

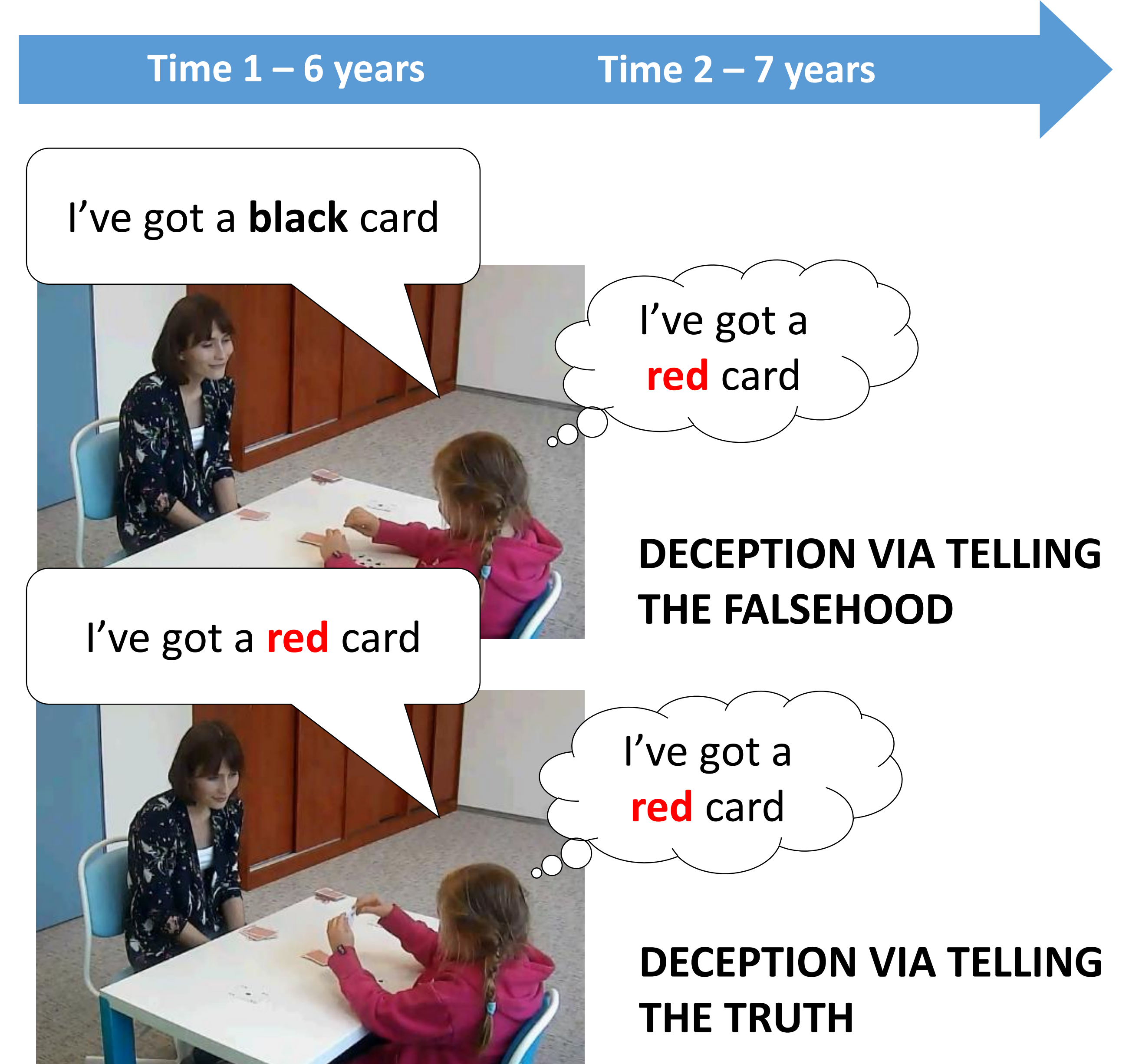
Second-Order Deception in Middle Childhood. The Role of Second-Order False-Belief Understanding and Working Memory

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INTRODUCTION

- Highly competitive social situations require complex deceptive strategies involving both: the first-order deception – deception via telling a falsehood; and the second-order deception – providing a truthful statement to deceive (Ding et al., 2014).
- Most of 6-year-olds deceive others by telling the truth during the guessing game (Sai et al., 2018). Younger children start deceiving by telling the truth after more trials than older ones.
- Our aim was to describe developmental changes in second-order deception and the effectiveness of deception, as well as to answer the question whether general cognitive skills, i.e. working memory and/or second-order false-belief understanding predict the ability to deceive.
- Potential gender differences were also explored in this study.

