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**HAPPY-GO-LUCKY.
POSITIVE EMOTIONS BOOST
DEMAND FOR LOTTO.**

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**Happy-go-lucky.
Positive emotions boost demand for lotto.**

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Abstract

The objective of this work was to investigate whether situational emotions can influence consumers' decision to purchase lottery tickets. We conducted a field experiment in which positive or negative emotions were induced immediately prior to such a decision in 685 subjects unaware of their participation in a study. Two methods of induction—gambling related and gambling unrelated—were used to verify the robustness of the results. We found that subjects in whom positive emotions were induced, in both gambling and non-gambling contexts, bought lottery tickets significantly more often than subjects with negative emotions or those in the control group.

Keywords:

decision making, lotteries, induced emotions, gambling-related cues, field experiment

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1. INTRODUCTION

The immense popularity of playing the lottery presents a major challenge to the mainstream theory of decision making under risk, which is based on expected utility maximization and risk aversion. In fact, it would be very hard to produce a set of reasonable beliefs and preferences that would justify the nearly guaranteed loss of hundreds of dollars year after year (Diecidue et al., 2004), yet millions follow this route. It would therefore be more fruitful to search for transient, cue-triggered urges to play, rather than any stable preference. This search clearly calls for studies on how emotions affect participation in lotteries.

Exploring this link may be particularly important for optimal marketing of lotteries. Results of such research might help answer the following question: Are ads more effective when they make people feel good by presenting possible wins, or should they instead make prospective players think of their current misery and the regret they may experience when somebody else wins the main prize?

It also appears that research on emotions in lottery-playing decisions is relevant for assessing the addictive potential of lotteries. If negative emotions trigger lottery play, especially if they are caused by previous unsuccessful bets, then it is difficult to stop playing ('chasing', see Breen & Zuckerman, 1999). This consideration should inform discussions on restrictions on advertising rules, numbers of lottery outlets available, access for minors and availability of online play (recently introduced or presently being considered in many countries).

We sought to enrich our understanding of these effects by conducting a field experiment in which positive and negative emotional states were induced in potential customers immediately prior to their entering an outlet where lottery tickets were available. The purpose was to check whether induced emotions can influence subjects' lottery-playing decision. We found that participants in the positive emotion condition tended to purchase more lottery tickets than those in the negative or no emotion conditions. We discuss the implications of our findings for, among other things, the assessment of addictive potential of lotteries, marketing of lottery products, and the broader behavioral public choice theory context of lottery play.

The paper is organized as follows. We first review some theoretical and empirical results on lottery playing, particularly concerning the impact of emotions. Thereafter we describe the design of our experiment and its results. The last two sections contain a discussion and our conclusions.

2. IMPACT OF EMOTIONS ON LOTTERY PLAYING DECISIONS

Our project clearly belongs to the broad class of studies on the impact of induced emotions on risk taking. Experimental induction of emotions in this literature typically involves presenting a stimulus that triggers either subjects' cognitive evaluation of a risky situation or their behavioral action—a risky decision (Gerrards-Hesse et al., 1994). The results of such experiments led to two prominent, competing theories on the relationship between affect and risk-involving decisions: the *mood maintenance hypothesis* (MMH; Isen & Patrick, 1983) and the *affect infusion model* (AIM; Forgas, 1995). While the MMH suggests that positive affect leads to risk-averse behavior and negative affect to risk-seeking behavior (Hockey et al., 2000; Kliger & Levy, 2003), the AIM proposes the opposite (Au et al., 2003; Grable & Roszkowski, 2008; Hirshleifer & Shumway, 2003; Johnson & Tversky, 1983; Levy & Galili, 2008; Yuen & Lee, 2003).

According to the MMH, positive emotional states encourage people to minimize the chances of a loss by avoiding risk. Therefore, people in a positive mood will be more reluctant to make risky decisions (such as playing lottery, which might lead to losses) since losing might end their good mood. Williams and colleagues (2003) conducted a study of managers and found that they perceived a risky situation more optimistically while influenced by positive emotions. Crucially, however, they still remained rather conservative in their decisions. When influenced by negative emotions, the managers were more willing to take a risk because they reasoned they had nothing to lose.

