Canadian adolescents' solitude experiences, self-perceptions, and well-being

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ABSTRACT

This paper explores adolescents' solitude activities, their reasons for choosing to be alone, and how they think and feel when they are away from others. Gender and age differences were also explored. We explored the links among solitary activities, emotional well-being, and personal happiness. Sixty-one adolescents (68% female, Mage = 16.14 ± .50) completed self-report on-line measures assessing time spent alone, solitary activities, and indices of adjustment. Majority of participants reported that they were alone by choice, and that they were more often with others than alone. Age and gender differences emerged in time spent alone, feelings of self-worth, and emotional well-being. The demographics of participants was limited to English-speakers in Eastern Canada, and data collection was affected by the COVID-19 pandemic. School programs could be developed to better equip adolescents with the skills necessary to be productive in, and feel positive about, time spent alone.

How to Cite: Bosacki, S., Quenneville, S., Powell, S. & Talwar, V. (2022). Canadian adolescents' solitude experiences, self-perceptions, and well-being. *Journal of Silence Studies in Education, 2*(1), 28-42.

1. Introduction

The current decade presents adolescents with ever-growing possibilities for managing their solitude or time spent alone. Recent developments in digital communication and online resources introduce novel channels for social interactions as well as increased opportunities for spending time alone productively (Bamps et al., 2022; Coplan et al., 2022; Verduyn et al., 2021). The present study focused on these basic social and physical conditions (physically alone/or physically with others), on the choice of being in these contexts, and on their interactive influence on well-being. We were interested in exploring why youth want to be away from others physically, what do they do when they are alone, and how their times of solitude relate to their self-perceptions and well-being. Given past studies show that girls and boys differ in terms of solitude experiences and well-being throughout adolescence (Borg & Willoughby, 2022), we also explore gender and age differences.

Given that humans possess a fundamental need to belong (Baumeister & Leary, 1995), being alone or spending time by oneself away from others may pose a special challenge for adolescents. In developmental terms, next to toddlerhood, adolescence is the 'second growth spurt' of self-consciousness and social awareness, where youth learn how to decide to either be alone or with others. The second decade of life is often characterized by increased demands for social interaction with peers, increased autonomy, and independence from one's parents, as well as the freedom to make decisions about how one spends their alone time (Borg & Willoughby, 2022; Daly &

Willoughby, 2020). As explained by Koch's (1994) philosophical account of solitude, given the many definitions of solitude (actional, perceptual, cognitive, emotional), such times of solitude provide opportunities for youth to take time for themselves, and to craft safe and private mental space for room to reflect and grow. Surprisingly, although solitude is important for self-growth in adolescence, little is known about why youth choose to be alone in any sense, how they feel, and what they like to do when alone.

Although social relationships are important predictors of psychological and physical health (Aron et al., 2021), time spent alone is also crucial to self-development and well-being (Buchholz & Catton, 1999; Ost Mor et al., 2020). However, to what extent time spent alone contributes to well-being is still under investigation and remains unclear, especially among adolescents. Such a gap in the literature leads to our main research questions – why do adolescents choose to be alone, what do they do during their time alone, and what are their thoughts and feelings during these times of solitude?

Adolescents choose to be alone for a myriad of reasons and this time spent alone increases with age (Lay et al., 2019; 2020). For example, some adolescents may wish to escape from others due to fear and anxiety (e.g., social exclusion referred to as non-self-determined solitude or reactive solitude) (Thomas & Azmitia, 2019). Alternatively, an adolescent may decide to spend time alone in a constructive manner known as self-determined solitude (Thomas & Azmitia, 2019). Such positive reasons may be to engage in creative or relaxing activities that bring one peace and joy. Therefore, time alone may serve as a positive and volitional experience that makes adolescents feel more connected to themselves (Palgi et al., 2020). Thus, the investigation of early and mid-adolescents' motivations for spending time alone and how they feel may provide a more comprehensive understanding of experiences with solitude and well-being during this important time of one's life (Coplan et al., 2021; Braathu et al., 2022).

Many researchers support the importance of solitude (Birditt et al., 2019; Borg & Willoughby, 2022), as time alone promotes personal growth, freedom for people to make their own choices (i.e., autonomy) (Nitikin et al., 2022), creativity, and mood improvement. This is especially evident among adolescents and young adults, whose well-being can be at risk with a lack of desired solitude (Coplan et al., 2021). Studies advocate for children to learn how to recognize, express, and regulate their emotions before interacting with others during middle childhood and adolescence (Bamps et al., 2022), since during this period they must use emotion-related skills to develop sophisticated social problem-solving skills in complex social interactions. Social emotional skills during solitude, such as reflection and creative thinking should therefore be taught within specific age ranges such as later childhood and early adolescence (Marino et al., 2020).

Research on solitude and well-being during adolescence shows a mix of findings, as studies show psychosocial benefits and costs to spending time alone. Some studies show time spent alone contributes to one's well-being such as relaxation and restoration (Borg & Willoughby, 2021). Many studies show how solitude can serve as a potentially constructive domain in adolescence, for example spending time alone in nature, serving as a time of restoration (Coplan et al., 2021), as well as having opportunities to participate in mindfulness and faith practices (Barbour, 2014; Salmon & Matarese, 2014). Research also shows that when adolescents are motivated to spend time alone in creative ways that make them feel better (Borg & Willoughby, 2022), they show increasingly positive attitudes towards solitude and social withdrawal and recognise that time alone can be an enjoyable, productive, and positive experience (Bamps et al., 2022; Danneel et al., 2018).

