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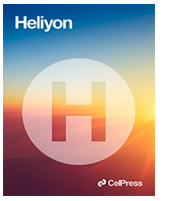

Research article

Subjective well-being of Thai pre-teen children: Individual, family, and school determinants

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ABSTRACT

Children's subjective well-being is crucial for ensuring decent child development. At present, evidence about children's subjective well-being is limited, particularly regarding insights from developing countries. This study aimed to assess overall life satisfaction, multi-dimensional life satisfaction of Thai pre-teens, and factors associated with the children's overall life satisfaction. A cross-sectional study was carried out with 2277 children in grade 4 to 6 at 50 public primary schools from nine provinces across all regions of Thailand. The data collection took place between September and December 2020. The children were satisfied with their overall life to a considerable degree (8.5 out of 10). Girls had higher life satisfaction and satisfaction with multiple life domains (except for "autonomy") than boys. Compared with older children, younger children had higher overall life satisfaction and satisfaction with multiple life domains except for "autonomy", "yourself" and "friends". The children's overall life satisfaction was increased in proportion to satisfaction with family, friends, oneself, physical appearance, health, teacher, school activity, and autonomy. Concerning individual factors, their social skills and time spent on gardening (≥1 h/day) and active recreational activities (1–3 h/day) had positive influence upon their overall life satisfaction, while too much time on screen (>1 h/day) and music (>3 h/day) had negative results. In terms of family factors, children having fathers owning a shop/business had higher life satisfaction than children having fathers who were manual workers, while children who lost their fathers had lower life satisfaction. For school factors, school connectedness had a positive relationship with their overall life satisfaction. Children's subjective well-being promotion should include family-based and school-based interventions to improve children's time use (e.g., more active outdoor lifestyle and less sedentary lifestyle), self-esteem, health, autonomy, and school connectedness.

1. Introduction

Well-being is the state of life where there is an equilibrium between challenges and resources in psychological, social, and physical aspects [1]. This state enables people to develop to reach their full potential (e.g., being healthy, productive, creative, effective at learning, and prosocial) – all of which constitutes a firm foundation of a society's prosperity [2]. With this recognition, well-being has

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gained global attention and become a Sustainable Development Goal 3 (SDG3), which aims to ensure healthy lives and promote well-being at all ages [3].

Well-being embraces all life domains and best represents living conditions. Thus, it has been used as an index in tracking country development, in addition to the current monetary indicator called Gross Domestic Product (GDP) in several developed countries [4]. Well-being can be measured objectively and subjectively. To evaluate objective well-being, indicators related to material resources (such as income and housing) and social attributes (like, for example education, civic engagement, and health) have been widely used [5]. Subjective well-being concerns emotional response (positive and negative emotions), overall life satisfaction (expressed as to what extent people are satisfied with their own lives), and domain life satisfaction (e.g., self, work, family, health, leisure, peer, and finances), which can be evaluated via a self-reflection approach [6]. Among all components of subjective well-being, life satisfaction is integral since it is most relevant to living conditions and most used across the globe [7]. Life satisfaction has positive relationships with several life domains, including health and longevity, income and productivity, and individual and social behaviors [8]. A recent global study also showed that life satisfaction has a positive relationship with objective SDGs except for SDG12 (responsible production and consumption) and SDG13 (climate action) [9]. This growing evidence implies that subjective well-being could be a potential indicator for sustainable development.

Children's life satisfaction is a key predictor, a mediator, and an outcome of child development because low life satisfaction is related with psychological, social, and behavior problems among children, while high life satisfaction has positive relationships with adaptability and mental health status [10]. Also, adolescent life satisfaction has positive relationships with health behaviours' including not smoking, physical activity, healthy diet, which contribute to both good mental and physical health [11]. Pre-teen years (between the ages of nine and thirteen) are an important phase of life because children grow and change dramatically both physically and psychologically, which could influence their adulthood [12]. Throughout this period, they establish a sense of identity, competency, self-awareness, and independence. Also, their social surroundings become broader, which requires a considerable degree of adaptation. It is important to ensure decent development of the children. Recognizing and comprehending pre-teens' subjective well-being and its determinants is crucial to ensure effective well-being promotion for the children, but globally, only 35 countries/territories participated in an international survey of children's well-being to monitor children's subjective well-being in the countries [13]. Moreover, literature regarding subjective well-being in pre-teens and its determinants is limited and lags behind that of

