The Development of a General Addictions Scale

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Abstract: Addictions are a more and more present reality and they require the most effective ways to solve them and this is why diagnosing them is a priority in initiating a treatment. The purpose of our study is to build a General Addictions Scale that represents a psychometric alternative to provide a quick and effective analysis of a person's addiction, be it a physical or a compulsive-behavioural one. It is a general and common-to-all addictions scale that assesses addictions and starts from a neural reality: the existence of common mechanisms of addictions (Nestler, 2005) which cause similar changes at the anatomical and chemical level of the brain (Volkow, et al., 2010). The construct is based on seven dimensions/descriptors common to the five addictions studied: incapacity to face life problems (withdrawal), obsessive concern (salience), lack of control (relapses), remorse, problems generated by an addiction (ex. neglecting job), mood changes (ex. the emergence of conflicting states), concealment (tolerance). We exemplified the use of the General Addictions Scale by generating five specific scales for five addictions: work, alcohol, tobacco, internet, gambling.

Keywords: addictions, assessment scale, descriptors, common items.

Introduction

Our present society is increasingly confronted with a growing range of addictions: addiction to drugs, alcohol, tobacco, internet, shopping, work, gambling and the list is much longer. Dependence or addiction is a process or behaviour that functions so that to produce both pleasure and relief from internal discomfort and implies an inability to control and maintain that behaviour although it involves some negative consequences (Goodman, 1990). Marlatt, Baer, Donovan, & Kivlahan, (1988) also emphasize that addiction has both a substance addiction component as well as a behavioural one and define it as a repetitive negative behaviour, despite conscious efforts to minimise or stop it, often experienced as a loss of control, that has negative effects on many levels of an individual's existence (personal, social etc.). In the present paper we

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considered five addictions: alcohol, tobacco, work, internet and gambling addictions, as they are among the most widespread ones in our society.

The first addiction we considered is that of alcohol, one of the oldest and most devastating addictions that affect both the addict and those living with them. Weiss & Porrino (2002) consider that the addictive behaviour associated with alcoholism presents the following characteristics: compulsive preoccupation with obtaining and ingesting alcohol, loss of control over consumption, and development of tolerance and dependence, as well as impaired social and occupational functioning. Koob (2011) adds to all these the relapse of this disorder and the emergence of a negative emotional state such as dysphoria, anxiety and irritability that result from the withdrawal syndrome. Considered a disease, that is a dysfunction of the orbifrontal cortex (Volkow& Fowler, 2000) or having genetic or familial environment causes (Rhee et al., 2003), alcohol addiction is a complex phenomenon studied in the specialty literature in search for solutions to treat it.

The World Health Organization estimates that one-third of the adult population smokes. There is also an increasing number of smokers who do not smoke daily either because they are social or casual smokers or because they are part of those who are in the process of giving up smoking and do not consider themselves as smokers (Schane, Ling & Glantz, 2010), but who can at any time become addicted to smoking because "nicotine, the main addictive component of tobacco, initiates synaptic and cellular changes that underlie the motivational and behavioural alterations that culminate in addiction" (Dani & Harris, 2005), which may at any time degenerate into addiction, based on (Bierut, 2007) biological predispositions (genetic factors or nicotine metabolism), comorbid conditions (major depressive disorders or alcohol dependence) and environment characteristics (peer or parental smoking).

Peele (2001) supports the idea that gambling falls into the category of addictive behaviours similar to substance dependencies and not only in the category of obsessive-compulsive behaviours. Moreover, Walker (1989) states that although not related to the ingestion of substances (physical dependence) addiction to gambling is also an addiction (psychological dependence) together with the addictions to pornography, shopping, internet and work. Along the same line, Rosenthal (1992) mentions that both physical and behavioural addictions are progressive disorders, characterized by lack of control, obsession and indifference to consequences. As with alcohol, there is also a genetic cause of this dependence, which influences the reward and control systems of the impulse at the brain level (Lobo & Kennedy, 2009) and also, as with all other dependencies, other psychiatric disorders and environmental factors appear (Kendler et al., 2012). This encourages us to consider gambling, work and internet dependences as addictions, along with the physical dependences on alcohol and tobacco.