In contrast, studies show that if not wanted, too much or not enough time alone may have negative consequences for others in terms of aggression (Swett & Cox, 2022), or have a negative influence on oneself, increasing loneliness and anxiety. Reactive and non-self-determined motivations to be away from others or having too much solitude that is unwanted (e.g., social exclusion), has been associated with socio-emotional maladjustment and self-harm (Borg & Willoughby, 2022; Coplan et al., 2021). Studies also show that when one is alone, they may experience negative feelings such as loneliness or peer exclusion, as well as feelings of depression and social anxiety (Gazelle, 2022; Pearcey et al., 2020; Rubin et al., 2021). Many studies with youth also show that personality traits reflecting emotional stability were linked with an aversion of aloneness (Lay et al., 2019; Uziel, 2016; 2021; Wilson et al.2014).

With young adults, Uziel et al., (2022) found that in terms of daily momentary experiences, when participants sensed that they were in the company of others by their choice, this was associated with the greatest boost to their well-being, sense of meaning, and control. In contrast, they found that when participants were alone, they experienced calmness and relative emotional stability. These studies suggest that social context and the ability to choose whether to be with others or alone contributes to adolescents' well-being.

Building on this literature, the present study addresses the question of whether youth enjoy or avoid their physical time alone, and aims to extend past studies on adolescent's solitude preferences and activities. The present study explored how adolescents spend their time physically away from others, why they choose to be away from others, and what kind of activities they engage in when they are alone. We also investigated the links between solitary activities and adjustment outcomes such as feelings of loneliness, self-perceptions, emotional well-being, and personal happiness. Finally, based on past studies that suggest that solitary preferences and experiences may differ across adolescence (Hipson et al., 2021), and that girls and boys may have different motivations for being alone and have different thoughts and feelings while alone (McVarnock & Closson, 2022), we checked for differences in girls' and boys' responses, as well as between early and mid-late adolescence. Based on past research, we expected to find that older youth would report more positive feelings and preferences for solitude compared to younger youth, as well as spend more of their physical alone time on-line compared to younger with increased social and academic pressures becoming more digitized (Coplan et al., 2022).

2. Methods

2.1. Participants and Procedures

Sixty-one adolescents (36 girls, 26 boys, 1 non-binary) participated in an ongoing longitudinal study of Canadian youth's preferences for solitude. Ages ranged from 11-18, gender was evenly distributed, and the participants were mainly English-speakers from Euro-Canadian heritage.

Upon clearance from the university research ethics board and participating school boards, participants and their parents submitted an electronically signed consent form and completed demographic and family structure information, then participants responded to a 1-hour long survey on-line on their personal computers at home. In an on-line session with a researcher, once the researcher introduced the study and obtained verbal assent, the participants completed the survey with the researcher available for assistance and provide debriefing upon completion.

The on-line questionnaire for youth involved a combination of forced choice and open-ended responses. For example, questions included: Are you alone more often than you are with others (yes/no). If yes/no – please explain why. List some reasons for why you choose to be alone. They also reported how many times and for how long they were alone each day. They listed their favourite solitary activities and how long they spend time alone during one day on average. Participants were also asked to report if any of their solitude activities included technology, to describe kind of activities they engaged in, and why they chose such activities. Also, they were asked about their motivations for, or why they chose, to be alone. The study took approximately 1 to 1.5 hours to complete, and participants received compensation and a congratulatory young research certificate for their time.

2.2. Measures

1) Time Spent Alone

A series of questions were asked to determine how much time participants spend alone, their reasoning for doing so, and whether it was self-determined. The measures included in this study were as follows: 'How many times are you alone during a typical day?' (TSA1), 'How many times are you alone during a typical week?' (TSA2), 'Are you physically alone more than you are with other people?' (TSA3), 'Is it your choice to be alone?' (TSA6). TSA1 & 2 were both open-ended questions, while for 3 and 6, participants could answer either 'yes' or 'no'. Qualitative analysis includes the explanations for individuals' answers to the questions above, labelled TSA4, TSA7 – each freely expanding on the answer to TSA3 and TSA6 respectively. Additionally, participants were asked to 'list some reasons for why [they] are alone' (TSA5).

2) Social Anxiety

The Social Anxiety Scale for Children – Revised (SASC-R; La Greca & Stone, 1993; Daly & Willoughby, 2020) was used to assess symptoms of social anxiety. These 18 items (e.g., "I am afraid other students my age will not like me", "I am quiet when I am with a group of other students my age") were measured on a 4-point Likert scale ranging from 1 = almost never to 4 = almost always. Higher scores indicated higher levels of social anxiety. Previous research has indicated that the SASC-R is both reliable and valid (La Greca & Stone, 1993; Reijntjes et al., 2007). For the current study, this scale showed good internal consistency (a = .910).