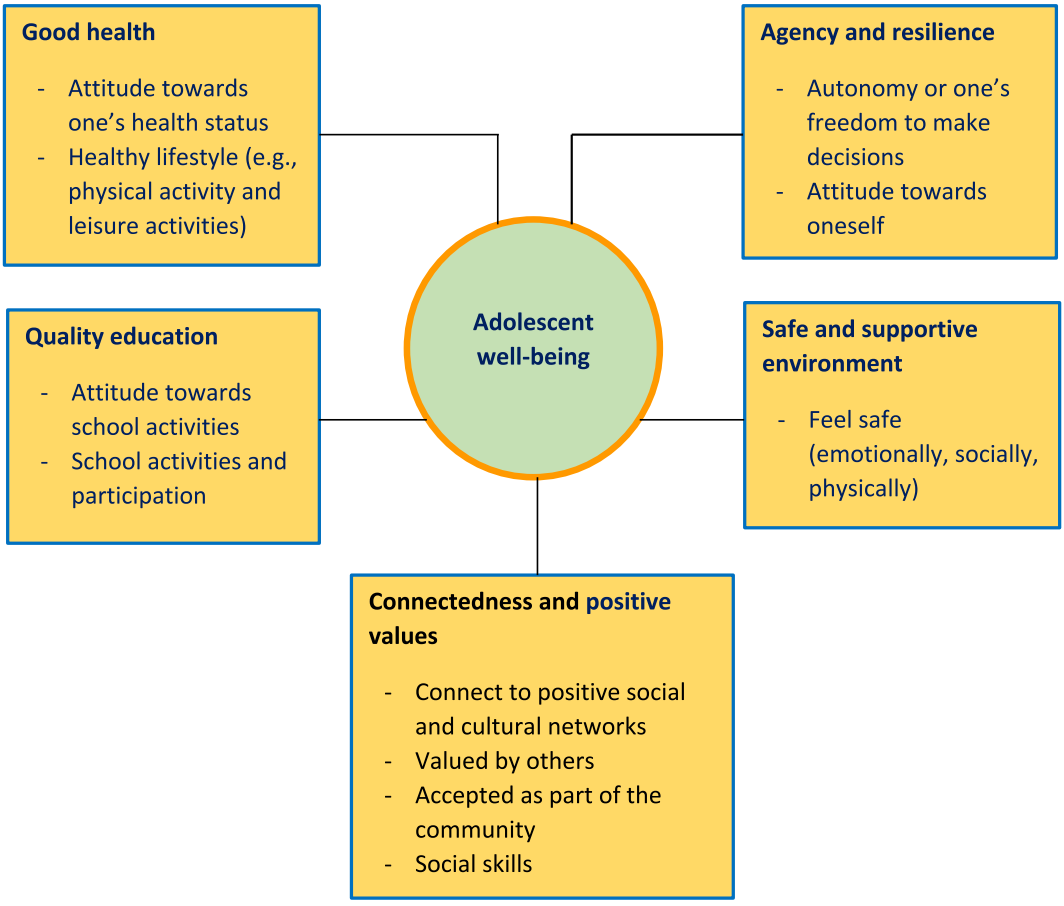

Fig. 1. Conceptual framework of this study adapted from the Adolescent well-being framework [17].

the general population [14,15]. The lack of evidence may limit recognition of the problems in many parts of the world and impede effective global movements to promote child and human development.

Very little is known regarding subjective well-being among Thai pre-teens. The only literature available during the past decade presented emotional responses among 496 school-aged children in 2013, which indicated that 45% of the participants were generally very happy and children having migrant parents were happier than Thai children [16]. To date, there has been no literature showing pre-teens' life satisfaction. The current situation of subjective well-being among Thai children is unknown. Also, the knowledge on factors correlated with the children's subjective well-being is not available. This set of information will reduce evidence gaps regarding pre-teens' subjective well-being, which will benefit child development policy in Thailand and other places sharing similar contexts. To fill this gap of knowledge, this study assessed overall life satisfaction, multi-dimensional life satisfaction of Thai pre-teens, and factors associated with the children's overall life satisfaction.

2. Methods

2.1. Conceptual framework

The adolescent well-being framework [17] was adapted and used to guide this study. According to the framework, adolescents should have good health, connectedness and positive values, live in a safe and supportive environment, have access to quality education, and have agency and resilience (see Fig. 1).

2.2. Data collection and sample

A cross-sectional study was carried out with children grade 4 to 6 at 50 public primary schools in nine provinces between September and December 2020. Purposive sampling technique was used at the province level, where two provinces (high and low socioeconomic status) were drawn from each of the four regions of Thailand and topped up with the capital province of Thailand. Convenience sampling and simple random sampling techniques were used at the school and individual levels, respectively. Due to limited time and resources, a simple random sampling was not feasible at the school and province levels. School and student rejection rates were lower than 5%. Written informed consent was obtained from both students and their parents/caretakers with assistance from school staff. This study received ethics approval from the Institute for the Development of Human Research Protection (No. IHRP021-2563, March 17, 2020).