With respect to the subjective expected utility model, in which decisions are made based on subjective estimates of likelihood and subjective weightings of utility associated with the outcome, the tendency for risk aversion shown by people with positive emotions may be explained by a greater disutility associated with a loss outcome. People in a positive mood may perceive a potential loss as being more painful than those in a neutral mood, since they are not only losing a gamble but also their positive emotional state.

Conversely, under the AIM, the *negative* mood triggers risk aversion. According to this model, subjects with negative emotions perceive risk-related gains more negatively, and therefore they are more likely to avoid risk. This result may be explained by people with negative mood perceiving the world as threatening, and therefore being more cautious in making decisions that could bring losses (Williams et al., 2003). Additionally, as previously

mentioned, negative emotions may change the way a subject processes information during decision making. According to Schwarz's feelings-as-information model (1990), negative emotions indicate that a problem has occurred, and they are a trigger for a more systematic way of processing information. They may therefore lead to avoidance of spontaneous risk-involving decisions. Another theory that is consistent with the AIM is the *affective generalization hypothesis* of Johnson and Tversky (1983). They propose that, compared to controls, people with induced negative emotions perceive uncertainty in a more pessimistic way and estimate that the probability of winning is lower. (The opposite is proposed for positive emotional states—people with induced positive emotions perceive the probability of gains more optimistically and tend to be more risk-seeking.) The hypothesis is supported by mood congruence theory, which proposes that subjects with negative emotions perceive potential negative outcomes more readily, and conversely, subjects influenced by positive emotions are more likely to anticipate potential positive outcomes (Carson & Adams, 1980).

The specific link between emotions and risk taking in the context of lotteries has been studied much less extensively. An important study by Bruyneel et al. (2009) provides relevant data and adopts a theoretical perspective different from the one already outlined.

Based on laboratory experiments, Bruyneel et al. (2009) suggested that negative affect can induce people to engage in risky decisions such as lottery play for two reasons. First, the lottery can serve as an instrument for mood repair (negative mood primes a mood repair goal, which can be reached through lottery play). The second explanation is based on the depletion hypothesis (Baumeister et al., 1998)—that is, attempts to regulate negative emotions deplete the limited resources that are needed to resist the temptation to play the lottery. In four subsequent lab tests, Bruyneel and colleagues tried to prove the negative mood effect on lottery expenditures and to verify explanations of this effect. In the first experiment (of correlational nature) they measured negative affect immediately before participants were given the opportunity to buy lottery tickets and some minutes before that opportunity. A link between negative affect and higher lottery expenditures was indeed found. Additionally, lottery expenditures were related to the extent of the bad mood that subjects reported some time *before* they were given the opportunity to buy lottery tickets, which supports the depletion hypothesis. Three subsequent experiments provided evidence that the risky choices in the negative mood conditions can be explained by the depletion hypothesis due to active mood regulation attempts rather than mood repair processes. Overall, Bruyneel and colleagues showed that undertaking risky choices is a consequence of negative affect, and the underlying reason is that the negative

mood makes people more engaged in active mood regulation attempts, resulting in insufficient resources to refrain from lottery play.

One limitation of these studies is that they involved small ($N = 46$, $N = 72$, $N = 27$ and $N = 70$, respectively) samples of students, who are seldom lotto players in the first place; lotteries usually attract older and less educated participants (Giacopassi et al., 2006; Welte et al., 2002). Moreover, all the experiments occurred in laboratory settings, which can lead subjects to employ behavioral rules that differ from the ones they might employ in the field (Harrison et al., 2007).

3. METHODS

To reach a larger and more heterogeneous sample, we decided to use a natural field experiment. Because our subjects would not realize they were taking part in a study, we also avoided problems related to the ‘good subject effect’ (Nichols & Maner, 2008). A field experiment was also favored in view of findings that real and artificial gambling conditions may trigger different levels of sensation-seeking, arousal, and gambling risk attitude (Anderson & Brown, 1984).

Pilot study

Since the aim of the study was to examine the impact of *induced emotions* on subjects’ *spontaneous* decisions to buy lottery tickets, the location of the experiment needed to be chosen carefully. Individuals who were as yet undecided about whether to buy a lottery ticket (or how many to buy) before reaching a point of sale were expected to be more susceptible to our manipulation. Because our treatment would take place outside the point of sale, we also wanted to be able to tell whether a particular customer was approaching the premises, rather than a shop next door. A pilot study aimed at selecting the optimal point of sale was thus carried out.