3) Self-Perception Profile for Adolescents "What I am Like" (Harter, 2012).

This self-report measure assesses how one feels about themselves in different dimensions (social, athletic, academic, etc.). Each of the 9 subscales has 5 items, totalling 45 items on 4-point scale. For the present study, this measure was found to be reliable and valid (a = .913). Internal consistency was good across all subscales (social competence: a = .869, scholastic competence: a = .825, athletic competence: a = .919, physical appearance: a = .894, job competence: a = .828, romantic appeal: a = .760, behavioral conduct: a = .820, close friendships: a = .882, global self-worth: a = .869)

4) The PANAS (Brief Measure of Positive and Negative Affect Scale)

The PANAS measures a breadth of moods beyond the simple dichotomy of happy or sad and it does not see positive and negative emotions as two ends of the same continuum, allowing for a more accurate assessment of positive and negative emotions. Scores for PA and NA range from 10 to 50, with higher scores indicating higher affect levels. Alpha coefficients of 0.86 (PA) and 0.87 (NA) indicate good internal consistency (Watson et al., 1988) (both scales α = 0.86).

This scale consists of 20 words describing different feelings and emotions. Participants read each item, then marked the appropriate answer in the adjacent space, indicating to what extent they felt this emotion during the past week. The items were rated on scales from 1 = very slightly or not at all, to 5 = extremely. Positive and Negative Affect Scale (Watson et al., 1988) includes mean subscales for positive affect (10 items, α = .83) and negative affect (10 items, α = .86). For the current study, internal consistency was good across the total measure and subscales (total: a = .810, positive: a = .856, negative: a = .848).

5) Adolescents' Perceptions of Social Preferences (Clifford et al., 2021).

This measure assesses social preferences on 31 items on a scale of 1 (never) to 5 (always). Three subscales included shyness ("I watch other kids' activities from a distance."), unsociability ("I prefer to be alone, even though I am okay with being with others."), and social avoidance ("I try to stay alone because hanging out with other people is annoying."). For the present study Cronbach's alpha was (a = .955) and this measure is used with adolescents and found to be reliable and valid (Bowker et al., 2020). There were good internal consistency scores across all subscales (social avoidance: a = .958, shyness a = .903, unsociability a = .930).

6) Revised Social Anhedonia Scale (Winterstein et al., 2011)

For each of the 15 items participants rated how well the item described them: 'Not at all' = 1, to 'Very well' = 4. High scores represented high feelings of social anhedonia (lack of pleasure when spending time with others). Internal reliability showed Cronbach's alpha = .835.

7) Aloneliness

The SolAS (Coplan et al., 2019) measured aloneliness. Instructions stated, "People differ in their attitudes about spending time alone. Please indicate how much you agree with the following statements using the following scale". 12 statements (e.g., "I never seem to have enough time by myself"), were measured on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Higher scores on the SolAS indicate higher aloneliness, a greater dissatisfaction with one's current amount of time alone. The scale was reliable for the current study, α = .954 (Swets & Cox, 2022).

8) Loneliness and Preferences for Aloneness.

To measure feelings of loneliness, we used the Loneliness and Aloneness Scale for Children and Adolescents (Marcoen et al., 1987; 12 items, α = .91), 48 items, 1-4 scale, e.g. item, "I want to be alone," "I feel excluded by peers." "I feel I have very strong ties with my parents." This scale includes 4 subscales: loneliness towards peers, loneliness towards family, and positive (i.e., affinity) and negative (i.e., aversion) preference for aloneness. For the current study, we used the loneliness towards peers (a = .944) and affinity (a = .892) subscales to measure loneliness and preference for

aloneness. Overall, this scale showed good internal consistency (a = .840). The Personal Well-Being Index – School Children (PWI-SC)

PWI-SC was used to explore one's happiness associated with aspects of life (Keyes, 2005). Participants completed 12 questions about how happy they felt on a scale from zero to 10 (zero = very sad, 10 = very happy). For example, "How happy are you when you are alone?" After participants chose a number, they described why in a textbox. For the present study Cronbach's alpha was (a = .863) and this measure is used with adolescents and found to be reliable and valid.

9) Feelings About Solitude (Lee, 2013)

This 14-item measure explored adolescents' feelings towards solitude by presenting them with two opposite terms (e.g., bad, and good) and asking them to rate on a scale of 1 = 'extremely bad' to 7 = 'extremely good' how this term makes them feel about solitude. Higher scores indicated higher positive feelings towards solitude. This scale showed good internal consistency (a = .940).

10) Preferences for Conditions of Solitude (PFCS; Lee, 2013)

This scale was used to determine participants' preferences for seeking solitude under various conditions. Participant were asked to read each statement (23 items), and rate on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree) how it best represents their opinion. For example, "I like places where I can be all alone". For the present study, this scale showed good internal consistency (a = .917).

11) Social Desirability

To assess social desirability, participants responded 'yes' or 'no' to 14 questions, where a score of 1 was awarded to answers that were considered socially desirable. For example, "Are you always polite, even to people who are not very nice"? Higher scores indicate more social desirability. This scale showed to have good internal consistency (a = .735).