Self-administered questionnaires were used to collect the data on family backgrounds, daily activities that students had done in the past few weeks and approximate time spent on the activities, school connectedness, social skills, life satisfaction as a whole and different life aspects. The questionnaires were read and explained to child participants by the research team. The study sample size was calculated based on the proportion of Thai children feeling very happy with their lives reported in 2013 [16] using precision and type I error of 5% [18].

2.2.1. Measurement

Independent variables were categorized into two groups. The first group was consisted of self-reported domain satisfaction with different aspects of life at present i.e., family, friends, school experiences, neighbourhood, your appearance, health, autonomy, and yourself (*"not at all (0 point)" to "totally satisfied, (10 points)"*, using a questionnaire adapted from the Children's World Project's questionnaire (see the adapted questionnaire in Supplementary) [13]. The second group consisted of the characteristics of socio-demographic, lifestyle, school life, and social behaviors. These variables included age, gender, family background (people they are living with in the same shelter and the occupation of their parents or caretakers), time spent on different activities *("Did you do the following activities in the past week?", "If so, how many days did you do the activities in the past week?", "On average, how long did you do the activities per day?" "Did you decide to do it yourself?"*), school connectedness (*"I feel close to people at this school", "I feel like I am part of this school", "I am happy to be at this school", "The teachers at this school treat students fairly", "I feel safe in my school", with the Likert scale ranging from "strongly agree (5 points)" to "strongly disagree (0 point)"*) [19], and social skills (*"Do your friends look up to you as a leader?", Do other children include you in their games at break time at school?", "Do you find it hard to talk to other children in your class?", Do you help other children who have a problem at school?" with the Likert scale ranging from "always (3 point)" to "never (1 points)"* [20].

Dependent variables were overall life satisfaction at present (*"not at all (0 point)" to "totally satisfied, (10 points)")* [21].

2.3. Data analysis

Descriptive statistics, such as percentage and mean (SD), were used to describe the variables mentioned earlier. The *t*-test and one-way ANOVA were used to test the difference in means in two groups and more than two groups, respectively. Multiple linear mixed effect models were conducted, separately for each group of independent variables, to identify 1) the association between satisfaction with multiple domains of life and overall life satisfaction, and 2) the association between certain factors (individual, family, and school) and overall life satisfaction. All key independent variables of each group were included in each model, while school was treated as a random effect variable. Statistical significance was two-tailed at 5%. The data analysis was performed using STATA16 [22].

3. Results

In total, 2277 students in grade 4 to 6 were involved and 56.6% were girls. Participants living with parent(s) were 65.8%, while 34.2% were not living with parents (i.e., living apart, lost contact with parents, and parents passed away). In terms of fathers' and mothers' occupations, the majority was manual workers, followed by office workers, shop/business owners, unemployed, and died or lost contact. Most participants (45.7%) were fully in charge of doing or not doing common activities among children, including family time, screentime, active leisure activities (sports and other physical activities), music time, art time, and gardening. The proportions of participants having social skills at different levels were almost equal throughout quartile (Q) 1 to 4. Concerning school connectedness, the majority reported to have the lowest school connectedness (Q1), followed by Q2, Q3, and Q4, which accounted for 33.0%%, 25.0%, 24.2%, and 17.8%, respectively. Table 1 shows the participants' demographic characteristics, family backgrounds, social skills, and school connectedness.

Table 2 presents time use of the participants during the past week. In terms of their screen time (watching television and playing games), the majority of participants spent >1–3 h/day (35.1%), followed by 0–1 h/day (23.6%), >3–5 h/day (21.4%), >5–7 h/day (10.6%), and >7 h/day (9.3%). The participants generally spent limited time with their families since around 86.0% spent 3 h/day or less with their families. Among these, 57.2% spent only 0–1 h/day and 28.8% spent >1–3 h/day. In terms of art, 81.2% spent time on making art (drawing, painting, and sculpturing). Also, 60.9% made art but less than 1 h/day, 17.4% spent 1–3 h/day, and only 2.9% spent more than 3 h/day. For music (listening to music, singing, and playing musical instruments), 86.4% reported that they had spent time on music during the past seven days. Most of the participants, 47.9% spent time on music for >0–1 h/day, 29.9% spent 1–3 h/day, 8.6% spent >3 h/day. Of total, 44.4% reported that they spent less than 1 h/day on active recreation activities, 43.7% spent 1–3 h/day, and 11.9% spent >3 h/day. For gardening, 88.1% spent time on gardening during the past week. Most participants (52.7%) spent less than 1 h/day, while only 27.8% and 7.6% spent 1–3 h/day and >3 h/day, respectively.