Work addiction was conceptualized in the early 1970s as a behavioural addiction, characterized by compulsiveness and interpersonal conflict. Quinones and Griffiths (2015) add to these characteristics the negative consequences of any addiction: depression, tiredness, health problems, lack of fulfilment at a personal level, family/relational problems. Also, Chrapek (2017) considers that the most common and painful family problems determined by the work addiction are the addicts' physical absence and their emotional alienation. Identifying a work addict is all the more difficult as this addiction is seen in its positive valencies by society and especially by employers (Moyer, Aziz & Wuensch, 2017) and that is why such persons present themselves to a doctor or to a psychologist only when the consequences of their addiction are already very serious. Therefore, it would be very important to have a simple and effective way of detecting these people through a questionnaire that determines their level of addiction so that they can benefit from early treatment.

When it comes to the diagnosis of internet addiction, Young (2017) mentions the issue that arises from regarding the internet as a social and professional necessity, people who suffer from this addiction often considering that they use internet at an average rate, but when they go to see a psychologist or a psychiatrist they manifest symptoms of depression, bipolar disorder, anxiety or obsessive-compulsive tendencies. To simplify the internet addiction diagnosis, Block (2008) names the "four components" of this addiction:"1) *excessive use* , often associated with a loss of sense of time or a neglect of basic drives, 2) *withdrawal*, including feelings of anger, tension, and/or depression when the computer is inaccessible, 3) *tolerance*, including the need for better computer equipment, more software, or more hours of use, and 4) *negative repercussions*, including arguments, lying, poor achievement, social isolation, and fatigue," all of these being part of the general paradigm of addictions.

This can be explained by the studies that prove that addictions share the same fundamental mechanisms (Nestler, 2005) which determine a common series of changes in the anatomy and chemistry of the brain (Volkow, Wang, Fowler, Tomasi, Telang& Baler, 2010) which lead to common functional effects (Nestler, 2005). Another explanation relies on what Rotaru, Cărăuşu (2013, p. 700) call a transgenerational transmission of a set of symptoms over generations. Symptoms such as obsession for control, distrust, perfectionism, avoidance of feelings, privacy issues, hyperprotection or physical stress-related diseases, may lead to different manifestations of the addiction tendencies, for example, one generation may manifest alcohol addiction, the next shopping addiction, the third internet addiction, and so on and so forth. Consequently, as suggested by Young (2017), based on some new studies examining the neurological causes of addictions especially those of internet addiction, besides prescribed medicine may be used a treatment that uses behavioural therapy, cognitive behavioural techniques and psychological treatment in specialized institutions may be used.

When we can consider that a person is addicted represents a legitimate question and concerns the specialists, especially in the field of psychology, and justifies their interest to design a scale that assesses as accurately as possible the degree of a person's addiction to a particular substance or behaviour. To reach this aim, specialists have conceived scales to determine the addiction to each behaviour or substance.

Method

Objectives
This paper has as its first objective to develop a scale that consists of elements common to several addictions, aiming to identify an "addiction tendency", also taking into account the uniqueness of each addiction. Such an instrument would therefore contain items that are common to several addictions, the only difference being the name of that addiction. The usefulness of this scale is the ease of adapting it to any attempt to detect an addiction. An argument in favour of our initiative is related to the latest findings mentioned above which show that behavioural or psychological addictions (internet, pornography, gambling, computer games addictions) and physical or substance addictions share the same fundamental mechanisms (Nestler, 2005) which determine a common series of changes in the brain anatomy and chemistry (Volkow, Wang, Fowler, Tomasi, Telang& Baler, 2010).

Also, as Steinweg and Worth (1993) assert, people who consume alcohol are more reactive and tend to hide the truth – this is why a combination of the alcohol addiction specific items and items specific to other addictions is welcomed- as alcohol consumers would understand that they are not necessarily those who are "targeted". In general, we believe that addicts would feel comfortable admitting to some of their behaviours, when they notice the variety of addictive behaviours presented to them in the questionnaire.

