

Author's Accepted Manuscript

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PII: S0165-1781(16)31085-X
DOI: <http://dx.doi.org/10.1016/j.psychres.2017.02.062>
Reference: PSY10364

To appear in: *Psychiatry Research*

Received date: 25 June 2016
Revised date: 5 February 2017
Accepted date: 28 February 2017

Cite this article as: Linda Q. Yu, Sangil Lee, Natalie Katchmar, Theodore D Satterthwaite, Joseph W. Kable and Daniel H. Wolf, Steeper discounting of delayed rewards in schizophrenia but not first-degree relatives, *Psychiatry Research*, <http://dx.doi.org/10.1016/j.psychres.2017.02.062>

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Steeper discounting of delayed rewards in schizophrenia but not first-degree relatives

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ABSTRACT

Excessive discounting of future rewards has been related to a variety of risky behaviors and adverse clinical conditions. Prior work examining delay discounting in schizophrenia suggests an elevated discount rate. However, it remains uncertain whether this reflects the disease process itself or an underlying genetic vulnerability, whether it is selective for delay discounting or reflects pervasive changes in decision-making, and whether it is driven by specific clinical dimensions such as cognitive impairment. Here we investigated delay discounting, as well as loss aversion and risk aversion, in three groups: schizophrenia (SZ), unaffected first-degree family members (FM), and controls without a family history of psychosis (NC). SZ had elevated discounting, without changes in loss aversion or risk aversion. Contrary to expectations, the FM group did not show an intermediate phenotype in discounting. Higher discount rates correlated with lower cognitive performance on verbal reasoning, but this did not explain elevated discount rates in SZ. Group differences were driven primarily by the non-smoking majority of the sample. This study provides further evidence for elevated discounting in schizophrenia, and demonstrates that steeper discounting is not necessarily associated with familial risk, cannot be wholly accounted for by cognitive deficits, and is not attributable to smoking-related impulsivity.

Keywords:

genetic risk; decision-making; cognitive; delay discounting

1. INTRODUCTION

There is increased focus on studying the basic neuropsychological processes that are altered in mental illness (Insel et al., 2010). One process that is widely affected across mental illnesses is decision-making (Montague et al., 2012; Mukherjee and Kable, 2014). This observation is especially true of individuals with schizophrenia, who differ from healthy comparison subjects in several decision-making tasks (Ahn

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