Table 3 shows life satisfaction of the participants. Overall life satisfaction mean was 8.5 (2.0). Across all life domains, the participants were satisfied with their "family life" the most (8.8 (2.2)), followed by "health" (8.3 (2.3)), "activity at school" (8.0 (2.3), "friend" (7.9 (2.6)), "academic performance" (7.7 (2.4)), "teacher" (7.5 (2.6)), "themselves" (7.5 (2.6)), "neighbourhood" (7.3 (2.7)),

Table 1
Individual, family and school characteristics.

Characteristics	N (%)
Gender	
Boy	988 (43.4)
Girl	1289 (56.6)
Age (years old)	
9–10	802 (35.2)
11	753 (33.1)
12	645 (28.3)
>12	77 (3.4)
Living with parent(s)	
Yes	1499 (65.8)
No	778 (34.2)
Father occupation	
Office worker	634 (27.8)
Manual worker	1330 (58.4)
Shop/business owner	254 (11.2)
Unemployed	49 (2.2)
Died or lost contact	10 (0.4)
Mother occupation	
Office worker	575 (25.3)
Manual worker	1182 (51.9)
Shop/business owner	364 (16.0)
Unemployed	153 (6.7)
Died or lost contact	3 (0.1)
Had the autonomy to do or not to do certain activities in everyday life (screen time, family time, active recreation, art, music, and gardening)	
0-1 activity	58 (2.5)
2-3 activities	288 (12.6)
4-5 activities	891 (39.1)
6 activities	1040 (45.7)
Social skills	
> p75	497 (21.8)
>p50 - p75	598 (26.3)
>25 – p50	573 (25.2)
<=p25	609 (26.7)
School connectedness	
> p75	405 (17.8)
>p50 - p75	552 (24.2)
>25 – p50	596 (25.0)
<=p25	751 (33.0)

Table 2
Time uses on different activities during the past seven days.

Activity (hour/day)	Both gender N (%)
Screen time (Television & Games)	
0–1	538 (23.6)
>1 - 3	799 (35.1)
>3 - 5	487 (21.4)
>5 - 7	242 (10.6)
>7	211 (9.3)
Family time (spend time with family)	
0–1	1303 (57.2)
>1 - 3	655 (28.8)
>3 - 5	132 (5.8)
>5 - 7	58 (2.5)
>7	129 (5.7)
Art	
0	429 (18.8)
>0-<1	1386 (60.9)
1–3	396 (17.4)
>3	66 (2.9)
Music	
0	310 (13.6)
>0 – <1	1091 (47.9)
1–3	681 (29.9)
>3	195 (8.6)
Active recreation	
<1	1011 (44.4)
1–3	996 (43.7)
>3	270 (11.9)
Gardening	
0	270 (11.9)
>0-<1	1200 (52.7)
1–3	633 (27.8)
>3	174 (7.6)

Table 3
Current subjective well-being.

Life domain	Gender	Age (years old)				
	Both sex	Boy	Girl	9–10	11	12+
		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean +SD
Life	8.5 (2.0)	8.4 (2.2)*	8.6 (1.9)*	8.8 (2.0)^{abc}	8.5 (2.0)^{abc}	8.2 (2.2)abc
Friend	7.9 (2.6)	7.6 (2.7)*	8.2 (2.4)*	7.7 (2.7)^{ac}	7.8 (2.6)^{bc}	8.2 (2.4)bc,ac
Teacher	7.5 (2.6)	7.1 (2.8)*	7.9 (2.4)*	7.8 (2.6)^{ab}	7.3 (2.7)^{ab}	7.4 (2.6)
School activity	8.0 (2.3)	7.7 (2.5)*	8.2 (2.2)*	8.3 (2.2)^{ab,ac}	7.7 (2.5)^{ab}	7.9 (2.3)ac
Academic performance	7.7 (2.4)	7.3 (2.6)*	8.0 (2.2)*	8.0 (2.3)^{ab,ac}	7.6 (2.5)^{ab}	7.6 (2.4)ac
Family	8.8 (2.2)	8.6 (2.4)*	8.9 (2.1)*	9.1 (2.0)^{ab,ac}	8.6 (2.3)^{ab}	8.5 (2.3)ac
Neighbourhood	7.3 (2.7)	7.2 (2.8)*	7.4 (2.6)*	7.6 (2.6)^{ab,ac}	7.2 (2.8)^{ab}	7.1 (2.6)ac
Autonomy	6.5 (3.1)	6.5 (3.2)*	6.5 (3.0)	6.6 (3.1)	6.4 (3.1)	6.7 (3.1)
Health	8.3 (2.3)	8.0 (2.6)*	8.6 (2.0)*	8.4 (2.3)^{ab}	8.1 (2.5)^{ab,bc}	8.4 (2.2)bc
Physical appearance	7.2 (2.8)	6.8 (3.0)*	7.5 (2.6)*	7.5 (2.7)^{ab}	7.1 (2.9)^{ab}	7.2 (2.8)
Oneself	7.5 (2.6)	7.1 (2.8)*	7.7 (2.4)*	7.5 (2.7)	7.3 (2.6)	7.7 (2.6)

