

VIVIEN BODNÁR

**The placebo effect**

**THESES**

**OF THE DOCTORAL DISSERTATION**

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## **1. Aims**

As a result of placebo research and ethical dissertations in recent decades, the question today is no longer whether placebo can be or might be used in medical treatment, but the focus of the question is how to use placebo as effectively as possible in healing (Bodnár & Bárdos, 2017).

As a psychologist, I believe that patients are both physically and mentally ill (or just healthy) and that their physical symptoms can be treated effectively only in a holistic way. While medicine mostly focuses on the physical aspects of a disease, the mission of psychology is to maximize the non-specific effects of healing. Research on the placebo effect may play a key role in bridging the gap between ‘art of medicine’ and ‘science of medicine’ and building a bridge between the representatives of the two fields (Spiro, 1998; Köteles, 2013). Thus, for the sake of healing, our question today is how to maximize the placebo effect, and research on the placebo effect should answer that question. By this dissertation, I would like to contribute to this bridge-building mission by examining the placebos – especially alcohol and alcohol-placebo - in our everyday life.

The aim of our own studies, in addition to measuring the effects of alcohol and placebo alcohol in field and probative experiments, has been to identify personality traits influencing placebo response (Shapiro, 1979), as well as group processes and expectations enhancing placebo effect. (Bodnár, 2018; Bodnár & Bárdos, 2020).

## 2. Experiments

In the so called ‘Social placebo’ study, we examined the effects of alcohol and alcohol-placebo on short term memory, on balance and on the self-evaluation of subjective physical, emotional and social state. We had studied 136 participants, in the framework of a balanced placebo design, in individual and social settings, with special emphasis on the setting in which participants consume alcohol but consider it as a placebo. In the study, the placebo effect was examined in both individual and group situations, taking into account that group processes may have a significant impact on the outcomes, according to the fact that everyday alcohol consumption takes place in social environment, so alcohol-related expectations are associated with such situations.

*Table 1: Experimental conditions (Source: own editing)*

	<b>Given information</b>	<b>Condition</b>	<b>Consumed cocktail</b>	<b><i>n</i></b>	<b>Notation</b>
1. setting	believed to drink alcohol	individual	alcohol	21	AA-I
			placebo	16	AP-I
2. setting	believed to drink aroma	social	alcohol	15	PA-S
	believed to drink alcohol	social	alcohol	3	AA-S
3. setting	believed to drink alcohol	social	alcohol	42	AA-S
			placebo	39	AP-S

In the second, so called ‘Rapid Dating’ field study, we measured the effect of placebo alcohol in a real social setting - at a typical place, where people drink alcohol in the everyday life, in a bar - using complete deception, with 64 participants and we analysed the correlation of certain personality traits (sociability and extraversion, spirituality, religiosity, and dispositional optimism) and placebo responsiveness, as well as the effects of alcohol and alcohol-placebo on subjective and objective (by an external judge) drunkenness, sexual attraction, and self-confidence.

The placebo effect was also demonstrated in two case studies using caffeine and vitamins (Ginko Biloba).

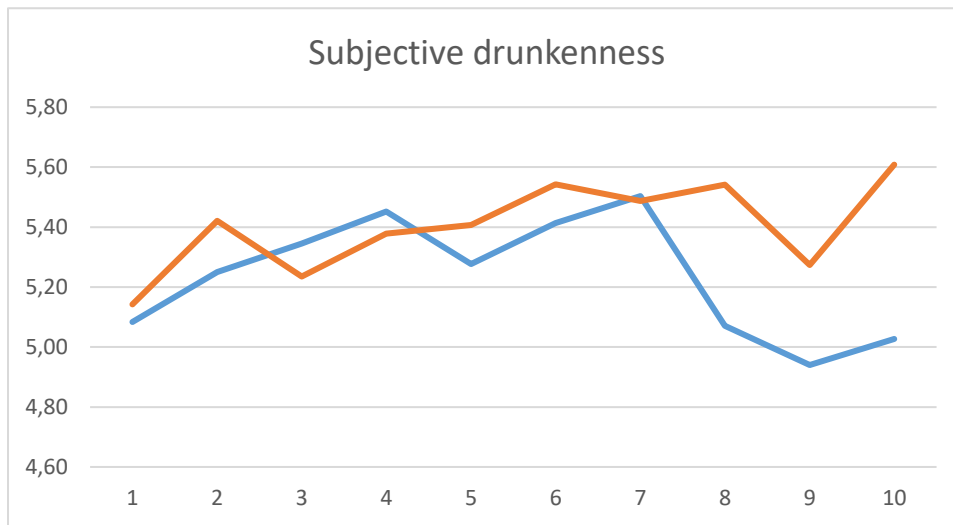
### **3. The role of expectancies in the placebo effect**

The awareness of drinking alcohol and the consumption itself are inseparable in everyday life. Beyond the pharmacological effects, alcohol-related expectations must be taken into consideration, which are essentially formed along personal experiences and the values of the particular culture (Marlatt & Rosenhow, 1980). Pharmacological effects and the impact of expectancies are dose dependent, in case of small quantities expectancies have a greater role than in case of large doses, where mainly the chemical effect of the substance might dominate.

