiness (3 items; α = .91; e.g. “11.-Yawning”). The responses are measured using a 10-point anchoring scale (From 1 = Not at all to 10 = To a great extent).

The Tension at Work Questionnaire (T3/15; Meliá, 1994) assesses the amount of subjective tension experience associated with work performance. It consists of 15 items, such as “2.-I feel anxious, tense and worried because of my job” and “12.-When I can’t finish my work I get nervous”, which are replied to using (yes/no) answers. The scale presents a single-factor solution. Its overall internal consistency is satisfactory with a Cronbach’s Alpha of .86.
**Procedure**

A non-probabilistic scale was used (Gómez, 1990; Hernández, Fernández, & Baptista, 2000), which is also known as random-accidental (Kerlinger, 2001). A questionnaire was drawn up which featured all the variables. The drivers answered it on a voluntary basis in their normal workplace, after prior permission from those in charge at the participants’ companies. An expert psychologist was present during the application of the questionnaire to answer any possible queries that the participants might have. The data provided by participants was treated as strictly confidential.

**Data Analysis**

An exploratory factor analysis was carried out to examine the dimensionality of the test. The factor analysis was carried out using the principal axis factoring extraction method, and applying Oblimin rotation in order to clarify the structure of the factors extracted from the scale. In addition, polychoric correlation matrices were used, given that they are particularly suited to cases where items present a Likert type response format (Muthen & Kaplan, 1992). The FACTOR programme was used for the exploratory factor analysis because it can carry out an analysis using polychoric correlation matrices and provides various analyses such as parallel analysis, which are not available in the SPSS. Reliability was calculated using Cronbach’s Alpha for each of the three factors that were extracted; and in order to assess validity the three factors of the TRANS-18 scale were correlated with work fatigue, burnout and job stress. Finally, the data were analysed using the programs SPSS 17.0 and FACTOR 7.2 (Lorenzo-Seva & Ferrando, 2006).

**Results**

First, an exploratory factor analysis was carried out, in which the Bartlett’s test of sphericity was significant ($\chi^2 = 1238.2; p < .01$) indicating that we had a scoring matrix that complied with the identity supposition. A Kaiser-Meyer-Olkin (KMO) rate of .757 was obtained for sample appropriateness, which showed that the data were suitable for applying a factor analysis. The scree-test (Cattell, 1966) recommended a solution of three factors related with psychophysiological disorders, personal safety behaviors and vehicle related safety behaviors. Two more criteria were also applied to determine the number of factors we would retain: parallel analysis (Lattin, Carroll, & Green, 2003) and Vellicer’s (1976) “minimum average partial” criterion. Both criteria pointed to the suitability of the three-factor solution. Figure 1 displays the sedimentation graph along with the parallel analysis indicating the three-factor solution.

Once the most appropriate factor solution was determined, we used the Promin rotation method (Lorenzo-Seva, 1999) in order to obtain a simple factor solution. This oblique rotation method tends to obtain the simplest possible solution, even in cases where some of the items display a complex structure. Using the 36 items that were drawn up, the scale was refined, and all the items which presented saturations below .40 or complex saturations (above .40 in more than one factor) were eliminated. The 18 items with the highest saturations were selected in such a way that the three factors were made up of six items each (Table 1).

Table 1 displays the saturations matrix for the factor solution obtained, which enabled us to identify the contents of the three factors. There were moderate correlations between these factors, ranging from .00 to -.22. Table 2 shows these correlations, explaining the 49.1% variance between them.

Table 2 shows the average, the standard deviation, the reliability coefficients, the confidence intervals and the correlations between the three factors of the TRANS-18 scale and the factors of the SOFI, MBI-GS and T3/15 scales. The reliability scale and the resulting factor structure indicate that the instrument is very adequate and that the identified factors are clearly differentiated. It also features the correlations of the instrument we presented with three scales (SOFI, MBI-GS and T3/15), which provides us with information on validity rates. We can see how various correlations between the three TRANS-18 factors and various instruments are established. The factor that expresses psychophysiological disorders (F1) thus correlates with all the scales but in a different way; positively with fatigue (SOFI), exhaustion, cynicism and job tension, and negatively with efficacy. A negative association was found between personal safety behaviors (F2) and physical fatigue, exhaustion and job tension, and a positive association with efficacy. Finally, safety behaviors in the vehicle (F3) correlate negatively with fatigue, exhaustion and job tension, and positively with efficacy.