* Significantly different between boys and girls using independent sample *t*-test at $p < 0.05$, ^{abc}the mean of the three age groups were significantly different at $p < 0.05$, ^{ab}the means of the 9-10 year-old and the 11 year-old groups were significantly different at $p < 0.05$, ^{ac} the means of the 9-10 year-old and the 12+ year-old groups were significantly different at $p < 0.05$, ^{bc} the means of the 11 year-old and the 12+ year-old groups were significantly different at $p < 0.05$.

"appearance" (7.2 (2.8)), and "autonomy" (6.5 (3.1)). Girls were satisfied with their lives more than boys significantly at p value $<$ 0.05. Also, they had means of satisfaction higher than boy significantly for almost all life domains, except for "autonomy" where their means of satisfaction were equal. Children of different ages had different levels of satisfaction significantly at p value < 0.05 on overall life and almost all life domains, except for "autonomy" and "yourself". Younger children (aged 9–10 years old) had highest mean of overall life satisfaction and higher means of satisfaction than other age groups for "overall life", "teacher", "activity at school", "academic performance", "family", "neighbourhood", "health" and "appearance". Although older children (aged 12+ years old) had lower or lowest means of satisfaction with most domains, they had the highest mean of satisfaction with "friend" domain.

The mixed effect model estimating the relationship between the satisfaction with overall life and multiple life domains indicated that overall life satisfaction was significantly associated with almost all life domains, except for "academic performance" and

"neighbourhood" domains at p value < 0.05 (see Table 4). The life domain that had the strongest relationship with overall life satisfaction was satisfaction with "family", followed by "friend", "yourself", "physical appearance", "health", "teacher", "school activity", and "autonomy" with the coefficients of 0.19, 0.09, 0.08, 0.07, 0.06, 0.05, 0.04, and 0.03, respectively.

Table 5 shows the associations between overall life satisfaction and individuals, family, and school factors. The model indicated that factors significantly associated ($p < 0.05$) with overall life satisfaction were father occupation, age, school connectedness, social skills, satisfaction with their own autonomy, and time spent on screen, gardening, music, and sport. Participants having fathers owning shop/business had overall life satisfaction more than those having fathers who were manual workers (coefficient = 0.38), while participants whose fathers died or lost contact had overall life satisfaction score less than those having fathers who were manual workers (coefficient = −1.96). Overall life satisfaction had a negative association with age (coefficient = −0.23), while having positive associations with school connectedness (coefficient = 0.04) and social skills (coefficient = 0.19). Overall life satisfaction was likely to decrease with longer screen time, particularly from >3 h/day up to >7 h/day. The coefficients of having >1–3 h screen time/day, >3–5 h screen time/day, >5–7 h screen time/day, >7 h screen time/day were −0.35, −0.31, −0.40, and −0.51, respectively. Having gardening time at least 1 h/day was positively associated with overall life satisfaction. The coefficients of having gardening time 1–3 h/day and >3 h/day were 0.40 and 0.41, respectively. Having music time >3 h/day was negatively associated with overall life satisfaction (coefficient = −0.50). Participants having 1–3 h active recreation time/day had overall life satisfaction higher than those having active recreation time less than 1 h/day (coefficient = 0.26).

4. Discussion

This study provides insights into Thai pre-teen life satisfaction and potential determinants in multiple perspectives. We found that the Thai pre-teens were satisfied with their lives to a considerable degree. Across different life domains, family was most influential upon life satisfaction. Overall life satisfaction was positively associated with satisfaction of family, friends, yourself, physical appearance, health, teacher, school activity, and autonomy. In terms of individual and surrounding determinants, factors positively associated with overall life satisfaction were having fathers owning a shop/business, school connectedness, social skills, having at least 1 h of gardening time/day, and at least 1 h of active recreation time/day. Factors negatively associated with overall life satisfaction were losing fathers/losing contact with fathers, age, having >1 h of screen time/day, and having >3 h of music time/day.