3. Results and Discussion

3.1. Results

To best answer our main research question – why adolescents prefer to be alone or with others, what do they do when alone and why, and how they feel during times of solitude – the results are organized in two sections. The first section includes an overview of the demographics of the sample, preferences for solitude and solitude habits, as well as a description of scores on the main variables of preferences for solitude, self-perceptions, and well-being. Gender and age differences were also explored. To provide a richer explanation of what participants did during their time alone and their reasons behind their choices, in the second section we describe the activities listed during times of solitude and conducted a content analysis of their responses for why they chose to be alone.

1) Quantitative analysis - How do youth feel when they are alone and what are they thinking?

Data analysis was performed using IBM SPSS for Mac version 28. All main study variables were tested for violations of normality, homogeneity of variance, and linearity. No extreme values were found. See Table 1 for the descriptive results.

Descriptive statistics revealed that on average, participants reported being alone for at least 15 minutes one to two times a day (M = 3.20, SD = 1.56), and about 8 hours per week (M = 4.30, SD = 1.54). Frequency/percentages were calculated to examine if participants spend more time alone compared to with others, and whether this was their choice. Of the total sample, 40/61 (65.6%) reported that it was their choice to be physically alone, and 42/61 (68.9%) of participants reported they are more often spending time with others in a physical sense, than being physically away from others.

Pearson correlations were conducted to examine associations among all test variables while controlling for social desirability (see Table 1). Table 1 shows main descriptions and correlations for main variables. Significant correlations were found between how much time adolescents spend alone per week (TSA2) and their preferences for solitude. TSA2 was significantly positively correlated with unsociability, perceptions of social preferences, feelings about solitude, preferences for conditions of solitude, and preference for aloneness.

Participants who reported they were more often with others scored high on personal well-being, and positive affect. In contrast, they scored low on preferences for solitude and aloneness, social avoidance, shyness, unsociability, preference for aloneness, social anhedonia, and areas of self-competencies including scholastic competence, physical appearance, and global self-worth. Participants who reported that they did not have a choice to be alone scored high on social anxiety and negative affect, and low on perceived physical appearance, romantic appeal, and global self-worth.

Significant positive correlations were found between the preference for solitude and aloneness and numerous measures of well-being (see Table 1). For example, those participants who had a higher preference to be alone scored high on social withdrawal preferences, reported positive feelings about solitude, high feelings of social anhedonia, high feelings of social integration (i.e., felt less lonely), and reported high perceptions of social competence.

For responses on the SolAS or dissatisfaction with the amount of solitude time one has, results showed a positive correlation with feelings of social anhedonia or lack of pleasure when with others, as well as shyness, social avoidance, and unsociability. Those who scored high on SolAS (reported high feelings of aloneliness) also reported high scores in positive attitudes towards solitude, and preferences for more contest that included solitude. In addition, positive links were found between high scores on feelings of aloneliness and perceptions of social competence. That is, the more socially competent participants perceived themselves to be, they were also more likely to report that they felt unhappy about the time they had to themselves. Those youth who scored high on SolAS were also more likely to feel socially integrated with their peers (i.e., less likely to feel lonely with their peers).

a) Social Withdrawal Preferences (Social Avoidant, Shyness, Unsociability) and Well-being

Significant positive correlations were found between social avoidance and preferences for conditions of solitude, social anxiety, social anhedonia, and negative affect. However, those youth who reported being socially avoidant also reported high perceptions of their scholastic and social competence, close friendships, and overall feelings of global self-worth. In addition, socially avoidant youth reported high feelings of social integration (less lonely with peers) – socially avoidant negatively correlated with loneliness among peers and feeling an affinity for solitude or experiencing positive feelings towards aloneness. However, socially avoidant youth also reported low feelings of overall personal well-being.

Participants who scored high on shyness also scored high on positive feelings about context for solitude, social anxiety, feelings of social anhedonia, negative affect. In addition, shy participants scored high on perceived scholastic competence, social competence, athletic competence, close friendships, and global self-worth, and reported high social integration (less lonely with peers), and positive affect and personal well-being. Compared to shy and socially avoidant youth, unsociability did not relate to any dimensions of self-perceptions.

Participants who scored high on unsociability also reported positive feelings about solitude, positive feelings about context for solitude, and high experiences of social anhedonia.

