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## Developmetrics

# Evaluating voluntary aloneness in childhood: Initial validation of the Children's Solitude Scale

**Evangelia P. Galanaki<sup>1</sup>, Kostas Mylonas<sup>2</sup>, and Panagiota S. Vogiatzoglou<sup>1</sup>**

<sup>1</sup>Faculty of Primary Education, School of Education, National and Kapodistrian University of Athens, Navarinou 13A, 10680 Athens, Greece

<sup>2</sup>Faculty of Psychology, School of Philosophy, National and Kapodistrian University of Athens, Panepistimiopolis, 15784 Athens, Greece

This work intends to psychometrically evaluate the newly developed Children's Solitude Scale (CSS), a measure of voluntary aloneness in childhood. The scale assesses individual differences on what children prefer to do when they want to be alone, a rather neglected, although important developmental issue. Participants were 833 fourth and sixth graders from Athens, Greece. Confirmatory factor analysis indicated four factors, although with a less-than-optimal fit: Self-Reflection, Autonomy/Privacy, Activities and Concentration. The scale showed adequate internal consistency and test-retest reliability as well as convergent and divergent validity (i.e., positive association with positive attitude towards aloneness and ability to be alone, no association with negative attitude towards aloneness, and low positive correlation with loneliness and social dissatisfaction). The results indicated the suitability of the CSS to assess reasons or motives for solitude during middle and late childhood and the necessity to further examine the structure of this type of solitude experiences in this age period.

**Keywords:** Solitude; Aloneness; Loneliness; Social Dissatisfaction; Attitude towards Aloneness; Children's Solitude Scale; Middle Childhood; Late Childhood, Confirmatory Factor Analysis.

Solitude is defined as either voluntary or involuntary aloneness, with either positive or negative functions, occurring usually in the absence of others (Coplan & Bowker, 2014; Long & Averill, 2003; Storr, 1988). Actively striving for time spent on one's own and making constructive use of such time

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Email: [egalanaki@primedu.uoa.gr](mailto:egalanaki@primedu.uoa.gr)

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has been referred to as the capacity to be alone. This capacity is often regarded as an important developmental achievement and, indeed, a necessary precondition for the development of a mature personality (Larson, 1997; Winnicott, 1965). Voluntary aloneness, thus defined, should be clearly distinguished from loneliness, which refers to the painful experience that stems from perceived deficits in intimacy and/or belonging (Peplau & Perlman, 1982). The two concepts—voluntary aloneness and loneliness—are different from one another, because people who regularly want to be alone may or may not feel lonely.

Despite the potential beneficial role of solitude in development, there is a lack of research on what children prefer to do (i.e., what kind of activities they engage in) when they *want* to be alone. Extant research, using measures such as the Loneliness and Aloneness Scale for Children and Adolescents (Marcoen & Goossens, 1993) or the Ability to Be Alone Questionnaire (Youngblade, Berlin, & Belsky, 1999), assesses the negative and positive attitude towards aloneness. These instruments measure affinity for aloneness (e.g., “I enjoy being on my own”) or aversion to aloneness (e.g., “When I am alone, I feel bored”), but the items are vague about the proposed functions of time spent alone by oneself or the activities displayed when being alone. Furthermore, whereas recent research (e.g., Goossens et al., 2009; Maes, Klimstra, Van den Noortgate, & Goossens, 2015; Teppers, Luyckx, Vanhalst, Klimstra, & Goossens, 2014) focuses on aloneness experiences in adolescence, much less research has been conducted on children’s solitude.

Based on the presumed positive functions of time spent alone in adults (Long & Averill, 2003), we can expect to find four such functions in children that can each be associated with a specific type of activity. More specifically, it is hypothesized that children want to be alone in order (a) to engage in self-reflection, (b) to protect their privacy, (c) to indulge in their favourite solitary pastimes (i.e., hobbies), and (d) to concentrate on important tasks in their lives (e.g., homework). Therefore, the aim of this research was to develop a self-report measure, the Children’s Solitude Scale (CSS), which assesses individual differences in the uses of voluntary solitude, and to evaluate its reliability, factorial structure and convergent and divergent validity. We expected to find four factors that refer to self-reflection, privacy, hobbies and increased concentration, respectively. The four subscales that inquire into the frequency of the activities associated with these functions were expected to show a sufficient degree of reliability. Regarding convergent and divergent validity, we expected the four subscales to show significant positive associations with measures that tap into the positive attitude to being alone, significant negative associations with measures that tap into a negative attitude to being alone, and weak or null associations with a measure of loneliness.