![Figure 1. Sedimentation and parallel analysis graph of the TRANS-18 scale.](image-url)
Discussion and Conclusions

The findings of this study support the TRANS-18 scale’s factor structure, internal consistency and validity for evaluating aspects related to transport industry employees. The empirical evaluation of the scale enables us to determine its psychometric properties and gives us the opportunity to make progress in the evaluation of safe behaviors and psychophysiological disorders that affect the occupational health of transport drivers. The results point to three factors. The first factor, the driver’s psychophysiological disorders ($\alpha = .81$) is related with the aspects that the transport driver may suffer from. It accounts for 20% of the variance and it consists of items 2, 5, 8, 11, 14 and 17, which deal with the onset of anxiety, stress, digestive, depressive and musculoskeletal disorders as well as high blood pressure.

The second factor refers to personal safety behaviors ($\alpha = .80$) and consists of items 1, 4, 7, 10, 13 and 16, which account for 16.8% of variance. These cover not driving after drinking an alcoholic drink and eating a large meal, as well as not eating and/or drinking behind the wheel. They also refer to not smoking or speaking on the mobile phone whilst driving.

<table>
<thead>
<tr>
<th>Items</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Mi trabajo me ha producido algún trastorno de ansiedad [My job has at some time caused me anxiety problems]</td>
<td>.77</td>
<td>.02</td>
<td>-.01</td>
</tr>
<tr>
<td>5. Mi trabajo me ha producido algún trastorno de estrés [My job has at some time caused me stress problems]</td>
<td>.87</td>
<td>-.01</td>
<td>.05</td>
</tr>
<tr>
<td>8. Mi trabajo me ha producido algún trastorno digestivo (por ejemplo, retenimiento) [My job has at some time caused me digestive problems (e.g. constipation)]</td>
<td>.59</td>
<td>.05</td>
<td>-.10</td>
</tr>
<tr>
<td>11. Mi trabajo me ha producido algún trastorno de depresión [My job has at some time caused me depression problems]</td>
<td>.70</td>
<td>-.01</td>
<td>.02</td>
</tr>
<tr>
<td>14. Mi trabajo me ha producido algún trastorno muscular y/o esquelético (por ejemplo, lumbalgias, tendinitis, etc.) [My job has at some time caused me muscular and/or skeletal pain (e.g. lower back pain, tendinitis, etc.)]</td>
<td>.58</td>
<td>-.03</td>
<td>-.06</td>
</tr>
<tr>
<td>17. Mi trabajo me ha producido algún trastorno de hipertensión (por ejemplo, tensión alta, etc.) [My job has at some time caused me hypertension problems (e.g., high blood pressure, etc.)]</td>
<td>.59</td>
<td>-.02</td>
<td>.04</td>
</tr>
<tr>
<td>1. Evito conducir después de beber alguna bebida alcohólica (por ejemplo, una cerveza, un vino, etc.) [I avoid driving after having an alcoholic drink (for example, a beer, a glass of wine, etc.)]</td>
<td>.05</td>
<td>.62</td>
<td>.06</td>
</tr>
<tr>
<td>4. Rehuyo conducir bebiendo un refresco [I try not to drive while drinking a soft drink]</td>
<td>-.05</td>
<td>.51</td>
<td>.03</td>
</tr>
<tr>
<td>7. Evito conducir fumando y no tengo el cigarrillo, puro, purete, en la mano [I avoid driving whilst smoking and I don’t hold the cigarette, cigar in my hand.]</td>
<td>.11</td>
<td>.62</td>
<td>.01</td>
</tr>
<tr>
<td>10. Evito conducir después de haber comido copiosamente [I avoid driving after a large meal]</td>
<td>-.10</td>
<td>.57</td>
<td>.01</td>
</tr>
<tr>
<td>13. Evito conducir comiendo un bocata, una pasta, etc. [I avoid driving whilst eating a sandwich, a cake, etc.]</td>
<td>-.04</td>
<td>.83</td>
<td>-.01</td>
</tr>
<tr>
<td>16. Cuando conduzco, no hablo con el teléfono móvil en la mano [When I drive I don’t speak on the mobile phone whilst holding it in my hand]</td>
<td>.03</td>
<td>.81</td>
<td>-.08</td>
</tr>
<tr>
<td>3. Utilizo los guantes de trabajo cuando manipulo y cargo mercancías, cambio una rueda, etc. [I use work gloves when I handle and load freight, change a tyre, etc.]</td>
<td>.03</td>
<td>-.06</td>
<td>.51</td>
</tr>
<tr>
<td>6. Conozco como se utiliza el extintor de mi vehículo [I know how to use my vehicle’s fire extinguisher]</td>
<td>.01</td>
<td>-.08</td>
<td>.44</td>
</tr>
<tr>
<td>9. Tengo precaución al bajar de mi vehículo [I am careful when I get off/out of my vehicle]</td>
<td>.08</td>
<td>-.02</td>
<td>.53</td>
</tr>
<tr>
<td>12. Estoy atento cuando conduzco [I am alert when I drive]</td>
<td>-.01</td>
<td>.02</td>
<td>.67</td>
</tr>
<tr>
<td>15. Al día conduzco las horas establecidas legalmente [I drive the statutory number of hours per day]</td>
<td>-.02</td>
<td>.09</td>
<td>.55</td>
</tr>
<tr>
<td>18. Hago un descanso después de cada 4 horas de conducción [I take a rest after every 4 hours of driving]</td>
<td>-.05</td>
<td>.02</td>
<td>.79</td>
</tr>
</tbody>
</table>