A second objective of this paper is to develop an accurate scale that contains a small number of items to be answered simply by "yes" or "no" (a dichotomous test) to simplify the evaluators' work and to diminish the respondents' tendency to lie (they would, for example, consider that it is not so bad to give 2-3 affirmative answers, but for the evaluator these answers would be edifying for a diagnosis). This idea emerged from the CAGE test (Ewing, 1984), the internationally used test for detecting alcohol addicts. A consistent reason for our initiative is the proven efficacy of such a quick test in detecting alcohol addicts, compared to the usage of laboratory tests. If a laboratory test manages to detect a third of the addicts' number, CAGE manages to track down 93-98% of them (Bernadt, 1982). A possible explanation for this is that addiction is not only physical, detectable by laboratory tests, but it is especially psychological, detectable by psychological tests. This is why we believe we can find different dependencies through a common scale.

Participants

In this study we considered 5 addictions: alcohol, smoking, work, gambling and internet addictions as they seem to reflect the general tendencies in our society. Our group of participants, 442 students, were from different faculties: the Faculty of Computer Science (283 participants), the Faculty of Psychology and Education Sciences (56 participants), the Faculty of Physical Education and Sport (21 participants), the Faculty of Economics and Business Administration (24 participants) and the Faculty of Theology (58 participants). Of these, 154 were female participants and 288 male ones.

Stages in the development of a General Addictions Scale

The CAGE test as a basis for further development of other addiction scales The General Addictions Scale was not designed to be applied on participants in a particular study in this general form, but as a scale of 7 items generally formulated and from which there can be generated other specific scales on any addiction a specialist would like to study. In order to assess dependencies in general we started from the CAGE test and from the way its items are formulated, we generalized the term 'alcohol' to the term 'addiction', thus extending the addiction to a substance to the addiction to any substance or behaviour, as we consider there is a general addiction tendency.

Table 1. The CAGE test items as a basis for those of the general scale of addictions.

CAGE test items	Our scale items
1. Have you ever felt you should **cut** down on your drinking?	1. Have you ever tried cutting down on this **addiction** but relapsed after a while?
2. Have people **annoyed** you by criticising your drinking?	2. Have you ever got angry or have you ever felt annoyed because you were told to cut down on this **addiction**?
3. Have you ever felt bad or **guilty** about your drinking?	3. Have you ever felt embarrassed or guilty because of this **addiction**?
4. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?	4. Do you think of satisfying this **addiction** first thing in the morning?

Specialists discovered that the orbifrontal cortex area has a very big role in the addiction process, thus addicts often deny or are unaware that they have a problem; and when they are given the option of choosing an activity with negative consequences in the future but which has an immediate reward, they

choose the fastest reward and ignore the future consequences (Bechara, 2001; Di-Clemente, 1993).

Based on these findings, Bechara and Martin (2004) consider that with addicts, the prefrontal cortex that hosts multiple and distinct decision-making and inhibition control mechanisms is affected. This explains why people with at least one addiction will have difficulty persisting in their decision to give up that addiction. The first item: "Have you ever tried cutting down on this addiction but relapsed after a while?" refers precisely to this fact. We also changed the term "felt" into "tried" as we took into account the test that is used in practice by Alcoholics Anonymous Association.

Other researches (Giancola, 1995) highlighted that people with their orbital prefrontal cortex affected have an aggressive behaviour, the second item: "Have you ever got angry or have you ever felt annoyed because you were told to cut down on this addiction?" touching this very aspect.

Shame and the feeling of guilt are exacerbated emotions that often come from addicts' childhood and are amplified by addicts' lifestyle and their current behaviour (O 'Connor, Weiss, 1993) –a fact to be found in the third item: "Have you ever felt embarrassed or guilty because of this addiction?". We changed the term "bad" into "embarrassed" as it shows the idea of "shame" better and also because this is how it is used in the Romanian version of the CAGE test that Alcoholics Anonymous Association uses successfully in practice.

In the same way, the fourth item: "Do you think of satisfying this addiction first thing in the morning?" is based on the fact that the control of inhibition is problematic for the addict. This aspect is also considered in the CAGE test for alcohol addicts ("Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?"), but also in those of the Fagerström tobacco addiction test ("How soon after waking do you smoke your first cigarette?") or in those of the IAT (Internet Addiction Test) ("How often do you find yourself saying "just a few more minutes" when on-line?").