We initially selected seven potential locations at major social hubs in the city of Warsaw. The points of sale were not necessarily dedicated lotto retail shops; they also sold newspapers, cigarettes, and the like, so a substantial number of not-yet-decided lottery consumers could be hoped for.

The pilot study was qualitative and consisted of an interview with the owners or sellers in the selected shops and a short survey of people entering or leaving the shop. The observations and interviews at every point of sale took at least 30 minutes, and at least 10 customers were interviewed. In this way we were able to pick a suitable location at a metro station, with a

regular flow of customers who were not planning to purchase lottery tickets when entering the shop yet ended up doing so.¹

Experiment proper

We investigated two independent variables, each having two levels in a between-subject design: the valence of induced emotions (positive vs. negative) and the presence of gambling-related cues (gambling context vs. non-gambling context).

The experimental design and number of observations in each treatment are presented in Table 1.

Table 1. Experimental design

		Induced emotions' valence	
		Positive (Pos)	Negative (Neg)
Gambling-related cues activation	Gambling context (GC)	GC-Pos <i>n</i> = 137	GC-Neg <i>n</i> = 130
	Non-gambling context (nGC)	nGC-Pos <i>n</i> = 142	nGC-Neg <i>n</i> = 137

*Additionally *n* = 139 untreated subjects could be considered as control group, see footnote 3.*

The manipulations in the four treatments were as follows. In the **Gambling Context condition** a raffle ticket was offered free of charge to each customer approaching the store. The experimenter (one of the authors or a student assistant unaware of the study goals) would address them:

Hello! I would like to invite you to take part in a cost-free lottery. Every second ticket wins! Please pick one box.

¹ Strictly speaking, our first-choice location was only used during the first day of the experiment only. Thereafter, due to subway station renovation at our runner-up location, passengers were forced to change trains there, providing additional flow of potential customers that we had not expected before. We thus decided to move our experiment there.

In **GC-Pos**, subjects would draw a winning ticket and would immediately be given a piece of candy (chocolate Milka Crispello, which normally costs approximately 1 PLN, equivalent to 25 euro cents) and be told:

Congratulations! You have a lucky day in the lottery! The lucky winners are given sweets from Milka. Please help yourself to a chocolate. Have a nice day!

In **GC-Neg**, subjects would draw a losing lot and be told:

I'm sorry, you are out of luck today. Like I said, only half of the tickets win a prize. Unfortunately, yours is blank. Have a nice day!

In the **non-Gambling Context condition**, we used an A0 size banner and leaflets seemingly as part of a social campaign promoting oral hygiene among children (see the Appendix). In **nGC-Pos**, the stimuli involved pictures of attractive, smiling children on a green background with a positive statement concerning oral hygiene. A subject would be handed a leaflet and told:

Hello! Do you know that through education in schools the oral health of children in Poland has recently improved? Please read this [leaflet no. 1] and learn why it is important to take care of kids' teeth in their early years.

In **nGC-Neg**, the picture was a disgusting close-up of a bad case of caries on a black background with a negative statement concerning oral hygiene. A subject would be handed a leaflet and told:

Hello! Do you know that the oral health of children in Poland is bad, even alarming? Please read this [leaflet no. 2] and learn why it is important to take care of kids' teeth in their early years.

We wanted to know how these manipulations affected demand for lottery. We thus focused on two variables: whether or not the subject purchased any tickets (`at_least_one`) and how

much she or he paid for all their tickets combined (`value_of_tickets`).² We also observed some auxiliary variables, namely types of non-lottery items purchased and total amount spent on these items as well as the subject's gender. While it would have been interesting to know their age too, it was difficult to estimate it or elicit it in an unobtrusive way. The exact time of the purchase was also recorded.

To observe these variables, we had another student assistant standing inside the store, next to the cashier. He or she pretended to be doing an inventory of the goods, while in fact he or she would record the target subjects' gender and purchases. People who were not approached by the first assistant (typically because he or she was busy talking to the previous customer)³, and therefore were not subject to manipulation, were treated as a control group.

