



The influence of the low birthrate on Taiwan's preschool enrollment and strategies implemented to cope with this influence

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ABSTRACT

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Keywords

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This study explored the influence of the low birthrate in Taiwan on preschool enrollment and the preschools' strategies for coping with this influence. The researchers developed a questionnaire: Influence of Taiwan's declining birthrate on preschool enrollment. This questionnaire was administered along with the coping orientation to problems experienced scale to randomly sampled preschool teachers. The findings revealed that (1) the low birthrate has considerably affected Taiwanese preschool enrollment. Most preschools face insufficient enrollment, enrollment difficulties, increased marketing costs and (2) the influence of the low birthrate. Taiwanese preschools should increase their investment in improving their learning environments and equipment, software and hardware facilities and teaching quality and should establish characteristics specific to the preschool to improve recruitment. The findings of this study indicate that preschools should (1) increase their income and reduce their expenditures. (2) Strengthen their integrated marketing and focus on brand and word-of-mouth marketing. (3) Conduct internal and external evaluations of their service quality. (4) Consistently improve the professional quality of their teachers and childcare personnel, implement curriculum innovation and (5) improve their competitiveness in the market. This study presents this overview to clarify the necessity of this study and how this study can contribute to the academic understanding of this topic.

Contribution/Originality: This paper contributes to understanding the influence of the low birthrate in Taiwan on preschool enrollment and the preschools' strategies for coping with this influence.

1. INTRODUCTION

The population crisis caused by a decline in fertility and the number of births has been extensively discussed in Taiwan for more than 10 years. Taiwan's low birth rate has become a crucial topic. The National Security Report listed several demographic changes such as a declining birthrate, aging and an increase in the number of foreign spouses. According to the latest population estimation report by the National Development Council, the rate of decline in the fertility rate has increased. In 2025, the country will enter a "super-aged society". The working-age population will account for less than two-thirds of the total population in 2028. The decline and the problem of low

birthrates are becoming more serious (Yang, 2019). The problem of Yang (2019) low birthrate has far-reaching consequences. At present, the number of classes in schools has decreased. Teachers are worried that their right to work will not be guaranteed. Some counties and cities have called for reducing classes but not teachers, just to solve the problem of excess teachers. Private schools are also facing difficulties in recruiting students. The collapse has had an impact on the front line of education (National Development Council, 2022; Yang, 2019). The causes of the population issue and the impetus for the government's prompt action started in 2009. The government of Taiwan has taken progressively more severe measures to address the decreasing birthrate. These initiatives include paid parental leave, maternity subsidies, childcare allowances and private care. However, the total fertility rate has continued to decline which has led the general public to believe that these policies are insufficient. The declining birthrate in Taiwan has exacerbated problems related to a decline in school enrollment (Cheng, 2021; Hsu & Sun, 2018; Wang, 2006).

The first influence of the low birthrate is preschool education as evidenced by the lack of enrollment in preschools in Taiwan. In most preschools in Taiwan, both the number of enrolled students and the number of classes have decreased in the past 10 years. This has considerably affected private preschools. Enrollment is key to the survival of preschools. Therefore, preschools are frequently required to compete for enrollment (Cheng, 2021; Wang, 2006). The present study explored the impact of the decrease in the overall population of young children on preschools in 2022 and the enrollment-related coping strategies preschools adopted in response to this impact. The state of these concerns in Taiwan in 2022 has not yet been discussed by researchers. The present study first clarifies this gap in the literature by presenting an overview of the underlying problems. The new insight this study may offer is why Taiwan has a low birthrate and how, when and why preschools affected by the low birthrate in Taiwan should improve enrollment through investment in improving their learning environments and equipment, software and hardware facilities, teaching quality and the establishment of characteristics specific to the preschool. This study presents this overview to clarify the necessity of this study and how this study can contribute to the academic understanding of this topic.

This study distributed questionnaires (see Appendix A) to preschool teachers to obtain data to answer the following research questions:

- (1) What is the influence of the low birthrate on Taiwan's preschool enrollment?
- (2) How do Taiwanese preschools adapt to the lower enrollment resulting from the low birthrate?

2. RELEVANT TOPICS

2.1. Low Birthrates are a Global Social Problem

Declining birthrates occur in societies in which the fertility rate is decreasing. Older adults comprise 7% of the population (Legislative, 2022) which results in a gradual decrease in the proportion of younger individuals. In a society with a declining birthrate, the working population is likely to gradually decrease over time which can considerably affect the social structure, economic development, national defense and security of the country. If the rate of population growth in the younger generation is considerably lower than the rate of natural death in the previous generation, under population can occur. Low birthrates are a serious concern in many countries, particularly developed countries. The fertility and death rates in developed countries are generally low such countries are likely to have a higher population of older adults to experience population aging. Therefore, in such situations, the terms low birthrate and population aging are often used to discuss two aspects of the same phenomenon and are often combined to form a single term (i.e., low birthrate and population aging). Economic diversification has improved the standard of living in several developing countries which has led such countries to approach the level of low birthrates, population aging or both phenomena as in developed countries. Low birthrates have become a global social problem (Legislative, 2022; Nargund, 2009; Yang, 2019).

