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Types of intelligence predict likelihood to get married and stay married: Large-scale empirical evidence for evolutionary theory

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ABSTRACT

Decisions related to marriage and divorce are key life events for individuals. In the present research, we provide large-scale evidence of the role of individual intelligence in marriage and divorce behavior, controlling for tangible resources such as income and social status symbols. We find that male individuals' intelligence score at early adulthood has a positive relationship with their subsequent likelihood to get married, in a sample of 120,290 males. Intelligence also predicts continued marriage (non-divorce) in a separate sample of 68,150 married males. The relatively easier-to-perceive verbal intelligence predicts the likelihood of getting married (bivariate correlation r = 0.07) slightly better than the harder-to-observe numeric (r = 0.06) and logical intelligence (r = 0.05). The likelihood to stay married is predicted to an equal extent by verbal, numeric, and logical intelligence (r ≈ 0.05). A series of regression models confirms the direct effect of residualized intelligence on marriage behavior over and above its indirect effect through income, social status, and other control variables. These findings provide empirical evidence for the notion of evolutionary psychology that human intelligence, as an intangible fitness indicator, directly influences mating prospects, rather than merely exerting its influence through the tangible resources of income and social status.

1. Introduction

While marriage and divorce decisions substantially depend on culture and individuals' learned traits (Yates & de Oliveira, 2016), recent research (e.g., Jerskey et al., 2010) suggests that fundamental, largely biologically-determined traits of human individuals may also affect their marriage prospects. One such fundamental trait is the general cognitive ability, or intelligence of individuals (e.g., Miller, 2000). Indeed, even in a relatively small sample of individuals, a positive correlation was found between the intelligence scores of males and their likelihood to get married (Taylor et al., 2005). In a similar vein, psychology scholars have also long been interested in the relationship between in individuals' intelligence and likelihood to stay married vs. divorce (Carter & Foley, 1943): "… it would look as if far too many [individuals] were entering into the married state without being intelligently prepared to maintain it." (p. 275).

As a general explanation for the potential correlation between intelligence and marriage prospects, it has been suggested that female individuals favor partners with higher intelligence, because of intelligent males' greater "fitness" to survive and support the partner and offspring (e.g., Ellis, 2001; Miller, 2000; Symons, 1979). However, to date, the literature is inconclusive about whether intelligence *directly* attracts mating partners, or merely *indirectly* attracts them through being correlated with tangible fitness resources, most notably income and social status (Neisser et al., 1996; Nettle & Pollet, 2008; Taylor et al., 2005). Against this backdrop, the primary aim of the present research is to seek large-scale empirical evidence to test which of these two theoretical mechanisms—the direct or indirect effect of intelligence—may hold true.

Specifically, according to the latter, indirect mechanism, intelligence is positively associated with tangible fitness indicators such as income and social status symbols (e.g., large car or house), which in turn represent tangible resources for being a good provider (Neisser et al., 1996). That is, intelligence would affect marriage prospects indirectly via income and social status, due to the empirical correlation between intelligence on one hand, and income and social status on the other (Neisser et al., 1996). In contrast, according to the former mechanism, the correlation between intelligence and marriage prospects might also be direct, because intelligence per se may directly appeal to mating partners (Miller, 2000), independent of income and social

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status. Further, in this notion, different types of intelligence may potentially differ in their effects. For instance, when initiating a romantic relationship, during courtship and other social interactions (Lewak, Wakefield, & Briggs, 1985), easier-to-perceive types of intelligence (cf. Judge, Colbert, & Ilies, 2004)—such as verbal intelligence (Thorndike, 1942) and related communication skills (Mayer, Caruso, & Salovey, 1999)—could particularly appeal to mating partners. In turn, when it comes to continuing the relationship and staying married, harder-to-observe numeric and logical intelligence (Holley, Yabiku, & Benin, 2006), which may only be observed over a longer period of time, might become more consequential.

2. Materials and methods

2.1. Samples

Two samples of individuals were studied: (1) initially non-married male individuals (n = 120,290) who were aged 18–45 years and resided in the Uusimaa region in Finland in 2007 (age $M = 28.4$; SD = 8.1), and (2) initially married males (n = 68,150 individuals) of same age range, residing in the same region at the same point of time (age $M = 37.1$; SD = 8.1). As such, these samples were censuses, instead of random or convenience samples. Up to 70% of the initial populations in question were included in the final samples, while approximately 30% of the individuals from the two populations were excluded because of missing values on intelligence score. See the Supplementary Material (online) for details. See also Aspara, Luo, and Dhar (2017), wherein partly the same sample of males and the same intelligence test data were used to study behavior non-related to marriage (pro-environmental behavior).

