Parental Concerns Toward Orthodontic Treatment In Adolescents: A Cross-Sectional Study In The Siam Square Area, Bangkok

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Keywords:
Orthodontic anxiety, Parental perception, Socioecono mic factors, Adolescent oral health, Maternal influence.

Abstract
Parental concern plays a crucial role in decisions about adolescent orthodontic treatment, yet limited research has explored this issue in affluent, urban contexts. This study investigated the patterns and predictors of concern among 118 parents of secondary school students in Bangkok's Siam Square area. Using a structured questionnaire, we found that 77.6% of parents from households earning 100,000–200,000 THB per month expressed significant worry about orthodontic care, especially those with younger children in lower secondary levels. Concerns were most prevalent among parents with a bachelor's degree, and mothers reported higher levels of anxiety than fathers, representing the majority of respondents. These findings suggest that income, educational background, and maternal involvement are key factors influencing orthodontic-related apprehension. Understanding these dynamics is essential for orthodontic professionals aiming to foster informed, confident decision-making through targeted education and communication strategies.

1. Introduction

Orthodontic treatment has become increasingly common among adolescents worldwide, driven by both functional and aesthetic considerations. While the clinical benefits of orthodontics are well documented—ranging from improved occlusion and oral health to enhanced self-esteem—treatment decisions during adolescence are rarely made by patients alone. Parents, as the primary decision-makers and financial providers, play a central role in initiating and maintaining orthodontic care for their children (Inglehart et al., 2009; Uribe et al., 2014).

Despite its growing popularity, orthodontic treatment remains a source of concern for many parents. These concerns span multiple dimensions, including the financial burden, perceived medical risks, treatment duration, and uncertainty about necessity, particularly when treatment is sought for cosmetic rather than functional reasons (Pachêco-Pereira et al., 2015; Liu & Li, 2024). Importantly, such anxieties may be amplified in urban, high-income areas where social and aesthetic expectations are elevated, yet little empirical research has focused on these settings.

Sociodemographic factors—such as income, parental education, and gender roles—also appear to shape parental attitudes. For instance, mothers have been shown to express greater concern than fathers, likely reflecting their stronger involvement in healthcare decisions (Tung & Kiyak, 1998). Additionally, parents with higher educational attainment may be more critical of treatment recommendations and more attentive to potential risks, thus experiencing heightened anxiety (Liu & Li, 2024).

In Thailand, particularly in Bangkok's Siam Square area—a commercial and educational hub populated by middle- and upper-income families—demand for orthodontic care among adolescents is visibly high. Yet, to date, no study has investigated how parents in this demographic perceive and respond to the prospect of their children undergoing orthodontic treatment.

This study aims to fill that gap by exploring the level and patterns of parental concern regarding orthodontic care among parents of secondary school students in Siam Square. It further examines how such concerns are influenced by key variables such as household income, parental education, student grade level, and parental gender. The findings offer insights that may help orthodontic professionals develop more responsive and family-centered care strategies.

2. Literature Review

2.1 Parental Roles in Orthodontic Decision-Making

Parental influence is central to adolescent orthodontic decisions, especially during the early teenage years when self-care and long-term health foresight are still developing. Studies consistently highlight that parents not only finance treatment but also act as primary gatekeepers in evaluating its necessity and timing (Inglehart et al., 2009). According to Daniels et al. (2009), over 90% of parents report esthetic concerns—particularly dental crowding and overjet—as a major driver for seeking orthodontic care for their children. This reveals that the perceived need is often socially influenced rather than clinically grounded.

2.2 Domains of Parental Concern: Financial, Health, and Aesthetic

Parental concerns typically fall into three domains: financial burden, treatment safety, and perceived value. A study by Uribe et al. (2014) showed that even high-income families expressed reservations about the duration and cost-effectiveness of treatment, especially when adjunctive acceleration techniques were proposed. Similarly, Liu & Li (2024) identified apprehension about the long-term stability of outcomes and side effects (e.g., root resorption or enamel damage) among better-educated parents. These concerns are compounded in settings where aesthetic enhancement is a driving factor but clinical necessity is unclear.