- METHOD**
- Memory for Digit Span (Wechsler, 1974; Matczak et al., 2008)
 - Second-Order False-Belief Tasks (Sullivan et al., 1994)
 - Smith and LaFreniere (2013) Deception Task:
 - The number of successful deceptions
 - The number of a trial in which the second-order deception happened for the first time
- 70 girls
78 boys



Second-order false-belief understanding predicts the number of trials the boys at age 6 need to start deceiving by telling the truth

	Predictors	β	ΔR^2
Block 1:	Working memory	-.19	
Block 2:	Working memory	-.13	.06*
	Second-order false-belief understanding	-.26*	

Note. * $p < .05$

Total $R^2 = .10, p = .022$

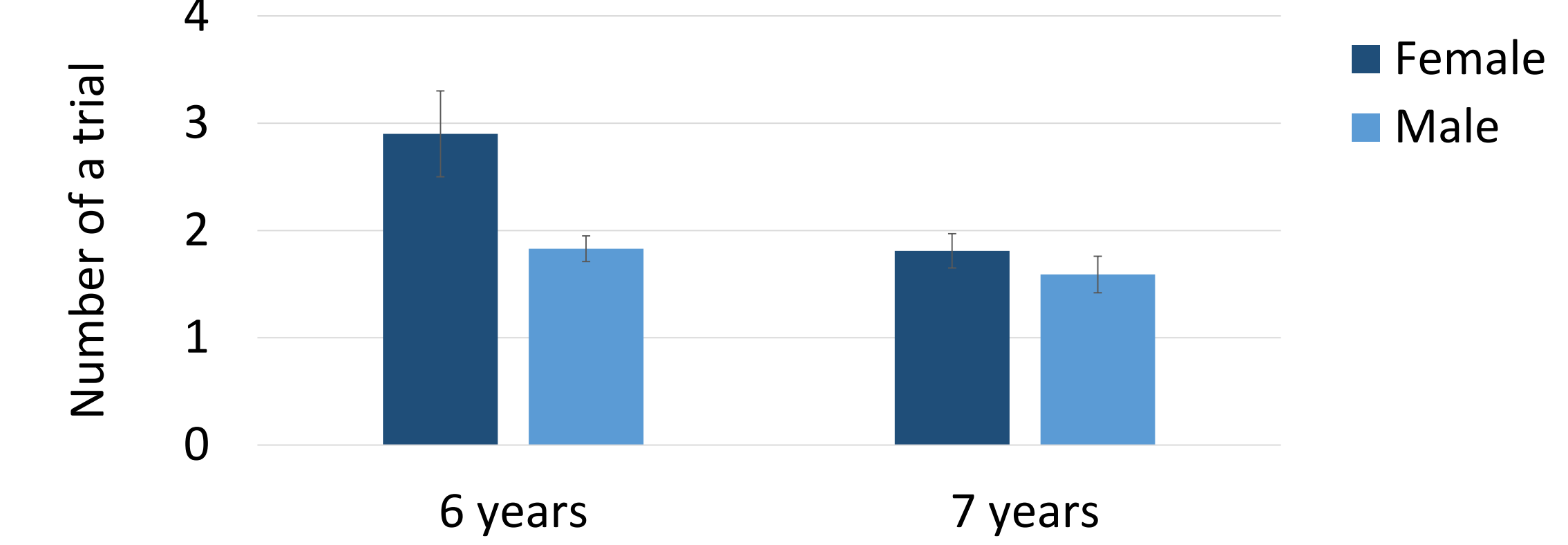
Working memory predicts the number of trials the girls at age 6 or 7 need to start deceiving by telling the truth

