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Subjective age in early adolescence: Relationships with chronological age, pubertal timing, desired age, and problem behaviors

Anita M. Hubley*, Rübab G. Arım

Dept. of ECPS, 2125 Main Mall, University of British Columbia, Vancouver, B.C., Canada V6T 1Z4

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A B S T R A C T

Subjective age generally refers to the age that one feels. In a cross-sectional questionnaire study of 245 adolescents ages 10–14 years, we examined (a) whether, and when, a cross-over in subjective age occurs, (b) differences in subjective age among pubertal timing groups, (c) correlations between subjective age and each of desired age and five problem behaviors, and (d) the relative contributions of chronological age, pubertal timing, desired age, and problem behaviors to subjective age in boys and girls. Adolescents generally reported subjective and desired ages that were slightly older than their chronological ages. A cross-over in subjective age occurred at 10.4 years. Late maturing adolescents reported relatively younger subjective ages than their early and on-time maturing peers. For boys, only desired age significantly predicted subjective age. For girls, an older desired age, late maturation, and higher scores on anxious/depressed feelings, rule-breaking behavior, and aggressive behavior significantly predicted older subjective ages.

Subjective age generally refers to the age that one feels or the age group with which one identifies. Although it has often been proposed as an alternative measure to chronological age, subjective age is also important as a topic of study on its own as it provides an indicator of subjective developmental processes (Barak & Schiffman, 1981; Steverink, Westerhof, Bode, & Dittmann-Kohli, 2001) and a window to how people perceive themselves and their life experiences (Montepare, 2009). In adolescence, an older subjective age has been viewed as an indicator of a self-perception of maturity (Galambos, Kolaric, Sears, & Maggs, 1999).

Subjective age has been studied extensively in older adult samples which, on average, tend to feel younger than their chronological ages (e.g., Barnes-Farrell & Piotrowski, 1989; Hubley & Hultsch, 1994; Montepare & Lachman, 1989; Staats et al., 1993). Since the late 1990s, however, there has been increasing research on subjective age in adolescents and young adults who, on average, tend to feel slightly older than their chronological ages (e.g., Arbeau, Galambos, & Jansson, 2007; Galambos et al., 1999; Montepare & Lachman, 1989; Montepare, Rierdan, Koff, & Stubbs, 1989). Galambos, Turner, and Tilton-Weaver (2005) and Galambos, Albrecht, and Jansson (2009) estimated that a cross-over appears somewhere around the ages of 23–25.5 years during which young adults make a transition from feeling older than their chronological ages to feeling younger than their chronological ages. Arbeau et al. (2007) subsequently suggested that there may be another cross-over period in early adolescence during which adolescents make a transition from feeling the same or younger than their chronological ages to feeling older. Arbeau et al. (2007) and Galambos et al. (2009) estimated that this cross-over occurs somewhere around the ages of 11–13.5 years. These estimated cross-over ages were extrapolated from prediction lines with samples that did not include the cross-over ages. Galambos et al. (2009) noted that inclusion of younger ages in subjective age

* Corresponding author. Tel.: +1 604 822 9223; fax: +1 604 822 3302.
E-mail address: anita.hubley@ubc.ca (A.M. Hubley).

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research is needed to examine this further. In the present study, one of our goals was to determine whether, and when, a cross-over in subjective age occurs in a sample of 10–15 year old adolescents.

Galambos et al. (2009) argued that, as a measure of self-perceptions of personal experiences and maturity, subjective age has the potential to serve as either a predictor or an outcome of adolescent behaviors. Adolescence is period of developmental transition during which a number of biological, cognitive, social, and emotional changes occur. For some adolescents, this period is associated with increased risk for internalizing (e.g., depression) and externalizing (e.g., delinquency) problems. It has been suggested that adult-like behaviors, such as sexual involvement and drug use, are related to self-perceptions of maturity (e.g., Barker & Galambos, 2005; Galambos et al., 2005; Jessor, 1987; Moffitt, 1993). Galambos et al. (1999) reported that subjective age was not only correlated with a variety of problem behaviors, behavioral autonomy, and peer relationships, but it remained a significant predictor of these variables even after controlling for chronological age and pubertal status. There were some differences in the findings for boys and girls. Specifically, in 9–17 year old adolescents, an older subjective age was a significant predictor of (a) total problem behaviors and substance use for boys and girls, (b) disobeying parents, behavioral autonomy, social acceptance, deviant peer association, and peer involvement for girls, and (c) antisocial behavior and other-sex involvement for boys. Later, Arbeau et al. (2007) showed that, after controlling for chronological age, adolescents with older subjective ages were more likely to report having experienced sex and initiated sex earlier, having older dating partners, more alcohol and drug use, and, among boys, cigarette smoking. In the present study, we wanted to examine the relationships between subjective age and problem behaviors in adolescents by including not only externalizing problem behaviors (e.g., aggression and rule-breaking behaviors), but also internalizing problems (e.g., anxiety/depression), and other problem behaviors (i.e., social and attention problems) that might be associated with immaturity or acting/feeling young for one's age (Barker & Galambos, 2005).