2.3 Influence of Parental Education and Socioeconomic Status

Socioeconomic variables significantly mediate attitudes toward orthodontics. Pachêco-Pereira et al. (2015) found that parents with higher educational attainment were more likely to critically question treatment protocols and seek second opinions, especially if the proposed plan prioritized aesthetics. Carneiro et al. (2022) further demonstrated that higher-income parents with children in early adolescence (mixed dentition phase) expressed disproportionate concern regarding the right timing of intervention. These studies suggest that informed parents often experience greater anxiety due to access to conflicting or overly technical information.

2.4 Maternal Concern and Gender Disparities

The gender of the responding parent also appears to influence the level and type of concern expressed. In a longitudinal study, Tung & Kiyak (1998) observed that mothers exhibited higher anxiety and emotional investment in treatment planning compared to fathers. This pattern was attributed to the maternal role in health-related decision-making, particularly in Southeast Asian and Latin cultural contexts where caregiving responsibilities are often disproportionately maternal.

2.5 Cultural and Urban Contexts in Orthodontic Expectations

In urban centers like Bangkok, particularly high-income districts such as Siam Square, orthodontics has become closely associated with social identity and educational peer norms. Javidi et al. (2017) emphasized that in such environments, orthodontic demand may stem less from oral health needs and more from

psychosocial expectations, making parental concern more emotionally charged. However, research specifically targeting Southeast Asian urban populations remains limited, underscoring the need for context-sensitive investigations like the present study.

3. Methodology

3.1 Study Design

This study employed a cross-sectional quantitative research design to explore the level of parental concern toward orthodontic treatment among secondary school students in the Siam Square area of Bangkok. The design was selected to allow the capture of attitudes and patterns at a single point in time using standardized measurement tools.

3.2 Population and Sample

The target population consisted of parents of students enrolled in secondary education (grades 7 to 12) attending schools in the Siam Square area—a central, high-income urban district. Using the Slovin formula with an assumed population size (N) of approximately 2,000 and a 95% confidence level (e = 0.05), the minimum required sample size was estimated at 334 participants. However, due to practical limitations, a final sample of 118 respondents was collected, which provides reasonable statistical power for exploratory analysis.

3.3 Sampling Method

Participants were selected through purposive sampling, focusing on parents who had adolescent children attending schools in the Siam Square area and who consented to participate. Recruitment was facilitated through school networks and community-based parent groups.

3.4 Research Instrument

Data were collected using a structured questionnaire divided into three sections:

1. **Demographic information**: including parent gender, education level, household income, and student grade level.
2. **Parental concern scale**: a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) assessing concerns across three domains:

   Financial (e.g., cost burden, affordability)

   Health-related (e.g., long-term side effects, safety of procedures)

   Psychological/aesthetic (e.g., necessity vs. appearance, social pressure)
3. **Open-ended question**: inviting participants to share further thoughts or experiences regarding orthodontic treatment.

The instrument was validated by a panel of dental and behavioral science experts, and pilot-tested with 15 participants. Internal consistency was confirmed with a Cronbach's alpha of 0.82.

3.5 Data Collection Procedure

Data were collected over a 4-week period using both printed questionnaires distributed via schools and an online version shared through secure parent-teacher networks. All participants provided informed consent, and the study adhered to ethical standards set by the institutional research ethics board.

3.6 Data Analysis

Quantitative data were analyzed using SPSS (version 26).

- Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize parental concern levels and demographic information.
- Inferential statistics were applied to examine relationships between variables:

  Independent-samples t-tests were used to compare concern levels between mothers and fathers.

  One-way ANOVA tested concern across different education levels and grade groups.

  Chi-square tests explored associations between income levels and concern prevalence.

Statistical significance was determined at $p < 0.05$.

4. Results

4.1 Participant Demographics

A total of 118 parents of secondary school students (Grades 7–12) from schools in the Siam Square area participated in the study. The majority of respondents were mothers (66.9%, n=79), while fathers represented 33.1% (n=39). Most participants held a Bachelor's degree (53.4%), and 41.5% of the families reported a monthly income between 100,000–200,000 THB. In terms of student distribution, 55.1% were in lower secondary (Grades 7–9) and 44.9% in upper secondary (Grades 10–12).