To collect a sufficient number of observations, we repeated the experimental procedure on seven different days in June and July of 2013. The experiment was always conducted on Tuesday, Thursday, or Saturday when draws for the Lotto take place. We would run all four treatments each day, with a balanced number of observations. The treatment order was changed each day to avoid any effects from the time of day. Because changing treatments very often on a particular day could have generated a risk of misunderstanding between the experimenters or reveal treatments to the subjects from another condition, each treatment was only applied once a day, typically for some 30 minutes.⁴

Note that all the information provided to subjects was true, although they may have drawn incorrect conclusions from it. In particular, because GC-Pos and GC-Neg subjects were (approximately) equally numerous, half the tickets we distributed would have indeed yielded a prize. However, in each specific case, the experimenter would know whether the ticket was a winning one or not. In other words, a subject's time or arrival could be "lucky" or "unlucky" rather than the drawing itself. Further, the experimenters never said they were representatives of Milka, although some GC subjects might have thought so. Similarly, in the nGC condition, the oral hygiene information was true (although selectively presented in each treatment) and

² We recorded the type of ticket, noting that draw-based game Lotto (including Lotto Plus) strongly dominated other games such as Keno, Joker, and scratch cards, which is true nation-wide.

³ In practice, it was difficult for the second experimenter to distinguish between such a case and a situation in which a customer purposefully avoided interacting with the first experimenter. The latter would occur more often in the GC, where subjects were unsure what was expected of them (whereas nGC would involve leaflets and banners, thus highly standard forms of communication). In hindsight, it may have been beneficial to run an additional, explicit control treatment (with no prior-to-purchase manipulation taking place for some period of time), rather than relying on the control group arising, as it were, as a by-product as described here. Thus comparisons with our "control" condition have to be approached with some caution; we will have more to say about that in the Results section.

⁴ Our early experience showed that there were too few customers outside of the peak afternoon period of about 2 hours so that it was not worthwhile to employ student assistants for the rest of the day.

the experimenters did not pretend to be employees of any specific non-governmental organization and so forth.

Because subjects were not lied to and the manipulations were non-invasive, with miniscule probability of psychological harm of any sort (and indeed none was observed), there was no need for debriefing.

4. RESULTS

To give the first impression of the effects of our manipulations, Table 2 shows means of both dependent variables in each of the four treatments and the control group.

Table 3. Purchase decisions in different treatments

		Induced emotions' valence	
		Positive (Pos)	Negative (Neg)
Gambling-related cues activation	Gambling context (GC)	15.3% 1.21 (4.01)	6.2% 0.32 (1.35)
	Non-gambling context (nGC)	23.9% 2.63 (6.11)	13.9% 1.19 (4.12)
Control group		10.8% 1.01 (4.10)	

The first number in each cell is the percentage of subjects who bought at least one ticket. The second is the (unconditional) mean of the value of tickets bought. Standard deviation in parentheses.

By eyeballing, positive affect led to a higher proportion of players and higher overall spending. Indeed, using two-sample test of proportions we find significant effects of valence, both under nGC ($z = -2.14, p = .032$) and GC ($z = -2.41, p = .016$). Identical results were obtained for two-sample rank-sum (Mann-Whitney) test on `value_of_tickets` ($z = -2.292, p = 0.0219$ and $z = -2.418, p = .0156$, respectively). This difference was driven by more frequent play—amounts spent conditional on purchasing at least one ticket were not statistically different.

Surprisingly, gambling cues seem to have *diminished* lottery ticket consumption—this effect was significant for the negative emotions condition and marginally significant for the positive condition.

As an additional check of robustness of the main finding, as well as to tell whether the positive or negative affect made a difference with respect to controls, we also tested differences between each treatment and the control group—all non-treated subjects. Again, two-sample tests of proportions were conducted for the variable `at_least_one` and two-sample rank-sum (Mann-Whitney) tests for variable `value_of_tickets`. We found significant differences between experimental conditions and the control group only for the nGC-Pos treatment ($z = 2.91, p = .0037$ and $z = 2.981, p = .0029$, respectively).

Recall that we were not able to randomize treatment assignment on an individual (subject) level, a downside of running an experiment in the field. Instead, spells during which we would constantly apply the same manipulation would last approximately 30 minutes and include about 25 subjects on average. It was unlikely that the flow of customers showing up, for example, in the period of 4:30 until 5:00 PM differed dramatically from those between 5:30 and 6:00 PM *on the same day*.⁵ Still, it cannot be excluded that differences in the natural propensity to purchase lottery tickets of customers showing up at different times of the day contaminated our analysis somewhat. This seems particularly possible given the surprising finding of lower sales under GC compared to nGC. We addressed this problem in two ways.