Table 1. Descriptive statistics and correlations among study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
1. TSA1																							
2. TSA2	.65**	-																					
3. FAS	.29	.40*	-																				
4. PFCS	.24	.49*	.71**	-																			
5. SOIAS	.19	.25	.37*	.68**	-																		
6. Social Avoidance	.14	.31	.25	.61**	.81**	-																	
7. Shyness	-.01	.14	.21	.40*	.47*	.56**	-																
8. Unsocial	.26	.47*	.64**	.85**	.67**	.62**	.41*	-															
9. LACA-Peers	.12	-.11	-.18	-.37*	-.47*	-.57**	-.61**	-.28	-														
10. LACA-Affinity	-.27	-.47*	-.55**	-.81**	-.77**	-.67**	-.46*	-.74**	.37*	-													
11. Social Anxiety	-.23	-.06	-.03	.12	.27	.50*	.66**	.18	-.64**	-.24	-												
12. Social Anhedonia	.13	.19	.13	.45*	.51*	.64**	.51*	.51*	-.37*	-.53**	.40*	-											
13. PWBI	-.14	-.26	.10	-.22	-.16	-.38*	-.34*	-.06	.58**	.16	-.16	-.29	-										
14. Positive Affect	-.27	-.27	-.02	-.07	-.05	-.13	-.33*	.07	.15	.12	.08	.14	.50*	-									
15. Negative Affect	-.12	.03	-.12	.11	.19	.44*	.41*	.11	-.49*	-.22	.69**	.33*	-.31	.09	-								
16. Scholastic	.12	.10	-.11	.001	.18	.40*	.42*	.05	-.40*	.02	.41*	.13	-.43*	-.24	.31	-							
17. Social	-.08	.15	.19	.35*	.37*	.62**	.76**	.29	-.60**	-.44*	.60**	.58**	-.36*	-.39*	.41*	.44*	-						
18. Athletic	.08	.22	.25	.27	.22	.20	.40*	.12	-.41*	-.29	.01	-.33*	-.29	.37*	.36*	.48*	-						
19. Physical	.13	.26	-.13	.04	.02	.24	.16	-.01	-.20	-.19	.30	.01	-.34*	-.27	.39*	.19	.30	.37*	-				
20. Job	.05	.06	-.16	.03	.04	.001	.05	.02	-.09	-.02	.13	.12	-.04	-.19	.14	.19	.23	.41*	-.02	-			
21. Romantic	-.02	-.08	-.06	-.02	-.02	.13	.08	-.13	-.16	-.09	.06	-.005	-.32	-.38*	.21	.11	.32	.42*	.50*	.25	-		
22. Behavioral	-.17	-.10	-.20	-.03	-.06	.06	.09	.05	-.11	.19	.20	.09	-.19	.02	.20	.25	.20	.10	.05	.13	.03	-	
23. Friendships	-.03	.08	.17	.30	.23	.43*	.52**	.32	-.60**	-.32	.51*	-.48*	-.31	.45*	.24	.62**	.23	-.01	.28	.23	.20		-
24. GSW	.16	.15	-.26	.08	.08	.43*	.37*	.11	-.34*	-.22	.53**	.41*	-.44*	-.22	.71**	.32	.44*	.20	.59**	.21	.40*	.32	.46*
N	54	54	46	46	51	49	47	46	46	49	56	51	52	54	54	54	54	54	54	52	54	54	54
M	3.20	4.30	5.24	4.27	2.54	2.08	2.44	3.09	2.91	2.19	2.88	1.96	7.69	3.20	2.19	1.78	2.32	2.40	2.43	2.14	2.68	1.90	2.20
SD	1.559	1.537	1.137	1.079	.962	.949	.991	1.011	.804	.637	.881	.523	1.378	.784	.758	.703	.775	.871	.831	.793	.672	.769	.553
Range	1-6	1-6	1-7	1-7	1-5	1-5	1-5	1-5	1-4	1-4	1-4	1-5	1-4	0-10	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4	1-4

Note. ** *p* < .001, * *p* < .05. Short-form variable names were used, please see for reference (FAS = feelings about solitude, PFCS = preferences for conditions of solitude, SOIAS = solitude and aloneliness, LACA = loneliness and aloneness, PWBI = personal well-being index, GSW = global self-worth).

b) Preferences for Solitude, Self-Perceptions, and Well-Being

Significant positive correlations were found between positive feelings about solitude and preferences for conditions of solitude. Participants who scored high on preference for seeking solitude also scored high on social anhedonia, social competence, and social integration. Significant positive correlations were found between social anxiety and social anhedonia, negative affect, scholastic competence, social competence, close friendships, global self-worth; and negative correlations were found with loneliness with peers.

c) Gender Differences

Independent samples t-tests showed significant gender differences for shyness (t (44) = 1.863, p = .035), negative affect (t (51) = 1.734, p = .044), and positive preference for aloneness (t (47) = -1.888, p = .033). More specifically, results showed girls (M = 2.65, SD = 1.07) rated themselves higher in shyness compared to boys (M = 2.11, SD = .761), as well as in negative affect compared to boys (girls (M = 2.31, SD = .768; boys (M = 1.95, SD = .705). In contrast, boys (M = 2.40, SD = .580) rated themselves higher in positive preference for aloneness compared to girls (M = 2.05, SD = .644). To analyze significant differences in girls' and boys' correlational patterns between solitude preferences, self-perceptions, and well-being, Z-tests were conducted; however, there were no significant results.

d) Age and Gender Differences

To test for age and gender differences, based on median split, two groups were created to represent younger and older youth (Range of age 11-18 years – median split 14 years).

Two-way analyses of variance (ANOVA) were conducted to examine the effects of age (younger, older) and gender (male, female) on participants' solitude and well-being. Results revealed a significant main effect that age predicts how much time adolescents spend time alone per day (F (1, 54) = 5.379, p = .025). These results suggest that older adolescents (M = 3.72, SE = .318) spend more time alone per day compared to younger adolescents (M = 2.81, SE = .535). Results demonstrated a significant interaction of gender and age in the prediction of how much time adolescents spend alone per week (F (1, 54) = 4.427, p = .041). Older adolescent males (M = 5.00, SE = .521) spent more time alone per week compared to older adolescent females (M = 4.50, SE = .347). Whereas younger adolescent females (M = 4.53, SE = .381) spend more time alone per week compared to younger adolescent males (M = 3.25, SE = .426). Results demonstrated main effects of age on loneliness with peers (F (1, 51) = 4.813, p = .033), feelings about solitude (F (1, 46) = 5.747, p = .021), and physical appearance (F (1, 54) = 5.250, p = .026).