Table 1: Demographic Profile

Variable	Frequency	Percentage
Gender (n=118)		
Male	39	33.1
Female	79	66.9
Education Level		
Below Bachelor's	25	21.2
Bachelor's	63	53.4
Above Bachelor's	30	25.4
Household Income (THB/month)		
<100,000	32	27.1
100,000–200,000	49	41.5
>200,000	37	31.4
Student Grade Level		
Grades 7–9	65	55.1
Grades 10–12	53	44.9

4.2 Overall Parental Concern

Out of 118 participants, 83 parents (70.3%) expressed moderate to high concern regarding orthodontic treatment for their children. Primary reasons included financial costs, potential discomfort or harm, and peer-related aesthetic pressure. Concern was more prominent among families with younger adolescents and middle-income brackets.

4.3 Concern by Demographic Group

A breakdown of concern levels by demographic group revealed notable trends:

Among families earning 100,000–200,000 THB, 77.6% (n=38) expressed concern.

Parents with Bachelor's degrees showed the highest concern (71.4%, n=45) among education levels.

Concern was more prevalent among parents of students in lower secondary (Grades 7–9) than in upper secondary.

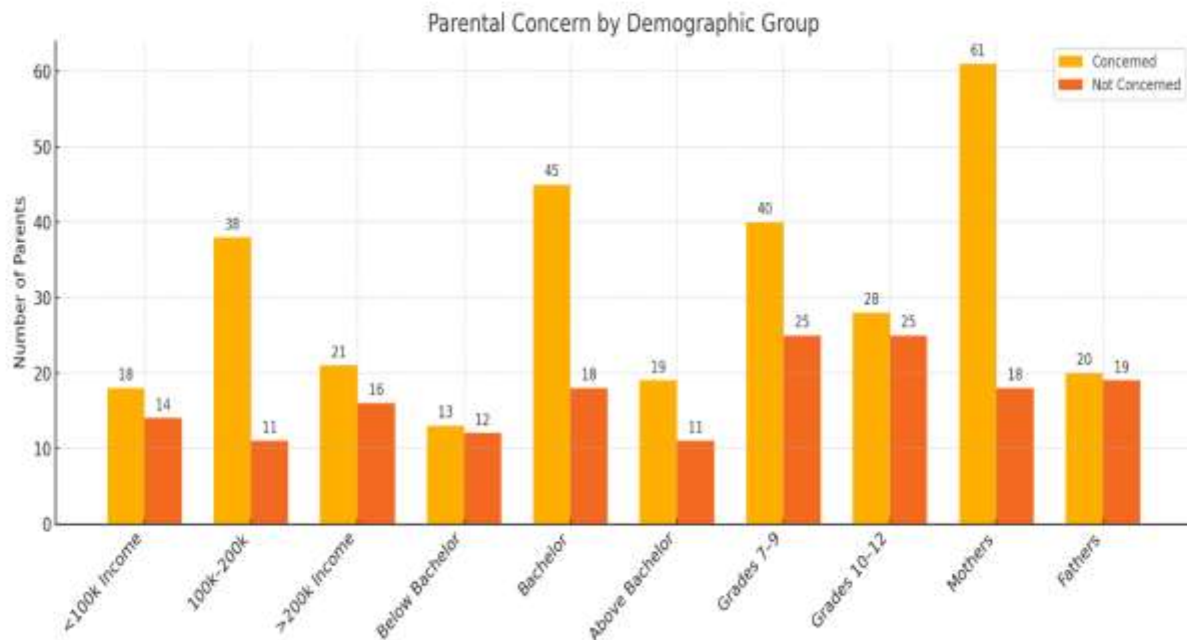
Mothers reported significantly higher concern than fathers, with 77.2% of mothers indicating concern versus 51.3% of fathers.

Table 2: Complete Comparison of Concern Levels

Group	Frequency	Percentage
Income: <100,000 THB (n=32)		
Concerned	18	56.2
Not Concerned	14	43.8
Income: 100,000–200,000 THB (n=49)		
Concerned	38	77.6
Not Concerned	11	22.4
Income: >200,000 THB (n=37)		
Concerned	21	56.8
Not Concerned	16	43.2
Education: Below Bachelor's (n=25)		
Concerned	13	52.0
Not Concerned	12	48.0
Education: Bachelor's (n=63)		
Concerned	45	71.4
Not Concerned	18	28.6
Education: Above Bachelor's (n=30)		
Concerned	19	63.3

Not Concerned	11	36.7
Student Level: Grades 7–9 (n=65)		
Concerned	40	61.5
Not Concerned	25	38.5
Student Level: Grades 10–12 (n=53)		
Concerned	28	52.8
Not Concerned	25	47.2
Parent Gender: Mothers (n=79)		
Concerned	61	77.2
Not Concerned	18	22.8
Parent Gender: Fathers (n=39)		
Concerned	20	51.3
Not Concerned	19	48.7

Figure1: Parental Concern by Demographic Group



4.4 Inferential Statistics

4.4.1 Chi-square Test Results

To test associations between parental concern and demographic variables, chi-square tests were conducted. Results are summarized in Table 3.