4.1. Individual factors

This study suggested that overall life satisfaction of the children decreased with age. This finding is in line with the current body of evidence that overall life satisfaction of children starts to decrease with age when they reach 10 years old [23]. Our findings suggested that children's social skills are important to their subjective well-being or vice versa. Our study confirms the previous study in the American upper primary school children that their social skills were positively associated with their life satisfaction [24]. Not only children, but this connection has also been found in diverse age groups. Concluded from the current body of evidence, social and emotional skills contribute to the ability of a person to adjust to one's social environment which could determine the person's and wider societies' well-being [25]. This may be because people with good social skills tend to have healthy and productive relationships, gain respect and acceptance from others, succeed in education and career, and have high levels of life satisfaction [26,27]. Our study supports the previous literature [28–30] that how children spend their time is important to their subjective well-being. For the Thai pre-teens, spending sufficient time on outdoor activities requiring physical activities (i.e., active leisure activities or gardening) had positive correlations with life satisfaction. Similar to the findings from 11 countries joining the Children's World survey and the US [28,29], which indicated that sports or physical activities had a positive relationship with life satisfaction of pre-teens. The association between physical activities has been explained by several studies that physical activities can improve subjective or psychological well-being through several mediators including hormonal and neurotransmitter systems, self-esteem, self-efficacy, and distraction from distress [31]. Not only reported by our study, the positive relationship between gardening and subjective well-being was also

Table 4
The association between overall life satisfaction and satisfaction with other life domains.

Variables	Coefficient	Std. Error	t-Statistic	p
Friend	0.09	0.02	5.64	<0.0001**
Teacher	0.05	0.02	2.74	0.006*
School activity	0.04	0.02	2.36	0.018*
Academic performance	0.03	0.02	1.85	0.064
Family	0.19	0.02	10.18	<0.0001**
Neighbourhood	0.02	0.02	1.18	0.239
Autonomy	0.03	0.01	2.66	0.008*
Health	0.06	0.02	3.20	0.001*
Physical appearance	0.07	0.02	4.40	<0.0001**
Oneself	0.08	0.02	4.95	<0.0001**
Constant	3.10	0.20	15.62	<0.0001

Note: 1.Clustering effect was adjusted for school, 2.$R^2 = 0.28$, 3.* and ** indicate significant association at $p < 0.05$ and $p < 0.0001$, 4. Abbreviations: vs stands for versus, h(s) stands for hour(s). Std error stands for standard error.

Table 5
The association between overall life satisfaction and individuals, family, and school factors.

Variables	Coefficient	Std. Error	t-Statistic	*p*
Girls (vs. boys)	−0.02	0.09	−0.21	0.830
Father occupation (vs. Manual worker)				
Office worker	−0.03	0.11	−0.29	0.771
Shop/business owner	0.38	0.15	2.50	0.012*
Unemployed	0.11	0.28	0.39	0.693
Died or lost contact	−1.96	0.81	−2.41	0.016*
Mother occupation (vs. Manual worker)				
Office worker	−0.18	0.11	−1.65	0.100
Shop/business owner	−0.22	0.13	−1.64	0.101
Unemployed	−0.05	0.17	−0.30	0.763
Died or lost contact	−0.08	0.92	−0.09	0.928
Age	−0.23	0.04	−5.28	<0.0001**
Living with parents	0.06	0.10	0.67	0.500
School connectedness	0.04	0.01	3.70	<0.0001**
Social skills	0.19	0.03	6.82	<0.0001**
Screen time (vs. 0–1 h)				
>1–3 h	−0.35	0.11	−3.07	0.002*
>3–5 h	−0.31	0.13	−2.39	0.017*
>5–7 h	−0.40	0.16	−2.52	0.012*
>7 h	−0.51	0.17	−3.02	0.002*
Family time (vs. 0–1 h)				
>1–3 h	0.05	0.10	0.50	0.614
>3–5 h	−0.00	0.18	−0.00	0.958
>5–7 h	−0.12	0.27	−0.46	0.642
>7 h	−0.29	0.19	−1.54	0.123
Gardening time (vs 0 h)				
>0-<1 h	0.26	0.14	1.90	0.057
1–3 h	0.40	0.15	2.63	0.008*
>3 h	0.41	0.20	2.07	0.039*
Music time (vs. 0 hr)				
>0-<1 h	0.10	0.13	0.78	0.437
1–3 h	−0.02	0.14	−0.12	0.904
>3 h	−0.50	0.19	−2.59	0.010*
Art time (vs. 0 hr)				
>0 - <1	0.15	0.11	1.30	0.193
1–3 h	0.10	0.14	0.68	0.496
>3 h	0.24	0.27	0.90	0.367
Active recreation time (vs. <1 h)				
1–3 h	0.26	0.09	2.85	0.004*
>3 h	0.14	0.14	0.99	0.324
Constant	9.65	0.53	18.37	<0.0001