Younger adolescents (M = 3.16, SE = .151) rated themselves higher in loneliness with peers compared to older adolescents (M = 2.65, SE = .171). Older adolescents rated themselves higher in feelings about solitude (M = 5.59, SE = .241) and physical appearance (M = 2.70, SE = .167) compared to younger adolescents (FAS: M = 4.79, SE = .229; PA: M = 2.12, SE = .290).

2) Qualitative Results

a) Solitary Activities

Fifty-two participants (31 girls, 20 boys, 1 non-binary) listed three activities they preferred to do during their time alone. The most common first responses across the sample were: reading (13/52, 25.00%), playing video games (7/52, 13.46%), watching television (5/52, 9.62%) and listening to music (4/52, 7.69%). Only one participant stated a preference for spending time in nature as a form of exercise (female, age 14.1 years).

Building on past research (Hipson et al., 2021), the solitary activities were coded according to two different themes: Screen-based Technology Use (e.g., playing video games, watching TV), and Off-Screen Engagement (e.g., reading, drawing) (see Table 2). Two outliers reported they used their time to think and imagine such as an 18-year-old girl whose primary activity was 'thinking', and a 12-year-old girl who spent time in solitude 'making scenarios while listening to music'. The activities were coded by two researchers independently, and interrater reliability for the coded groups was high, with a Cohen's kappa of 0.95.

b) Gender Differences in Preferred Solitude Activities.

Girls and boys often displayed differing preferences for solitary activities (see Table 3). Video games were more popular in the male participants (30.00% of boys vs 3.23% of girls). In contrast,

reading (9/31, 29.03%), listening to music (4/31, 12.90%), and some creative outlets, such as drawing (2/31, 6.45%) were included by more girls than boys. Boys were more likely than girls to engage with technology while alone (41.38% of girls (12/29); 70.00% (14/20) boys).

Table 2. Frequencies of Each Coded Group

	Technology Use		Off-Screen Engagement		Total
	Frequency	%	Frequency	%	
Total Sample	26	50.00	24	46.15	52
Girls	12	38.71	17	54.84	31
Boys	14	70.00	6	30.00	20

[a.] *Note.* Coded groups are shown as proportions of the total sample ($N = 52$), and gender (not including one participant, identifying as non-binary, $N = 51$).

Regarding the role of technology and screen-use in solitary activities, half of the participants (26/52, 50.00%) reported that they used technology or some device with a screen in their times spent alone. Among those that reported the use of technology, most participants reported playing video games (7/26, 26.92%), followed by watching TV (5/26, 19.23%). Those who preferred to play video games in times of solitude spent between one and ten hours doing so, with an average time of 4 hours 47 minutes each day. The longest time spent on video games was 10 hours (male, 12.2 years old).

Table 3. Percentage Responses for Girls and Boys

Activity	Girls (n = 31)		Boys (n= 20)		Total (n= 52)	
	Frequency	%	Frequency	%	Frequency	%
Reading	9	29.03	4	20.00	13	25.00
Playing Video Games	1	3.23	6	30.00	7	13.46
Watching TV	2	6.45	3	15.00	5	9.62
Listening to Music	4	12.90	0	0.00	4	7.69
Watching YouTube	1	3.23	2	10.00	3	5.77

[b.] *Note.* The five most answered responses for the total group (girls, boys, and one non-binary), and the response for each gender as a percentage of the total number of girls and boys, respectively.

c) Motivations for Spending Time Alone

Participants reporting that they spend more time in physical solitude than spend time being in the physical presence of others (12/54, 22.22%) were asked to explain their reasons why. Some of their motivations for choosing to be alone displayed positive opinions (e.g. 'I like my alone time' – female aged 12 years, 'it gives me time to think' – 12-year-old male) of solitude (5/12, 41.67%), where others appeared to be rooted in avoidance of others (e.g. 'I only am with people when I need to be…I rarely choose to be with others' – 14 year old girl) (3/12, 25.00%), and some were non-emotional, spending more time alone due to circumstance rather than a strong desire for solitude (4/12, 33.33%). For example, one 11-year-old girl stated that she 'can't really see her friends because of COVID'.

When asked to list reasons for spending time alone, an 11-year-old girl said that she did so 'to recharge and relax'. One female participant (age 14) spends time alone because she '[doesn't] feel like putting on a happy mask'. Two participants (2/27, 7.41%) cited spending time alone as an opportunity to refresh their energy, while others used solitude to just think (4/27, 14.81%).

When asked if their time spent in solitude was their own choice or forced due to other circumstances, the majority (40/54, 74.07%) reported that it was their decision to be alone. Each participant was then asked to explain the reasoning behind this answer. While some said that they choose to be alone because they want to recharge (5/40, 12.50%), and 'relax after school' (male, 13 years) others said that they 'don't like to socialize' (female, 12.11 years).