Christiansen, Goldman & Inn (1982) identified six factors of alcohol-related expectancies - 1) being global, positive transforming agent; 2) enhancing sexual performance; 3) enhancing social and physical pleasure; 4) increasing social assertiveness; 5) providing relaxation/tension reduction; and 6) increasing power and aggression; of which five have already been observable among young - as yet non-consuming – population, too. Some of the expectations are acquired through socialization; others are formed through drinking experience. Their consistency and homogeneity are growing by individual experiences. (Bodnár, 2018; Bodnár, 2020)

In our own research, the group consuming alcohol and the group believing to drink alcohol but taking placebo had not differ significantly in the physical symptoms and social behaviour, in the feeling of subjective intoxication (Figure 1), in the degree of objective intoxication by an external judge, as well as in the perceived or actual impact of alcohol along sexual desire, attraction, and self-confidence. Thus, whether participants are consuming real or non-alcoholic beverages, the manipulated information and their own expectations have made them more and more social, drunk, sexually open, and passionate, independently of whether they had a ‘real’ reason for it or not.

1. figure: Change in subjective drunkenness during the measurements (blue = alcoholic condition, orange = placebo condition) in the 'Rapid Randi' field experiment (Source: own editing)



#### 4. The role of the social environment in the placebo effect

Our questionnaire research also have also revealed that the daily alcohol consumption of young people typically takes place in social settings, restaurants bars, and nightclubs, where group processes have a prominent role. Alcohol consumption as well as the consciousness of consumption and the environmental stimuli associated with consumption are also inseparable in everyday life. Our research — comparing individual and group conditions — reveals that participants 'drunkenness' regardless of whether they consumed real alcohol or just aroma had a stronger impact on group effects than the alcohol itself.

Figure 2: Mean of the five groups along the social behaviors factor at each measurement point in the 'Social placebo' experiment (Source: own editing)

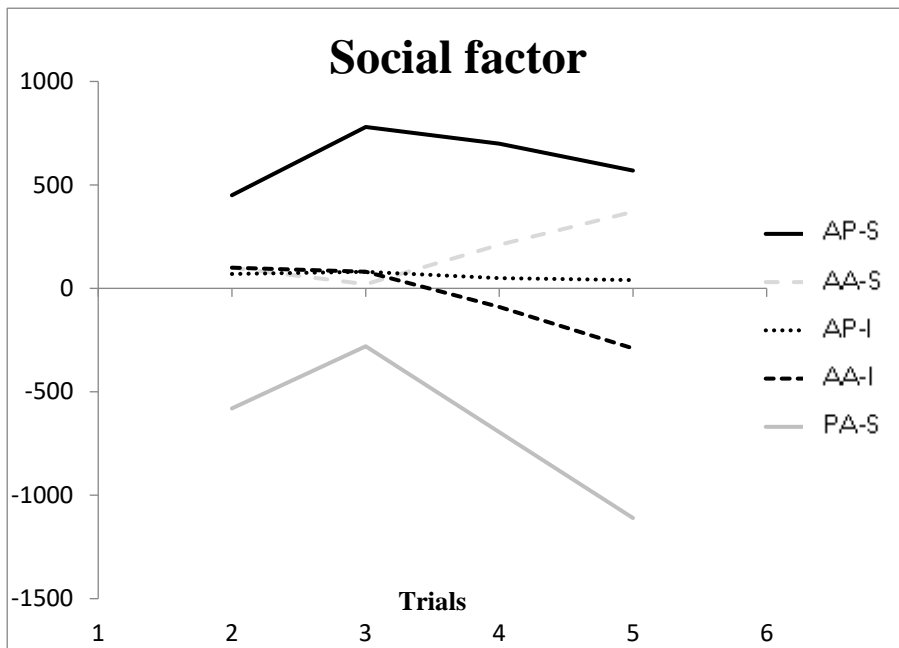
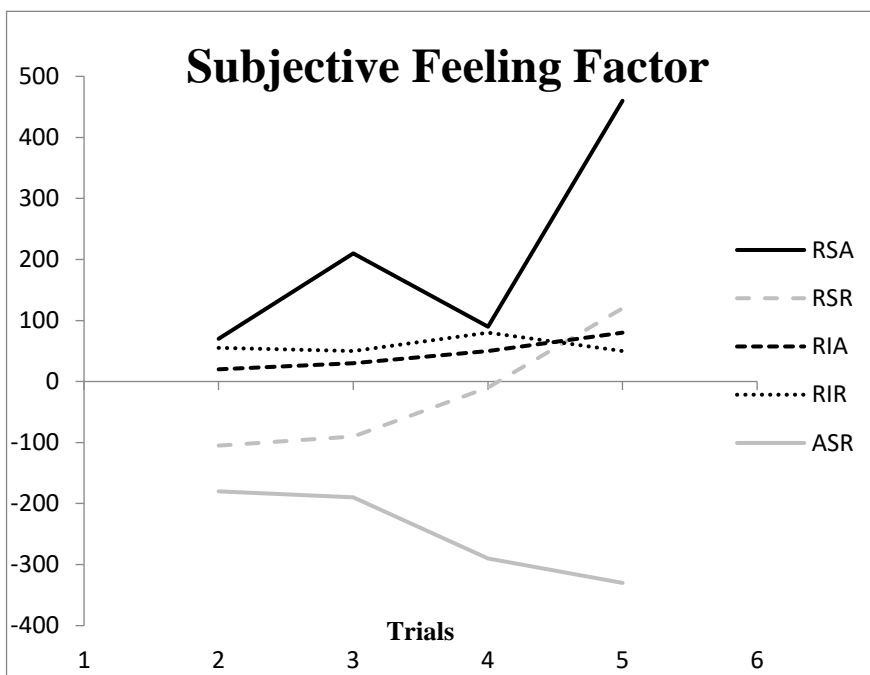