Explained variance (%) 20 16.8 12.3

F1.- Psychophysiological disorders, F2.- Personal safety behaviors, F3.- Vehicle-related safety behaviors.
The last factor is linked to vehicle-related safety behaviors (α = .70). It highlights aspects such as using work gloves whilst carrying out work tasks, knowing how the fire extinguishers work, keeping one’s mind on driving and complying with statutory rest periods. It accounts for 12.3% of variance, and consists of items 3, 6, 9, 12, 15 and 18.

Initially, the data obtained indicates that the scale has a three-dimensional factor structure and that it also covers drivers’ psychophysiological disorders, personal safety behaviors and vehicle-related safety behaviors. We found a very low correlation between these three factors. The correlations were .00 (F2 and F3), -.06 (F1 and F2) and -.22 (F1 and F3), which indicates that they are different dimensions.

As regards validity, the literature reviewed suggests that stress (Blasco et al., 2003), burnout (De Croon et al., 2002), fatigue (Dorrian et al., 2007), tension (Miró, Solanes, Martínez, Sánchez, & Rodríguez-Marin, 2007) and physical and psychological symptoms (Brison, 2000; Krantz & McCeney, 2002; Machin & Hoare, 2008) as well as other aspects (the demands of the job, working hours, psychological and physical symptoms, etc.) are linked in a process that can be formulated in different ways, which seriously affects the health of drivers in the transport industry. As a result, job fatigue and job tension should be associated with safe and unsafe behaviors and with psychophysiological disorders. The findings of this study point to a significant association between the three factors of the TRANS-18 scale and the factors of job fatigue (Ahsberg, 2000; Ahsberg et al., 1997; De Vries, Van der Steeg, & Roukema, 2010; González et al., 2005), burnout (Salanova et al., 2000; Schaufeli et al., 1996) and job tension (Strahan et al., 2008).

In conclusion, taking into account the study’s findings, the TRANS-18 scale may be a useful instrument for evaluating safe behaviors and psychophysiological disorders. It is a short, easily comprehensible instrument that can be rapidly applied and interpreted. Its subscales can each be assessed independently, enabling the detection of anxiety, digestive, stress, depression and hypertension disorders in addition to possible low levels of safety behaviors involving drinking, eating, smoking, handling tools, attention, rest periods, entering and leaving the vehicle, etc.

Based on the information obtained, prevention programmes can be introduced (Evans & Johansson, 1998; Machin & Hoare, 2008; Tse et al., 2007). The scale’s psychometric properties are sound. Furthermore, it enables us to evaluate drivers’ behaviors and provides prevention experts in this industry with an instrument for collecting data with a view to establishing prevention programmes to promote health. By this, we mean the collection, analysis and systematic interpretation of data on workers’ occupational health in order to protect their health and to provide them with information against illnesses (Boix et al., 2000). By way of example, this instrument can be used as an assessment criterion for evidence-based health monitoring (Boada-Grau, De Diego, & Aguiló, 2004; Boada-Grau, De Diego, Aguiló, & Mañas, 2005; Verbeek, Van Dijk, Mailmivaraa, Huishof, & Räsänen, 2002).
other words, it may help decision-making in health prevention, based on proven scientific tests that comply with basic psychometric criteria (Boada-Grau, González, Vigil-Colet, Mañas, & Agulló, 2009; Spencer, Robertson, & Folkard, 2006), facilitating the collection, analysis and interpretation of data gathered in order to protect the occupational health of professional drivers as well as to prevent possible on-the-job hazards caused by unsafe behaviors by the drivers themselves (Thacker & Berkelman, 1992). In addition, as part of preventive management control, i.e. the guidelines that the company sets out for prevention, based on proven scientific tests that comply with basic psychometric criteria (Boada-Grau, González, Muñiz, 2006), new research is required to contribute new data to the scale. Fourth, it would be advisable to consider whether the proposed scale is related to major issues in the transport industry such as the lack of motivation for safety, excessively long working hours, the accident rate and many other issues. Finally, we believe that it would be worthwhile to examine whether personality traits such as impulsiveness, impetuousness, minute attention to detail, responsibility, the locus on control, etc. might be background variables for the safe behaviors and psychophysiological disorders of transport drivers.

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