3.2. Discussion

Past research on the link between affinity for solitude and psychosocial adjustment in adolescence rarely considers the motivations for spending time alone or how often one is alone, which is necessary for understanding how adolescents experience solitude. The current study addresses this gap in the literature and provides evidence that affinity for solitude is relatively benign during early and mid-adolescence. This study explored interpretations of being alone among a sample of Canadian adolescents, whether these interpretations differed in relation to age and gender. Findings showed distinct interpretations of being alone as youth reported a mixed set of emotions including positive and negative feelings about being alone. Our findings suggest that the preference for physical solitude and being alone is related to social behaviour, and well-being. The main findings will be outlined below, followed by strengths, limitations and implications for future research and practice.

1)   Does one's age and gender make a difference in adolescents' solitude experiences?

We found intriguing and novel age and gender differences across preferences for solitude and feelings of self-worth and well-being. As predicted, regarding age, results showed that older youth reported longer times being alone, higher preferences for solitude and unsociability, and higher feelings of social integration and perceptions of physical appearance, but also higher social anxiety compared to younger youth. Age differences thus showed that younger youth are more likely to report feeling lonely among their peers, which supports past research that loneliness peaks in early adolescence, perhaps due to the considerable emphasis placed on social relationships (Child & Lawton, 2019). Thus, interpreting being alone as feeling alone may be more prominent during this time and older youth may experience positive attitudes towards solitude compared to younger youth. Such results support past studies that shows a shift in attitudes towards solitude as children mature into adolescents and move from negative to positive attitudes towards spending time alone (Coplan et al., 2021).

Our results showed that the majority of youth preferred to be engaged during their time alone rather than passively watching media or doing nothing. As predicted, older youth were more likely to be engaged on-line compared to younger youth. Possible reasons for older youth being more digitally engaged compared to younger youth may also be due to increased pressures of school with on-line homework, classes increasing, as well as more time interacting with friends on-line and suggests need for further research on how time on screens affect young people's well-being (Twenge & Martin, 2020). Gender differences showed that more girls than boys preferred to read, write, or draw, whereas boys were more likely to play video games. Older adolescent boys spent the most time alone, and on devices with screens and supports past studies that suggest boys spend more time on computers, especially video games, and have positive attitudes towards being alone (Coplan et al., 2022; Doey et al., 2014; Homer et al., 2018).

2) Are solitude preferences and well-being interconnected? Do youth feel good or bad when alone?

Correlations showed that the more positive feelings youth had, the lower they perceived themselves to be competent in social and scholastic situations. In contrast, we found that youth with more negative feelings perceived themselves to be competent in social and academic areas. Such contradictory results suggest that experiencing positive emotions may not necessarily help to improve one's perceptions of self-competencies. More research needs to explore why some youth who perceive themselves to be competent also experience feelings of sadness and anxiety, including more comprehensive measures of emotional experiences (the present study looked at how youth felt throughout one week).

In terms of motivations for withdrawing from others and preferences for solitude, results showed positive relations between all three types of social withdrawal motivations (social avoidance, unsociability, and shyness), positive attitudes towards solitude, and feelings of dissatisfaction with the time spent alone. Unhappiness about the amount of time one has to herself also related to increased feelings of social anhedonia, or lack of pleasure from spending time with others, and were less likely to feel lonely with their peers. Such results support past studies that show that individuals who report dissatisfaction with their lack of solitude time are also more likely to have emotional well-being challenges (Coplan et al., 2021; Swets & Cox, 2021).

In addition, results showed that those youth who reported high scores on feelings of aloneliness also rated themselves as competent in social skills. That is, the more socially competent participants

perceived themselves to be, they were also more likely to report that they felt unhappy about the alone time they had to themselves. Such findings support the mixed relations between self-perceptions and feelings of dissatisfaction with one's time alone and suggest the need for further research, especially among adolescents who are socially active as those who believe they are socially competent also feel the need for their private time.

3) Gender differences in solitude experiences, self-perceptions, and well-being

For boys only, high feelings of social anxiety related with high feelings of social anhedonia, or the lack of pleasure when around others, as well as positive feelings of global self-worth. Compared to girls, boys who were socially anxious and experienced little pleasure around others also felt a strong sense of positive self-worth. Such findings support past studies that suggest adolescent males experience greater feelings of self-worth compared to girls (Bowker et al., 2020), even during times of solitude. Given the sparse research on adolescent boys' experiences of solitude and anxiety (Doey et al., 2014), the present findings add to the literature of how boys may experience great feelings of social anxiety and negative feelings being around others. In terms of different motivations for social withdrawal, compared to boys, girls were more likely to report being shy, experience negative affect, and higher feelings of social anxiety. In addition, results showed that boys scored higher in preference for aloneness than girls.

These findings support past research that shows adolescent girls are more likely to experience anxiety and negative feelings around others (Gazelle, 2022; Pearcey et al., 2020). Such results may be due to differences in how girls and boys experience solitude and social experiences, as gender-role stereotypes which may encourage girls to spend more time socializing instead of by themselves (Coplan et al., 2022). Further research is needed to explore the complex roles age and gender play in adolescents' preferences for solitude and their emotional well-being.