Figure 3: Mean of the five groups along the physical symptoms factor at each measurement point in the 'Social placebo' experiment (Source: own editing)



With reference to Figure 2 and 3, however, it is clear that the results of the PA\_S and AP\_S conditions differ from the other conditions. AP\_S (believed to drink alcohol/ consumed aroma / social ), who had collectively consumed rum flavour believing they drank alcohol, achieved a higher value on the Social Factor and on the Subjective Feeling Factor than other groups, as they were more social and felt to be drunk, so the everyday placebo effect had worked.

Participants in PA\_S (believed to drink aroma/ consumed alcohol / social), who had collectively consumed alcohol while believing drinking only aroma, showed a decline on the Social Factor and Subjective Feeling Factor along the five measurements, becoming less and less 'social', initiator, talkative, and fewer and fewer symptoms of drunkenness had been reported. This can be explained by that the manipulation of information suggesting that participants would not drink alcohol compensated their behaviour based on the given information and became less 'social' and less 'drunk', since 'there was no reason to become more drunk'.

The other three groups showed roughly the same pattern, had not differ significantly during the measurements, thus the results depended less on the consumed alcohol than on whether it was consumed in an individual or social condition, so the effect was rather influenced by different social processes than by the ethanol itself.

Therefore, the group effect is a stronger predictor of the outcomes than the ethanol itself. Participants in social conditions, regardless of what they had really drunk, reported more and more symptoms associated with inebriation, while individual participants had not changed significantly in this respect during the tests. Neither the consumed quantity of the given ethanol, nor the short interval of time in the experiment could have justified the presence of subjective symptoms of inebriation. In case of aroma consumers, these symptoms are causeless, but under the influence of our strong stereotypes about physical symptoms, participants 'created' such symptoms for themselves when they thought they have been drinking alcohol.

Another interesting fact is that, the effect of expectations is influenced by the setting: in relation to physical symptoms, individually the effect of expectations appears only moderately, while in groups it appears more significantly. Individuals who drink aroma report symptoms like those who drink real alcohol, while these symptoms in group settings intensify.

## **5. The role of personality traits in the placebo effect**

In the population, placebo reactors, i.e., the proportion of individuals who respond subjectively and / or objectively to placebo treatment, are estimated to be 30–40% (Beecher, 1955; Lasagna, 1954) by most of the literature, and these individuals are characterized by, among other things, increased suggestibility, endogenous opiate sensitivity, extraversion, sociability, dispositional optimism (Cziboly & Bárdos, 2003).

As well as according to previous studies, in our own research 35.5% of the participants were placebo-reactive, however, we had not found significant differences between the characteristics of placebo-reactive and non-reactive individuals in dispositional optimism, spirituality, Big5 extraversion, Big5 friendliness, and Big5 emotionality. Thus, the hypothesis that the studied personality traits were associated with placebo reactivity could have not been confirmed. Along with other studies, also in our own research the validity of a consistent and reliable placebo-reactive personality has been questioned, and it is not a coincidence that researchers nowadays rather examine the role of situational and interpersonal factors. (Cziboly & Bárdos, 2003)



## **6. Conclusion**

Placebo alcohol (below a certain dose) has similar effect to real alcohol, making people cheerful, degage, social, a little bit drunk, sexually open, intemperate, and more passionate, so it is not determined by the consumed drink but by their own mind.

In addition to the physiological and chemical effects of ethanol, several other factors are involved in both the real and perceived effects of alcohol consumption, of which group effects, suggestions, expectations, and the environment associated with consumption play a key role. Thus, thanks to the placebo effect and the social environment, we can 'lose our minds' whether we have a 'real' reason for it or not, and at the same time, in a compensatory way, expectations also have a 'sobering' effect. Due to the use of placebo, the proportion of those who give a subjective and / or objective physiological response to placebo is 30-40%, but this is not determined by personality traits.

The placebo effect has been proven countless times to exist and is now an unavoidable phenomenon. Thanks to placebo studies, we have made a move on a rugged road focusing on patient's recovery, and today the relevant question about the role of placebo in healing is no longer 'can' or 'may', but 'how to use it as effectively as possible'. By our research and by the present dissertation, we have tried to contribute to answering this question.

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