Other tests that were used to build the general scale
of addictions assessment

We also considered it necessary to take into account the scales specialized on the other targeted addictions and for this purpose we studied the Fagerström Nicotine Dependence Scale that contain 6 items and other scales derived from it. The professor and researcher Heatherton (Heatherton et al., 1991) demonstrates that there may be improved variants of the model offered by Fagerström, so we believe we can also use the adapted CAGE test to improve the tobacco addiction assessment. In another article (Heatherton & Kozlowski, 1990) the authors state that it is enough for the subjects to score two items in the Fagerström test to be considered addicted to tobacco, similarly to the CAGE scoring which we used in quantifying our test.

Another scale that was of interest to us was the Bergen Work Addiction Scale (Andreassen, Griffiths, Hetland & Pallesen, 2012) which uses 7 descriptive items of this addiction that reflect 7 core elements of the addictive behaviour (ex. salience, mood modification, tolerance, withdrawal, conflict, relapse, and problems). We took this as a model, so our General Addictions Scale was also made of 7 items. From this scale, we also used the item referring to the possible causality that leads to addictive behaviours: "Do you resort to this addiction to get rid of worries, troubles, boredom, or loneliness?". We also considered the other items as being similar to those proposed by the CAGE scale and therefore we just adapted them to the General Addictions Scale. For example, "Have you been told by others to cut down on work without listening to them?" became: "Have you ever got angry or felt annoyed because you were told to cut down on this 'addiction'? " in our General Addictions Scale.

In order to observe how other questionnaires were built, we also studied the Work Addiction Risk Test (Robinson and Phillips, 1995) which used the method of reducing the 35 initial items of the test to only 25 items that most accurately assess work addiction. We also simplified the list of 20 items of the IAT (Young, 1998) to only 7 items that describe this addiction. This test also helped us to add 2 more items to our 5 existing ones. Thus, the Young test item: "How often do you try to hide how long you've been on-line?" became in the general addiction scale: "Have you lied to any of your family members about your activities related to this "addiction"?". We restricted the "hiding of this addiction" only to family members as we found it so in an extended test that is used by Alcoholics Anonymous Association and also because people use to hide things from their codependent persons who are usually family members. The second item resulted from merging two of the IAT items: "How often does your job performance or productivity suffer because of the internet?" and "How often do you lose sleep due to late night log-ins?" which became in the general addictions scale: "Have you ever missed/been late from work or school because of this "addiction"?", because we considered that the delay at work or at school (we also extended it to school situations because our respondents were students) is also due to lack of sleep and because it can also lead to a decrease in productivity, so our new item contains both these two implications of an addiction.

An interesting aspect that we took into account in the building of the General Addictions Scale were the factors discovered by Widyanto and McMurran (2004) when we applied the factor analysis for the IAT items: "salience, excessive use, neglecting work, anticipation, lack of control, and neglecting social life."It is interesting to note that our final general scale contains all the items used in Lesieur and Blume's (1987) South Oaks Gambling Screen, an instrument for identifying the pathological gamblers.

Therefore, the General Addictions Scale starts from the four CAGE test items and gets enriched with three more items as a result of the systematic analysis of other tests that assess the other four addictions. Being a dichotomous test, we could not apply the Factor Analysis, but below, we present the 7 items of the final scale and the dimension/descriptor it represents:

Table 2. The items of the General Addictions Scale and the dimensions/descriptors each of them represents.

ITEM	DIMENSION/DESCRIPTOR
1. Do you resort to this addiction to get rid of worries, troubles, boredom or loneliness?	1. inability to face life's problems, withdrawal
2. Do you think of satisfying this addiction first thing in the morning?	2. obsessive concern, salience
3. Have you ever tried cutting down on this addiction but relapsed after a while?	3. relapses, lack of control
4. Have you ever felt embarrassed or guilty because of this addiction?	4. remorse
5. Have you ever missed/been late from work or school because of this addiction?	5. problems caused by this addiction, neglecting job
6. Have you ever got angry or felt annoyed because you were told to cut down on this addiction?	6. change of state of mind, conflict
7. Have you lied to any of your family members about your activities related to this addiction?	7. concealment, tolerance

The procedure of building scales specific to the five addictions

Starting from this general scale, we generated 5 scales specific to each of the 5 addictions that our study considered: addiction to alcohol, tobacco, work, internet, and gambling. The items of these scales were mixed to get a scale that could be applied on a sample of participants.