4) Strengths, Limitations, and Implications

Despite the unique findings that our study provides in asking Canadian adolescents about their preferences and reasons for spending time alone, this study also was almost limited by a variety of factors. Data collection took place during the last year of the coronavirus-19 pandemic, which may have affected how participants interpreted being alone (though participants made very few references to the pandemic in their responses). Nonetheless, findings suggest that interpretations of being alone are complex and highly variable among adolescents and should be considered to better understand the implications of being alone.

Also, this study was cross-sectional with a mainly Euro-Canadian, English-speaking sample, and examined self-reports only, future research needs to investigate longitudinal associations among different types of solitude (actional, perceptual, cognitive, emotional) and activity choice and well-being in different phases of adolescence and include a more diverse sample. Despite these limitations, our study is novel and contributes and extends past studies in that it demonstrates the need to view solitude contextually. Solitude is indeed a context for different activities and how adolescents spend time alone may have implications for their well-being. Our findings also have implications for secondary school education and the need to place more focus on the importance of the mental or interior world of the youth and the need for solitude in the classroom (Musaio, 2022).

Educators can hone adolescents' solitude skills by providing with the tools in class to strengthen their intrapersonal muscles to increase their self-awareness and curiosity. All social-emotional learning programs (SEL) have the primary aim to strengthen self-awareness, self-management, social awareness and relationship skills (CASEL, 2020). For example, The SPARK Teen Mentoring program (Green et al., 2021) employs the principles of mind, thought, and consciousness and is designed to strengthen emotional well-being and adaptive functioning in youth.

Recently, Green et al., (2022) studied the effectiveness of the SPARK program with adolescents and reported their experiences during a resilience based SEL program. Their findings highlighted the potential effectiveness of the SPARK Teen mentoring program in that it increased youth's awareness and management of their emotions, as well as their understanding of the connection between their thoughts and their emotions. Such a mentoring program for secondary school students may help those who struggle with solitude and silence, as well as help those who revel in their time alone and teach them how to use their solitude in productive and restorative aways.

Regarding the use of digital technology to promote solitude skills, Pepple (2022) highlights the role of imagination in digital or physical artifacts designed to eliciting emotions (Kahu et al., 2015), and can be either material or non-material artifacts (Brown, 1992). Thus, teachers can implement and offer students a multitude of tools to choose from to increase their imagination and emotional solitude skills. Regarding high tech tools, digital tools such as well-being websites (Tsortanidou et al., 2019), and digital puzzles and video games to promote self-reflection and mental problem-solving as well as mental play in terms of creativity and brainstorming with oneself (Homer et al., 2018).

5) Future Directions and Implications

Our study demonstrates the need to view solitude contextually and the important role solitude plays in adolescents' lives. Solitude provides a safe space for different activities, and how adolescents spend time alone may have implications for their well-being. Furthermore, our findings suggest the need for educators and parents to ensure that they provide time for adolescents to have time for themselves, as well as to monitor and 'check-in' with youth when they do spend time alone as their solitary time can potentially be used negatively.

Implications for educators include curriculum programs that should highlight the value of developing the mental world or the interiority of the youth and provide time in class to foster self-growth and self-motivated learning. Overall, our study provides a contribution to help bridge the gap between developmental and educational research and provides evidence for the need for further exploration into the development of solitude and well-being.

4. Conclusions

Solitude is often conceived as primarily negative in adolescence, and past studies have focused mainly on negative aspects such as loneliness or peer exclusion. At the same time, social withdrawal is an indispensable part of normative adolescent development. This alludes to the existence of different groups of adolescents, who experience solitude differently from one another. Furthermore, past studies mainly investigate mean levels of solitude, while adolescents' daily-life experiences of solitude remain underexplored.

To address this gap in the literature, this study investigated whether adolescents differed in their motivations for solitude and in their daily-life solitude experiences. We also explored whether certain characteristics and preferences influenced the odds of experiencing solitude as positive or negative. Results showed that the majority of adolescents experience time alone as more positive, with high levels of positive affect, while about one third of adolescents' experience time alone as more negative, with high levels of negative affect, loneliness and feeling like an outsider. Only gender was significantly associated with differences in solitude in that boys were less likely than girls to experience negative feelings during time spent alone. This study highlights the heterogeneity of daily-life solitude experiences in general population adolescents. Overall, the current study provides evidence for the importance of solitude and the reasons why adolescents chose to be alone, as one's motivations for solitude may be a key factor to determining one's emotional well-being. Such findings can serve as a steppingstone for future research on the motivations for daily life of solitude experiences across adolescence and their relations to the development of emotional well-being.

To conclude, our study supports the view that solitude is a multifaceted, complex, and paradoxical phenomenon, that enables positive and negative experience, and provides emotional benefits and pains. The present research suggests that to understand the different social and emotional consequences of solitude, researchers need to consider what solitude means to young people, and what motivates them to choose different types of solitude. The present findings also contribute to our understanding of age-related differences in the experience of solitude during adolescence by showing that older adolescents enjoy their solitude more and benefit socially and emotionally more than younger youth.

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