First, we conducted treatment versus control tests again, this time, however, *considering non-treated individuals that showed up in the relevant treatment period only*. For example, GC-Neg subjects were compared to non-treated individuals who were present when GC-Neg manipulation was being applied. Clearly, in this way time effects (if any) were controlled for, at the cost of reduced statistical power due to a lower number of observations in these treatment-specific control groups.

Using the two-sample test of proportions, we found significant differences between experimental conditions and its control group for treatment GC-Pos only ($z = 2.40, p = .0163$). Similarly, there was a significant difference in value in this treatment only ($z = 2.39, p = .0169$ in the Mann-Whitney test). Overall, this exercise confirmed the effect of positive emotions yet suggested that the negative impact of gambling cues could have been an artifact—non-treated individuals who arrived while the GC-Pos manipulation was being applied bought so few

⁵ As mentioned before, we made sure to obtain a comparable number of observations for each treatment on each day given that differences *between* days (typically with different jackpots) could be substantial.

lottery tickets that it was the only condition for which the difference was significant. In other words, it seems that overall GC-Pos periods had unusually low levels of lottery ticket sales by chance. Consequently, merely comparing the four treatments might have led to a misleading conclusion that gambling cues negatively affected willingness to purchase lottery tickets.

The second way to control for time effects (and, additionally, to see if any auxiliary factors affected our dependent variables) was to use a regression model. Since our first dependent variable (`at_least_one`) was a dichotomous one, we estimated a logistic regression model.

Our baseline specification, Model 1, contained only the treatment variables (of course the control group, for which variables `positive`, `negative`, and `gambling` took the value of 0, was the base category). Not surprisingly, previous findings were confirmed—positive affect has a large impact, while gambling has a smaller and negative effect.

In Model 2, we additionally controlled for subjects' gender, the jackpot level on the day of purchase, and time-of-the-day dummies (a separate indicator variable was created for each hour). Two of the new coefficients were highly significant and their signs were consistent with findings reported in earlier literature: males are more likely to purchase lottery tickets, and a higher jackpot is associated with higher sales (see Ariyabuddhiphongs, 2010). The time dummies were jointly insignificant ($\chi^2 = 7.07$, $p = .4220$), and the estimates for our main variables of interest were hardly changed.

Finally, in Model 3, we allowed for the effect of the day of purchase and all interactions between day and time of the day. Obviously, as the jackpot value was constant within each day, its effect could no longer be estimated in this specification. The estimates for `positive` and `male` were exactly as they were previously. Predictably, given our previous results of tests including treatment-specific control groups, fully controlling for specific time periods rendered the `GC` variable insignificant, suggesting that its negative impact in Models 1 and 2 was spurious, merely reflecting the fact that the demand for lottery tickets happened to be unusually low during the time periods when we applied our GC-Pos manipulation.

A summary of the results for all three models is provided in Table 4.

Table 4. Frequency of lottery play – logistic regression

	Dependent variable at_least_one		
	(1)	(2)	(3)
Pos	1.003** (0.328)	1.015** (0.350)	0.995** (0.375)
Neg	0.209 (0.353)	0.233 (0.365)	0.085 (0.414)
GC	-0.670** (0.251)	-0.643* (0.293)	-0.434 (0.410)
Male	NO	0.744*** (0.230)	0.778*** (0.240)
Jackpot level/10⁶	NO	0.097* (0.038)	NO
Time of the day	NO	YES	YES
Day × time of the day	NO	NO	YES

Standard errors in parentheses.
** significant at 5%, ** significant at 1%, *** significant at 0.1%*

For the total value of tickets purchased, we used the tobit regression model because this variable, by definition, cannot be negative and it very often takes the value of 0, as shown before. We constructed three models analogous to the ones used in the logit, and we obtained fully equivalent results (see Table 5). By contrast, our treatment manipulation did not significantly affect other purchases (such as those of cigarettes or newspapers).