Note: 1.Clustering effect was adjusted for school, 2.$R^2 = 0.13$, 3.* and ** indicate significant differences at $p < 0.05$ and $p < 0.0001$, 4. Abbreviations: vs stands for versus, hr(s) stands for hour(s). Std error stands for standard error.

identified among children and adults living in various contexts [32–34]. The benefits of gardening were explained by the restorative framework that nature-based activities such as walking in nature or gardening help people to recover from directed attention fatigue and psychological stress [35]. On the other hand, indoor activities (i.e., watching television and playing computer games, and long hours of musical activities) had negative correlations with life satisfaction. A recent study reported that sedentary lifestyle was extremely prevalent among adolescents globally in 2016 [36]. These findings stress the importance of limiting indoor activity time and spending sufficient time on active outdoor activities.

4.2. Family factors

It was found that the Thai children were most satisfied with their family lives, which indicated a considerable degree of their positive feelings towards their family climates. This finding is in line with the findings from the western context [21,37]. Our study also showed that family life satisfaction had the strongest positive relationship with overall life satisfaction. This result highlights the importance of family climate on the Thai pre-teens' subjective well-being. Strong relationships between family climate and subjective well-being in children were also reported by studies from different contexts. Findings from 36 Western countries found that relationships with parents were strongly associated with child well-being [38]. Another study from eight European countries found a strong link between family climate (including family satisfaction and family functioning) and child well-being [39].

Our study found that children's autonomy was positively associated with their overall life satisfaction. This finding is in line with the findings from Denmark, South Korea, and the US [40]. Adolescents' expectation for their autonomy mediated the relationship between parenting style and family climate [41]. Therefore, the balance between parenting style (e.g., authoritative or indulgent) and children's expectation for their autonomy is important. Our finding indicated that the Thai pre-teens, especially the youngest group,

had the lowest satisfaction with their autonomy.

A link between paternal occupation and the Thai pre-teens' overall life satisfaction was identified by our study. Compared with children having fathers who were manual workers, children having fathers owning shop/business were more satisfied with their own lives, while children losing fathers/losing contact with fathers were less satisfied with their own lives. Evidence indicating the effects of paternal occupation on adolescents' subjective well-being is limited. It is undiscovered whether household income was a mediator in this case or not since there is no supportive evidence. Studies from other contexts indicated that paternal occupations may influence adolescents' subjective well-being through work pressure and work-related stress that affect parent-child relationship and family atmospheres. A study from the US did not find direct effects of paternal occupation prestige on adolescents' psychological well-being, but it was found that work pressure might negatively affect adolescents' psychological well-being through parental role overload and parent-child conflict [42]. A study from Canada did not indicate direct effects of this type of paternal occupation on adolescents' psychological well-being either; however, it might have indirect effects through family environment, parent-child relationship, and parenting style [43]. In terms of maternal occupation, no significant associations were found in our study. This finding is in line with the studies investigating the effects of type of parental occupations on adolescents' psychological well-being in the US and Canada [42, 43]. A study conducted in the UK also found that working hours of mothers had no significant relationship with young adolescents' life satisfaction [44]. Different results were reported in young children as previous studies indicated that mothers' work had the potential to affect child development and mental well-being of children aged under 5 years old [45]. Therefore, it is possible that effects of maternal occupation on subjective well-being of children may subside when children are less dependent.

Parental occupations can play important roles on child well-being through several pathways, including material living conditions (e.g., shelter, food, health service) and psychological living conditions or family climate (e.g., quality time with family and stress from work passed on to family) [45]. The difference between the roles of paternal occupation and maternal occupation on Thai pre-teens' life satisfaction could be determined by many factors. The distinctive effects of parental occupations on family climate discovered by previous studies may explain the difference identified by our study. It was found that support from fathers varied with their employment status while support from mothers did not [46]. Also, parental role overload influenced adolescents' subjective well-being and fathers' work pressure affected both parental role overload, while mothers' work pressure affected only mothers' role overload [42]. Also, a study in the UK found that paternal involvement had a stronger effect on adolescents' subjective well-being than maternal involvement [47]. However, in different contexts and circumstances, maternal and paternal occupations may affect pre-teens' life satisfaction in different ways through different mechanisms. Therefore, more in-depth evidence from different contexts is needed to have a better understanding on the role of parental occupation on child subjective well-being.