## METHOD

### Participants and procedure

Participants were 833 fourth and sixth graders (51.2% boys; 50.3% fourth graders). Children were 9–10 and 11–12 years old (we were not granted access to children's birth dates). They came from 43 classes of 13 randomly selected public primary schools located in Athens, Greece. The areas represented middle and lower-middle socioeconomic status. About 15% of students were of non-Greek descent, but born in Greece. According to teachers' reports, all students could comprehend, read and write Greek adequately. All fourth and sixth grade classes of these schools participated. Written parental consent was obtained for all students. The initial sample consisted of 857 children, but 24 of them (i.e., 16 fourth graders and 8 sixth graders) returned incomplete data and were excluded from the final sample.

Data were collected by the third author in two-hour group sessions. Items were read aloud to children. To reduce order effects, the instruments were randomized across portions of the sample. Six weeks after the first data collection, the CSS was administered afresh to a randomly selected subsample of 113 children—62 fourth graders and 51 sixth graders. The average test-retest reliability coefficient was quite satisfactory:  $r = .76$ . For the overall sample of 833 children, missing values (<0.5%) were replaced by the estimates computed through maximum likelihood criteria and the expectation maximization (EM) algorithm. Employing the PMM algorithm instead would fit the metric level better (Asendorpf, van de Schoot, Denissen, & Hutteman, 2014), but in this case and with so few missing values, any biasing EM effect on the data seems trivial.

### Measures

*Children's Solitude Scale.* The scale was constructed on the basis of (a) two interview studies (total  $N = 449$ ) aiming at satisfying content validity criteria (Galanaki, 2004); and (b) a pilot study with the initial version of the CSS aiming at eliminating psychometrically redundant or inappropriate items.

The initial version of the CSS consisted of 60 items describing the following uses of solitude: self-discovery, daydreaming, concentration, problem-solving, relaxation, peacefulness, restoration, intimacy (with others in fantasy), spirituality, autonomy, privacy, secrecy, self-control, mastery, freedom from criticism, and indoor and outdoor activities (e.g., solitary play). The rating scale ranged from 1 (*that's not at all true about me*) to 5 (*that's always true about me*). The scale was originally constructed in Greek. Then it was translated into English and back translated into Greek by two bilingual translators and minor adjustments were made. Finally, a native-English speaking expert on social

withdrawal and solitude made further adjustments to the English version. The written instructions to participants are given in the Appendix.

Three other instruments were employed in order to examine the convergent and divergent validity of the CSS.

The Ability to Be Alone Questionnaire (Youngblade et al., 1999) consists of 25 items assessing children's perceptions of their ability to be alone (i.e., attitude towards aloneness). The 25 items were split into two subscales: *Aversion to Being Alone* (12 items) and *Ability to Be Alone* (13 items).

The *Aversion to Aloneness* and the *Affinity for Aloneness* subscales are part of the Loneliness and Aloneness Scale for Children and Adolescents (Marcoen & Goossens, 1993). Each subscale consists of 12 items assessing children's negative and positive attitude towards aloneness.

The Children's Loneliness and Social Dissatisfaction Scale (Asher & Wheeler, 1985) is a 16-item scale measuring children's loneliness and social dissatisfaction at school.

Internal consistency estimates for each of the previous scales as computed for the present data are presented in Table 3. These scales were also translated into English and back translated into Greek by two bilingual translators, the same ones who translated the CSS.

## RESULTS

### Confirmatory factor analysis and CSS dimensions

The initial 60-item CSS version was psychometrically examined for extreme skewness, multicollinearity, large measurement errors, extensive confidence limits and poor reliability potential. This examination in combination with exploratory factor analyses (through SPSS 18) led to the exclusion of 15 items.

Next, confirmatory factor analysis (Jöreskog & Sörbom, 1996) was conducted using LISREL 8.3 and MS-Excel on the final 45-item version of the CSS. We defined our CFA models based on previous preliminary data. More specifically, in a Belgian sample, Goossens (2014) found a three-factor solution with one single factor including self-reflection and concentration and two separate factors for privacy (freedom from criticism) and activities. In a Greek sample, Galanaki, Mylonas, and Vogiatzoglou (2008) found a four-factor solution with four separate factors, that is, self-reflection, freedom from criticism/independence/privacy, activities and concentration. Thus, we tested for the independence model and three consecutive models: a unifactorial model, a four-factor model and a modified four-factor model (Figure 1).

The independence and unifactorial structure models were easily rejected (Table 1). The four-factor model was not an acceptable solution: RMSEA was adequate; the  $\chi^2/df$  ratio dropped dramatically showing vast model improvement; the Tucker-Lewis, BIC and AIC indices showed acceptable improvement across