2.2. Measures and variables

Data for the individual's intelligence score were obtained from the Finnish Defense Forces, which conducts cognitive testing on all conscripts entering the military service. In the test, 120 question items assess intelligence according to cognitive functioning in three domains: (i) numerical, (ii) verbal, and (iii) non-verbal logical abilities. The (i) numerical and (ii) verbal test items reflect the theory that intelligence constitutes of two main factors, which pertain to numerical and verbal proficiency (Thurstone, 1924). The (iii) non-verbal logic test, in turn, largely corresponds with the widely used Raven Advanced Progressive Matrices Test of Intelligence Quotient (IQ) (Gray & Thompson, 2004). In our main analyses, we utilize a composite intelligence score formed of the aforementioned three measures of intelligence provided by the Defense Forces. This composite measure is standardized to follow the stanine distribution (i.e., scaled to a nine-point standard scale (Thorndike, 1982)). In the additional analyses of different intelligence types, we utilize stanine scores for numerical, verbal, and logical intelligence, respectively.

The main outcome variables of getting married and staying married were based on the registers of Finland's governmental Population Register Center. The former variable of getting married received the value 1, in case the individuals who were non-married at 2007 were officially registered as married five years later, at the end of 2011 (and 0 if still registered non-married). The latter variable of staying married received the value 1, if the individuals who were initially married at 2007 were still officially registered as married (and 0 if registered as divorced) at the end of 2011. With the same time of measurement for all sampled individuals within the 5-year period, we avoid confounding effects by changing societal preferences related to marriage and divorce over time (Buller, 2005; Courtiol, Pettay, Jokela, Rotkirch, & Lummaa, 2012; Nettle & Pollet, 2008; Pérusse, 1993).

Of the key control variables, income was measured from data supplied by Finnish Tax Authority, as a constructed measure based on an individual's total yearly income (work and capital income). The individuals' social status was proxied by their car possession, based on records of the Finnish Vehicle Administration. This variable received the value 0, if the individual did not possess a car, the value 1 if the individual possessed a small car, and the value 2 if the individual possessed a large car (based on median-split). Additional control variables included age, work commuting costs, residence in the Finnish capital, and language group. The measurement of these variables is described in detail in the Supplementary Material, and descriptive statistics for all variables are presented in Tables S1 and S2.

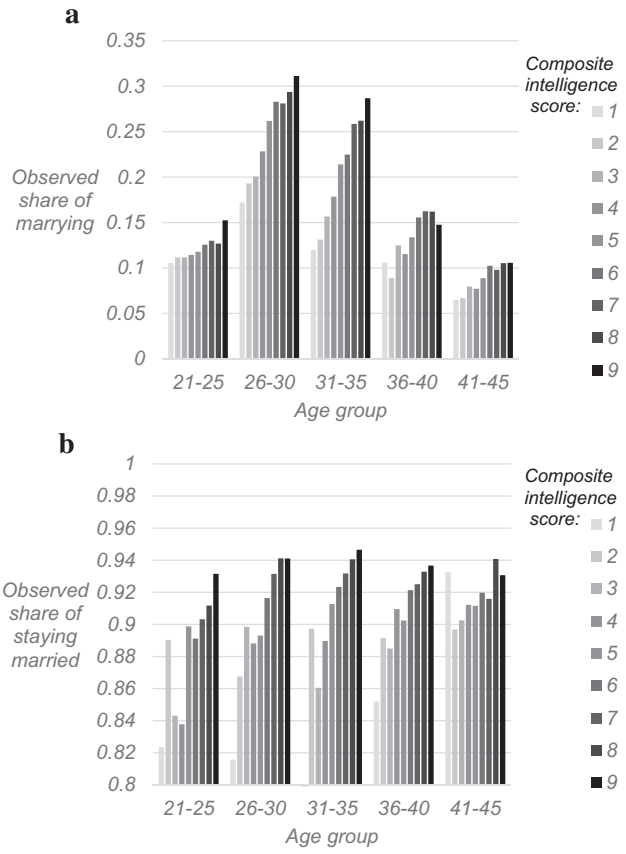

Fig. 1. Bar chart showing the observed shares of (a) non-married male individuals who married in a five-year period (2007–11), and (b) married male individuals who stayed married, as a function of composite intelligence score.

3. Results

3.1. Model-free evidence

We begin by depicting the observed shares of individuals who were not married at the beginning of 2007 but got married during the 5-year period, as a function of composite intelligence score, in Fig. 1a. In turn, Fig. 1b shows the observed shares of individuals of the second sample: those who were married in 2007 and stayed married (vs. divorced) for the 5-year period. As the overall tendency to marry as well as divorce depends on age (see Tables S3 and S4 in Supplementary Material for bivariate correlations), we depict the observed shares by age group.

Both Fig. 1a and b provide preliminary support to the evolutionary theory's general notion that intelligence has a positive predictive relationship with likelihood to get married as well as to stay married: In each age group, the shares of individuals getting married and staying married are visibly higher (lower) for individuals with higher (lower) intelligence scores. Moreover, in both Fig. 1a and b, the relationship between intelligence score and marriage likelihood is somewhat more pronounced in the younger age groups than in the older ones.