Table 3: Inferential Statistics: Chi-square Test Results

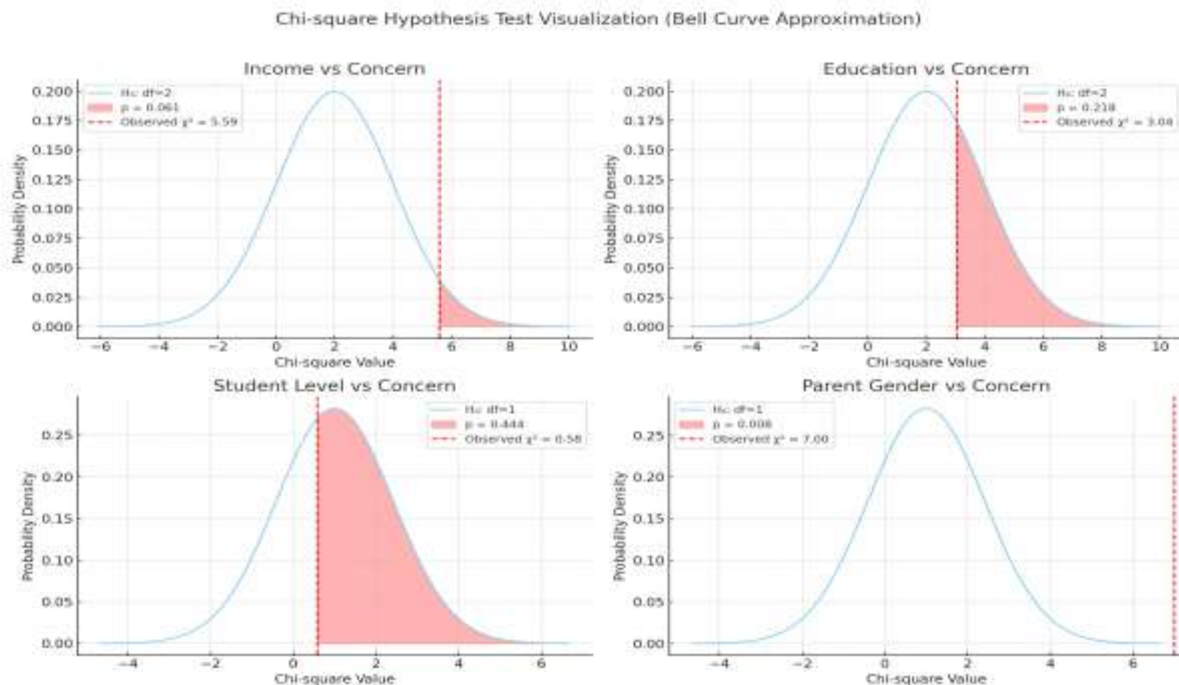
Comparison	Chi-square Value	p-value	Degrees of Freedom	Statistical Significance
Income vs Concern	5.591	0.061	2	Not Significant
Education vs Concern	3.045	0.218	2	Not Significant
Student Level vs Concern	0.585	0.444	1	Not Significant
Parent Gender vs Concern	6.998	0.008	1	Significant ($p < 0.05$)

Only parent gender showed a statistically significant association with concern level ($p = 0.008$), indicating that mothers were significantly more concerned than fathers about orthodontic treatment.

4.5 Visualization of Hypothesis Testing

To illustrate the statistical distributions, chi-square hypothesis test curves were plotted using normal approximations. As shown in Figure 1, only the gender comparison had an observed χ^2 value that fell into the critical rejection region of the distribution.

Figure2: Chi-square Hypothesis Test



This figure presents bell curve approximations of the chi-square distributions under the null hypothesis for four demographic comparisons. Areas in red indicate where the observed chi-square values fall, corresponding to their respective p-values.