In a first stage, we checked the clarity and the consistency of the formulation of the new scale items by asking five specialists in psychology to check them and by applying the questionnaire on a number of 40 participants. Thus, we reformulated the item 16 which refers to work addiction. From the variant: "Have you ever regretted not spending more time with your family or friends?", which generally refers to the remorse a person with any addiction usually has, to a variant specific to work addiction: "Have you ever regretted not spending more time with your family or friends because you are too busy with your work?"

Also, we preferred using the 2nd person singular instead of the plural, as we considered that the participants would feel more comfortable when treated this way and give more honest answers, being more relaxed.

Below, we provide an item from each of the 5 scales, each representing a dimension/descriptor out of the 7 we obtained:

• "Has it happened to you to get tired and stressed at school / work because you took too many tasks on your shoulders?" (work addiction - dimension 1)
• "Have you ever thought of trying your luck first thing in the morning?" (gambling addiction - dimension 2)
• "Have you tried cutting down on smoking but relapsed after a while?" (tobacco addiction - dimension 3)
• "Have you ever felt remorse because of gambling?" (gambling addiction - dimension 4)
• "Have you ever missed/ been late at college/work because you stayed too much online?" (internet addiction - dimension 5)
• "Have you ever got angry or felt annoyed because you were told to cut down on drinking?" (alcohol addiction - dimension 6)
• "Have you lied to any of your family members about your online activities?" (internet addiction - dimension 7)

Checking the accuracy of the scales specific for the five addictions

The way we built the General Addictions Scale, starting from the CAGE test and adding items from other scales checked for their reliability and measuring the other types of addictions, represented a guarantee of the reliability of the scale, but we also considered it necessary to use the Alpha-Cronbach test that determines the internal consistency or average correlation of the items of a survey instrument whose reliability it measures (Santos & Reynaldo, 1999). Thus, the Alpha-Cronbach coefficient for each of the five addiction scales can be seen in the table below:

Table 3. The Alpha-Cronbach coefficient for each of the five addiction scales.

Scale	α- Cronbach
work addiction	0.781
internet addiction	0.767
alcohol addiction	0.891
tobacco addiction	0.915
gambling addiction	0.813

The Alpha-Cronbach coefficient is higher than 0.7 for each scale so, we assume that the scale corresponds to the reliability criterion (Reynaldo & Santos) and can be used to determine a person's addiction for the five addictions.

Discussion

The present study explores one of the key elements of AA therapy group (Anonymous Alcoholics), that is the CAGE Test. Starting from this alcohol addiction test and adding items from the IAT (Internet Addiction Test), the Fagerström tobacco addiction test, Bergen Work Addiction Scale, Lesieur and Blume's Gambling Addiction Test, we built a General Addictions Scale to be a better psychometric alternative that measures the addiction of a person quickly and efficiently. We then customized this general scale, as an example and a checking, for 5 particular addictions.

The novelty this instrument introduces is its potential to identify any addiction based on the fact that addictions are fundamentally similar. This is proven by the neurological studies on addictions (Nestler, 2005) that show that all the addictions have in common the same fundamental mechanisms. We also found that there are some important elements of the addictive behaviour that are shared by these 5 addictions and that cluster in seven dimensions/descriptors: inability to face life's problems (withdrawal), obsessive concern, lack of control, remorse, problems caused by this addiction (ex. neglecting job), change of state of mind (ex. the emergence of conflicting states), concealment (tolerance). These seven dimensions represent the generating factor for the seven items of the General Addictions Scale and for the five scales specific to each addiction.

Consequently, all addictions have something in common that can be measured using the same general instrument. Therefore, we consider that this type of scale could be extended to other addictions such as: drug, sex, pornography, betting, shopping, television, sugar addiction, etc., always necessarily taking into account the specificity of each of the addictions by formulating the items in a differentiated manner, as we did with the five dependencies we studied. Of course, this scale could be also applied by attaching a Likert-type scale to it in order to tune the answers and their interpretations as needed. And with regard to the possible limits of this scale, they may be more visible when using it in larger studies.

The scales that are built on the model of the General Addictions Scale would also simplify the studies aimed at establishing certain differences or correlations between a certain type of addiction and some personality traits or a person's degree of forgiveness or one's level of spirituality and, supplementary, it would have a practical value due to the potential therapeutic remedy in healing the addictions it may suggest.

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