Table 5. Total amount spent on lottery tickets—tobit regression

	Dependent variable total_value		
	(1)	(2)	(3)
Pos	9.421** (2.969)	8.766** (3.044)	8.532** (3.142)
Neg	1.712 (3.053)	1.598 (3.045)	0.260 (0.330)
GC	-6.894** (2.292)	-6.309* (0.260)	-5.422 (3.412)
Male	NO	7.071*** (2.034)	6.746*** (2.025)
Jackpot level/10⁶	NO	0.692* (0.333)	NO
Time of the day	NO	YES	YES
Day × time of the day	NO	NO	YES

Standard errors in parentheses.
** significant at 5%, ** significant at 1%, *** significant at 0.1%*

5. DISCUSSION

Our results indicate that induced positive emotions lead to a greater involvement in lottery play and higher spending on lottery tickets. The context of gambling- or non-gambling-related cues does not modulate this effect: for both situations, positive emotions make people more willing to buy lottery tickets. These results support our hypothesis that a positive mood leads subjects to be more risk-seeking, a result consistent with the AIM.

Additional results, namely that men were more likely to purchase lottery tickets and a higher jackpot was associated with higher sales, are consistent with findings reported in earlier literature.

It is worth noting that our findings are quite different from those obtained in the laboratory experiments of Bruyneel et al. (2009) described previously. One possible reason for this discrepancy is the timing of events. Our study was based on emotions that are of relatively short duration and induced directly before the actual task (i.e., lottery playing decision). The mechanism that seems to have been at work in the Bruyneel et al. study (depletion due to mood regulation making it difficult to resist the lure of lotto) normally requires some time to develop. In their study the negative affect correlated with higher lottery expenditures when there was a time interval that gave subjects the opportunity to actively regulate their mood by playing the lottery. It might have thus not been observable in our setting (although our GC-positive context might have led to additional self-control depletion as subjects tried to avoid eating their high-calorie reward on the spot).

More generally, given that that theoretical propositions can go either way, it is not very surprising that there is no particular consistency of results from experiments using quite different designs. More research is surely needed in this area to better understand cognitive and emotional processes that underlie lottery-playing decisions.

6. CONCLUSIONS

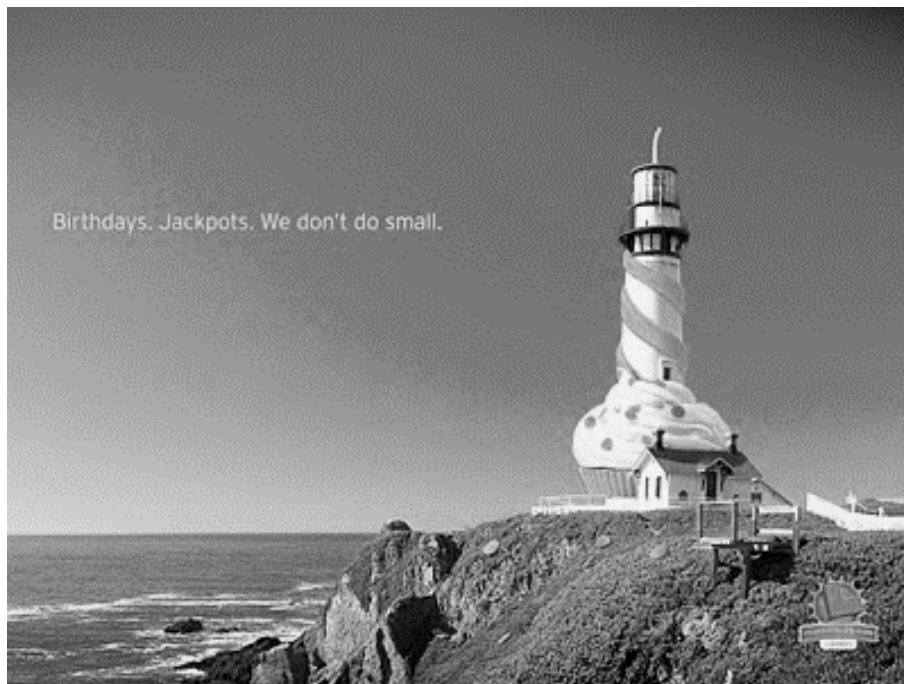
The results of experiments such as ours can be applied to a number of practical problems. First, the results may potentially be used to enhance marketing techniques to encourage lottery playing. Using emotions in advertisements is a common practice (Olney et al., 1991). In view of our results, lotto ads should aim at evoking positive emotions, which is currently not always the case. Consider, for example, the picture of a broken bowl with spilled milk used in a Washington State lotto ad (Figure 1). This ad may be an example of an advertisement that is not likely to be effective. The immediate reaction to the photograph would probably involve unpleasant surprise or fear. Even after reading the soothing marketing claim, a subject may retain the initial negative emotions, which, in view of our results, are unlikely to encourage buying a lottery ticket. On the other hand, ads such as the one shown in Figure 2 may be effective because they will typically trigger positive emotions, including joy, peace, or happiness. Indeed, the lighthouse in the shape of ice cream can trigger positive associations related to pleasant memories from childhood and/or holidays. In this case positive induced emotions should lead to a greater willingness to buy lottery tickets.