Galambos et al. (2009) found that involvement in dating, alcohol use, and drug use preceded increases that occurred in subjective age over a two-year period. They also found that earlier sexual experiences, as well as the initiation of sexual activity over this time, were associated with older subjective ages. From this, they argued that the time-linked nature of the findings supported previous theories that engagement in adult-like behaviors leads to enhanced feelings of maturity that are reflected in older subjective ages. They did not find evidence that would support a temporal ordering in which older subjective ages at time 1 led to subsequent increases in dating, sex, and substance use behaviors, although this was the case for smoking.

There has been only limited research examining the relationship between subjective age and physical maturation. Montepare et al. (1989) showed that post-menarcheal Grade 8 girls reported significantly, but slightly, older subjective ages than premenarcheal girls. In a sample of 9–17 year olds, Galambos et al. (1999) found low, but significant, correlations between pubertal status and subjective age for both boys ($r = 0.35$) and girls ($r = 0.28$).

There are relationships between physical maturation and problem behaviors, however, that may impact subjective ages. Early physical maturation has been found to place boys and girls at risk for developing internalizing and externalizing problem behaviors (Celio, Karnik, & Steiner, 2006; Duncan, Ritter, Dornbusch, Gross, & Carlsmith, 1985; Flannery, Rowe, & Gulley, 1993; Ge, Brody, Conger, & Simons, 2006; Ge, Conger, & Elder, 1996, 2001; Kaltiala-Heino, Kosunen, & Rimpela, 2003). Late physical maturation can also be a risk factor in boys for developing internalizing and externalizing problem behaviors (Graber, Lewinsohn, Seeley, & Brooks-Gunn, 1997; Kaltiala-Heino et al., 2003; Siegel, Yancey, Aneshensel, & Schuler, 1999; Simmons, Blyth, Van Cleave, & Bush, 1979). Late maturing girls, however, were found to be less likely to engage in delinquent behaviors such as drinking and smoking (Magnusson, Stattin, & Allen, 1985) and have more positive feelings about themselves (Çok, 1990).

Given relationships among subjective age, problem behaviors, and physical maturation in the literature, we were also interested in including a measure of physical maturation in the present study. Whereas Galambos et al. (1999) used pubertal status, we opted to use pubertal timing. Pubertal status describes the degree of physical maturation irrespective of age whereas pubertal timing assesses timing of physical maturation (i.e., early, on-time, late maturation) relative to a reference group such as one's peers. Research suggests that pubertal timing is a stronger predictor of adjustment problems than pubertal status (Ge et al., 2001; Rhee, 2005) because it allows us to compare an adolescent's physical development with the norms at a given age.

A question that Galambos et al. (2009) raised, but did not examine, was whether the desire to be older might motivate and reinforce involvement in adult-like behaviors. It is also possible that a younger desired age might play a role in less mature behaviors. Moreover, it is unclear to what extent desired age might predict subjective age in the presence of other variables. In the present study, we also examined the contribution of desired age to subjective age.

In summary, the goals of this cross-sectional study of 10–15 year old boys and girls were to examine (a) whether, and when, a cross-over in subjective age occurs in early adolescence, (b) differences in subjective age among pubertal timing groups (i.e., early, on-time, or late maturation), (c) correlations between subjective age and each of desired age and five problem behaviors (i.e., anxious/depressed, social problems, attention problems, rule-breaking behavior, and aggressive behavior), and (d) the relative contributions of chronological age, pubertal timing, desired age, and problem behaviors to subjective age in boys and girls.

We hypothesized that we would find a cross-over from same or younger to older subjective ages in our sample. We also hypothesized that early physically maturing adolescents would report significantly older subjective ages and late maturing adolescents would report significantly younger subjective ages relative to their on-time peers given previous research showing positive relationships between subjective age and pubertal status. Finally, we expected that externalizing problem