	Predictors	β	ΔR^2
Block 1:	Working memory	-.30**	
Block 2:	Working memory	-.30*	.00
	Second-order false-belief understanding	-.03	

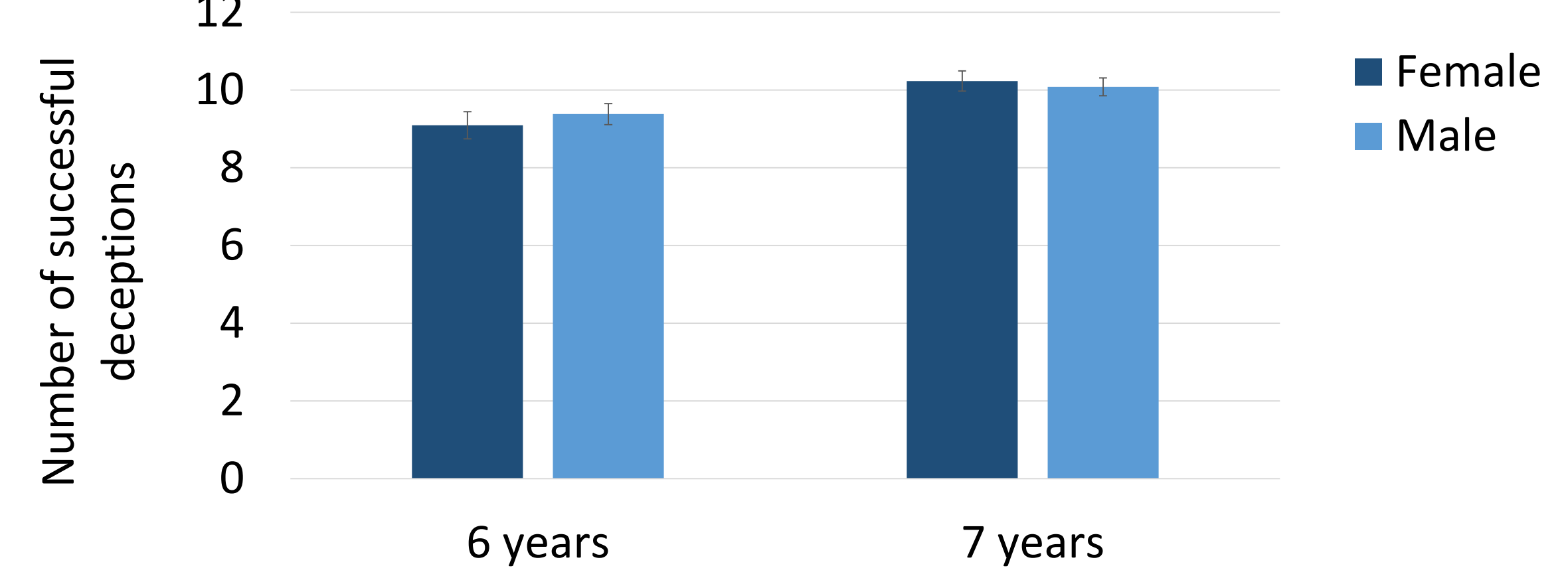
Note. * $p < .05$; ** $p < .01$

Total $R^2 = .09, p = .04$

At the age of 6, boys start to deceive by telling the truth after a fewer trials than girls



For boys and girls, the number of successful deceptions increases with age, but it does not differ significantly between the sexes



Note. The maximum possible score was 20

DISCUSSION

- For boys and girls, the effectiveness of deception does not differ significantly at studied ages. However, the boys need a lower number of trials to start deceiving by providing the truthful information than the girls. Taken together, we suggest that boys and girls may rely on different strategies while playing deceptive games.
- Our suggestion is partially supported by the evidence that deception by truth-telling is predicted by different cognitive skills: it is second-order false-belief understanding in boys and working memory in girls.
- Gender differences in second-order deception may be caused by different social experiences and preferences: from early ages boys and girls tend to play separately (e.g. LaFreniere et al., 1984) and their willingness to engage in the competitive activities is higher in boys than in girls (Pellegrini & Archer, 2005). This may be in line with different selection pressures for men and women (Geary et al., 2003).

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