Figure 1. Lotto advertisement with negative emotions.



Source: <http://www.coloribus.com/adsarchive/prints/washington-state-lotto-cheerios-6144655/>
(downloaded 30.08.2013)

Figure 2. Lotto advertisement with positive emotions.



Source: http://pixelpastahome.blogspot.com/2010_03_14_archive.html

(downloaded: 30.08.2013)

Our results also seem to suggest that point-of-sale advertising (evoking positive emotions) is likely to be effective.

Another practical implication of our study concerns the optimal allocation of drawings during the week. Saturday drawings are much more popular than those on weekdays in most countries (Forrest et al., 2000; Oster, 2002). Given that people tend to be in a more positive mood on the weekend (Egloff et al., 1995), our results suggest that this is not merely a matter of habit—it may be futile to introduce and/or promote mid-week drawings.

Our results may also shed some light on the addictive potential of gambling. For example, Grusser et al. (2007) reported that problem gamblers tend to be those who seek relief from a bad mood by playing the lottery. If so, some results obtained in our experiment—the fact that sales were the lowest in GC-Neg conditions—suggest low addictive potential of lotteries. Apparently, our subjects treated with a disappointing outcome in a gambling-related task typically did not use the lottery as a means of relieving a negative emotional state.

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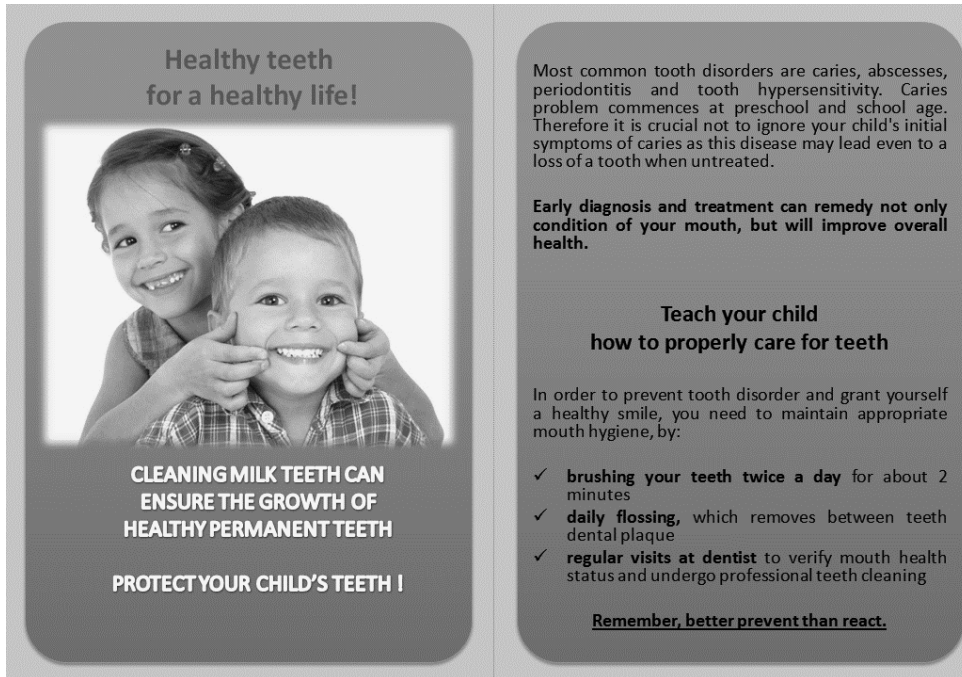
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APPENDIX

Figures A1 and A2 display English translations of the leaflets used as manipulations in the non-Gambling Context condition.