Our study confirms the existing evidence that family life (i.e., satisfaction with family life, paternal occupation, and children autonomy) play an important role on child subjective well-being; however, the effects may vary with contexts.

4.3. School factors

Overall life satisfaction of the Thai pre-teens increased with satisfaction with friends, teachers, and activity at schools. Their overall life satisfaction also increased with school connectedness, while no association was found with academic performance. These findings are similar to the findings from the PISA 2015 survey, where negative feelings of Thai children aged 15 years old towards schoolwork and teachers were negatively associated with their overall life satisfaction, and objective academic performance had no association with the children's life satisfaction [48]. There are similarities and dissimilarities between our findings and findings from other contexts. Concerning the similarity, our findings confirm the current body of evidence that pre-teens' and adolescents' life satisfaction increased with positive feelings towards teachers [48–50], school and schoolwork [49,51], friends [51], and school connectedness in 14 out of 33 countries [48]. Also, no significant association was found between adolescents' life satisfaction and academic performance in 12 out of 33 countries [48]. In terms of dissimilarity, academic performance was found to have negative associations with adolescents' life satisfaction in 21 countries [48]. Therefore, context may play important roles in determining the association between school factors and adolescents' life satisfaction. Our findings highlight the important role of school climate on the children's subjective well-being, especially relationships with teachers and friends, school activity, and school connectedness.

4.4. Policy implication

Our findings emphasize the importance of promoting pre-teens' subjective well-being by improving the children's individual factors (i.e., self-esteem, health, social skills, and sufficient time spent on activities require physical movement and closeness with nature), family life (i.e., parental support and children autonomy that are suitable for children of different ages), and school social environments and activities (i.e., school climates and activities that make children feel accepted, valued, supported, and encouraged).

4.5. Strengths and limitations

In terms of strengths, this study provides important but scarce evidence. This is the first study presenting overall and multidimensional life satisfaction of pre-teens in Thailand —a middle-income country in Southeast Asia. This evidence is crucial for guiding strategic policy decisions regarding life aspects that need to be addressed in order to promote pre-teens well-being.

Concerning limitations, our study has some limitations that may require precautions in interpreting the results. Firstly, a self-report approach in assessing certain variables (i.e., life satisfaction, school connectedness, and social skills) may introduce social desirability bias. Secondly, the sample may not be perfectly generalizable to Thai pre-teens as a whole since simple random sampling methods were

not used at the province and the school levels. Thirdly, our study did not provide information on material items or economic constraints and this variable was not included in our regression model, which may affect the predictive power of the model.

5. Conclusions

The Thai pre-teens were satisfied to a good degree with their lives. Across different life domains, the most satisfied were "family", "health", and "school activities", while the least satisfied was "autonomy". Girls were more satisfied with their lives and different life domains (except for "autonomy") than boys. Younger children were more satisfied with their lives and different life domains (except for "autonomy", "yourself" and "friends") than older children. These findings indicate how much these life domains meet the expectations of children of different ages and genders.

The Thai pre-teens' overall life satisfaction increased with their satisfaction with family life the most, followed by friends, oneself, physical appearance, health, teacher, school activity, and autonomy. In terms of individual factors, their social skills had a positive association with their overall life satisfaction, while their age had a negative association. How they spend their time on certain activities were important for their overall life satisfaction. Activities having positive relationships with overall life satisfaction were gardening ($\geq$1 h/day) and active recreation (1–3 h/day), while activities having negative relationships with overall life satisfaction were too much time on screen (>1 h/day) and on music (>3 h/day). In terms of family factors, children having fathers owning a shop/business had overall life satisfaction higher than children having fathers who were manual workers, but children who lost their fathers had lower overall life satisfaction. Surprisingly, living with parent(s) and mothers' occupations was not associated with the children's overall life satisfaction. Concerning school factors, school connectedness had a positive relationship with their overall life satisfaction. These relationships highlight the importance of these life domains to the Thai pre-teens' subjective well-being. These life aspects should be taken into account when designing interventions for promoting subjective well-being of the children. A family- and school-based approach should be adopted to improve the children's time use (e.g., more active outdoor lifestyle and less sedentary lifestyle), self-esteem, health, autonomy, and school social environments in order to promote Thai pre-teens life satisfaction and their decent development.

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Compliance with ethical standards

Ethics approval was obtained from the Institute for the Development of Human Research Protection, COA No. IHRP021-2563 (dated March 17, 2020).

Author contribution statement

Suladda Pongutta: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper. Jongkolnee Vithayarungruangsri: Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Data availability statement

Data will be made available on request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.heliyon.2023.e15927.

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