5. Discussion

The findings of this study highlight the presence of substantial parental concern toward orthodontic treatment among parents of secondary school students in the Siam Square area. Overall, 70.3% of parents reported being moderately to highly concerned, indicating a heightened sensitivity in this urban and socioeconomically diverse setting.

5.1 Financial and Educational Influences on Concern

Consistent with earlier studies (Pachêco-Pereira et al., 2015; Uribe et al., 2014), financial burden emerged as a common theme. Parents with household incomes in the middle-income range (100,000–200,000 THB) demonstrated the highest proportion of concern (77.6%). This aligns with findings by Tung and Kiyak (1998), who suggested that middle-income families often experience tension between affordability and aspiration, particularly in environments with strong social visibility.

Surprisingly, however, the chi-square analysis found no statistically significant relationship between income level and parental concern ($p = 0.061$). One possible explanation is that orthodontic care, although perceived as costly, is widely accepted across income levels as a necessary health and aesthetic investment. Similarly, while parents with bachelor's degrees had higher levels of concern than other educational groups, the relationship was not statistically significant ($p = 0.218$), contrasting with some earlier literature suggesting that higher education correlates with greater awareness and anxiety regarding healthcare choices (Liu & Li, 2024).

5.2 Student Grade and Parental Sensitivity

Parents of students in lower secondary (Grades 7–9) showed more concern compared to those with older children. Although the difference was not statistically significant ($p = 0.444$), it reflects developmental patterns noted in earlier studies, where earlier adolescence is considered a critical period for physical appearance and peer comparison (Inglehart et al., 2009). Parents may perceive early orthodontic intervention as a preventive or social measure.

5.3 Gender-Based Differences in Concern

The most significant finding was the role of parent gender in predicting concern. Mothers were significantly more concerned than fathers ($\chi^2 = 6.998$, $p = 0.008$), consistent with the literature that identifies mothers as more engaged in day-to-day healthcare decisions (Tung & Kiyak, 1998). This gendered trend may be driven by a combination of societal roles, emotional attachment, and caregiving responsibilities, which disproportionately fall on mothers in many Asian contexts, including Thailand.

5.4 Implications for Orthodontic Practice

These findings offer practical implications for orthodontists and dental professionals working with adolescents. Understanding that parental concern is not uniform across demographic groups—and that mothers in particular may be more emotionally involved—can guide more empathetic and tailored communication strategies. Clinics may consider offering informational sessions that address common anxieties, especially around safety, cost, and necessity, to improve satisfaction and adherence to treatment plans.

6. Conclusion and Recommendations

6.1 Conclusion

This study investigated the levels and determinants of parental concern regarding orthodontic treatment for secondary school students in the Siam Square area of Bangkok. Based on responses from 118 parents, the findings revealed that a majority (70.3%) expressed concern about orthodontic treatment for their children. The data suggest that concern is influenced by various demographic factors, particularly parental gender, with mothers showing significantly higher levels of concern than fathers ($p = 0.008$). Although parents in the 100,000–200,000 THB income bracket and those with Bachelor's degrees appeared more concerned, these relationships were not statistically significant.

The study contributes to the understanding that orthodontic treatment decisions in adolescents are not solely clinical, but are embedded in the socioeconomic, emotional, and cultural context of the family. Notably, the concern was especially prominent among parents of younger adolescents (Grades 7–9), likely due to aesthetic and developmental factors.

6.2 Recommendations

6.2.1 Academic Recommendations

1. Future research should consider qualitative methodologies to explore the psychological underpinnings and emotional responses of parents toward orthodontic treatment.
2. Longitudinal studies are recommended to examine how parental concerns evolve across different stages of adolescence and post-treatment outcomes.
3. Further studies could investigate additional factors such as social media influence, peer pressure, and cultural attitudes toward dental aesthetics.

6.2.2 Practical Recommendations

1. Dental clinics and orthodontic providers should implement family-centered consultation strategies, with special attention to mothers' concerns and emotional decision-making patterns.
2. Provide clear, evidence-based educational materials on cost, treatment safety, and medical necessity to address both rational and emotional concerns.
3. Schools and public health sectors in urban areas like Siam Square could initiate school-based dental education campaigns to promote awareness and reduce anxiety related to orthodontic care.

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