Figure A1. nGC-Pos leaflet



**Healthy teeth
for a healthy life!**



**CLEANING MILK TEETH CAN
ENSURE THE GROWTH OF
HEALTHY PERMANENT TEETH**

PROTECT YOUR CHILD'S TEETH !

Most common tooth disorders are caries, abscesses, periodontitis and tooth hypersensitivity. Caries problem commences at preschool and school age. Therefore it is crucial not to ignore your child's initial symptoms of caries as this disease may lead even to a loss of a tooth when untreated.

Early diagnosis and treatment can remedy not only condition of your mouth, but will improve overall health.

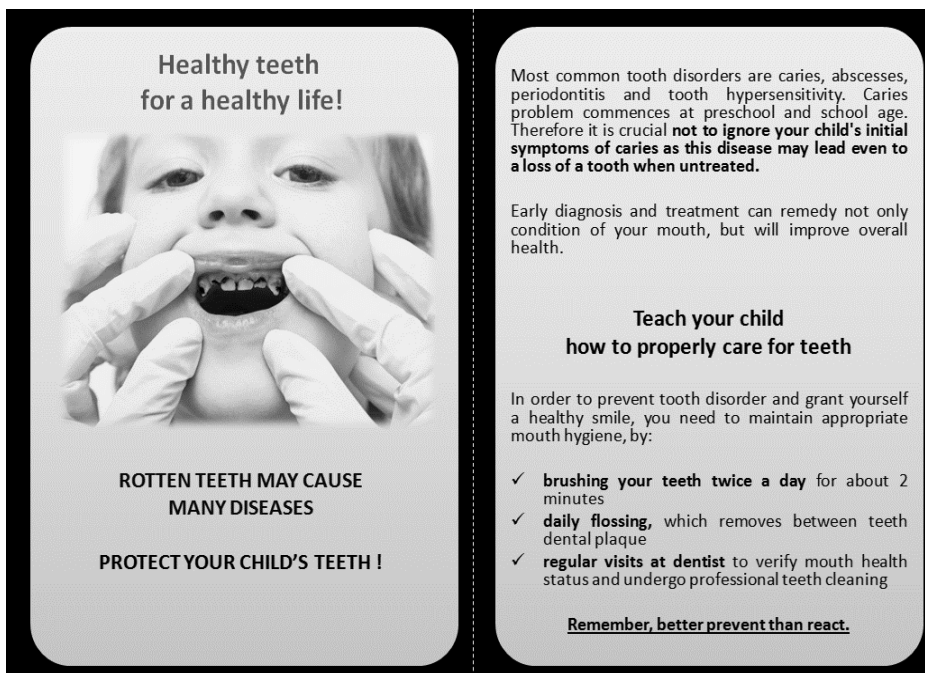
**Teach your child
how to properly care for teeth**

In order to prevent tooth disorder and grant yourself a healthy smile, you need to maintain appropriate mouth hygiene, by:


- ✓ **brushing your teeth twice a day** for about 2 minutes
- ✓ **daily flossing**, which removes between teeth dental plaque
- ✓ **regular visits at dentist** to verify mouth health status and undergo professional teeth cleaning

Remember, better prevent than react.

Figure A2. nGC-Neg leaflet



**Healthy teeth
for a healthy life!**



**ROTTEN TEETH MAY CAUSE
MANY DISEASES**

PROTECT YOUR CHILD'S TEETH !

Most common tooth disorders are caries, abscesses, periodontitis and tooth hypersensitivity. Caries problem commences at preschool and school age. Therefore it is crucial **not to ignore your child's initial symptoms of caries as this disease may lead even to a loss of a tooth when untreated.**

Early diagnosis and treatment can remedy not only condition of your mouth, but will improve overall health.

**Teach your child
how to properly care for teeth**

In order to prevent tooth disorder and grant yourself a healthy smile, you need to maintain appropriate mouth hygiene, by:

- ✓ **brushing your teeth twice a day** for about 2 minutes
- ✓ **daily flossing**, which removes between teeth dental plaque
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Remember, better prevent than react.



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