2.2. Current State of Taiwan's Fertility Rate

During Taiwan's postwar baby boom, the birthrate rose rapidly to an average of 7.04 newborns per woman (Legislative, 2022) which resulted in rapid population growth. The country experienced its highest ever fertility rate and natural population growth. The government launched a family planning strategy in 1964 under the slogan "implement family planning to promote happiness" to encourage families to implement birth control measures to ease population growth. The Taiwan District Family Plan Implementation Measures and the Population Policy Program of the Republic of China which were respectively launched in 1968 and 1967 incorporated family planning into the law and established government financial support for such planning. A population policy committee was formed in the ministry of the interior to improve the quality of the population and achieve reasonable population growth through education and population control. Taiwan experienced a demographic shift during the past thirty years as a result of social and economic upheavals, extensive family planning advocacy and population policy promotion. Although this demographic transformation was extremely slow, it eventually led to a fertility crisis. By 1984, Taiwan's total fertility rate was lower than the population replacement level of 2.1 (Legislative, 2022; Yang, 2019). The fertility rates in numerous other countries have also exhibited a downward trend indicating that these countries face the problem of low fertility rates. Taiwan is also facing an ultralow-fertility crisis. In 2010, the birthrate in Taiwan was 0.895 (Legislative, 2022) the lowest in history. The fertility rate was less than one child per couple in a lifetime. In recent years, the government's active efforts towards increasing the birthrate have led to a slight increase in the country's fertility rate. Nevertheless, the fertility rate in Taiwan remains one of the lowest in the world (Legislative, 2022; Ministry of The Interior, 2022).

In 2021, the American Central Intelligence Agency released a global total fertility rate forecast report in which the average number of children born per woman at gestational age in various countries and regions was evaluated and compared. Taiwan's fertility rate was ranked the lowest with a predicted fertility rate of 1.07 (BBC NEWS, 2022; Ministry of The Interior, 2022).

The declining fertility rate has rendered the declining birthrate and population aging in Taiwan more notable. These changes are likely to have numerous effects including a reduction in manpower in the labor market, a weakening of family care functions, a heavier burden of older adult care and a decrease in the number of taxpayers. Government funding and the education system have been negatively influenced by these changes and schools are facing insufficient enrollment (Ministry of The Interior, 2022; National Development Council, 2013).

2.3. Reasons for Taiwan's Low Birthrate

Many young couples in Taiwan choose not to have children or to have fewer children to reduce their economic burden. In addition to the drop in the birthrate, preschools are required to face parents from different generations. Preschools must face the important perspectives on workplace relationships in Taiwan's preschools which initially resulted in an enrollment shortage and then evolved into operating pressure. The low birthrate in Taiwan has profoundly affected preschool enrollment as indicated by the aforementioned information (Lin, 2021; Rao, 2022).

The low birthrate in Taiwan has seriously affected preschool enrollment. This study compiled findings on the topic regarding the reasons for the low birthrate in Taiwan (BBC NEWS, 2022; Jan, 2009; Legislative, 2022; Lin, 2021).

2.3.1. Low Wages and High Housing Prices

Taiwan's declining birthrate has severely affected its economic environment. According to the statistics of the World Population Review, the number of new births in Taiwan is the lowest in the world. Experts have reported that the stagnant low-wage environment and rising housing prices in the country have led to young Taiwanese people being afraid to have children and being unable to support them. In addition, a high financial burden resulting from low wages and high housing prices has led most young people to marry later in life. Many people in Taiwan

do not get married until they are in their 30s and after they reach the age of 35, their willingness to have children decreases. Research indicates that low wages and high housing prices are not the major reasons for the low birthrate. The main reason is high pressure and an unwillingness to marry among younger adults. These factors affect the birthrate in that they increase the complexity of fertility decisions. In Chinese-derived cultures, decisions related to marriage and childbirth is the most crucial in life because of such cultures' complex social structures and social governance systems. People's career development, childcare costs, education costs and cultural concepts are as important as the observable, key constraints of housing prices and low wages (Cheng, 2021; National Development Council, 2022; Shih, 2022a; Shih, 2022b; Shih, 2024; Shih & Chang, 2023).

2.3.2. Changing Perspectives on Raising Children to Take Care of Older Individuals

An increasing number of parents no longer subscribe to the belief common in Asian cultures that children should be raised to take care of them when they are older. Instead, once they reach middle age, they are eager to pursue a second life. In addition, many couples take the initiative to develop a plan for their future and voluntarily move into nursing homes rather than living with their children. The long-standing notion that children should be raised to take care of elders has steadily lost traction in Taiwanese social standards due to shifts in the country's beliefs. Many parents in Taiwan are cared for by caregivers instead of their own children when they reach old age after spending most of their lives taking care of children. This leads people to feel unsettled and some to decide not to have children at all. This has contributed to the decline in the birthrate in Taiwan (Cheng & Loichinger, 2017; Jan, 2009; National Development Council, 2022).

2.3.3. Increase in Female Employment Rate

Education is widely held to be a key determinant of fertility. Increases in women's enrollment in higher education and female employment rates in Taiwan have contributed to the decline in the fertility rate and have led women to have less time for raising children. In addition, female participation rates in the workforce are one of the key factors that affect childcare services and the development of ECEC policies. Women's conceptualization of family life differs from the traditional understanding of having a spouse and child. They expect their family life to leave room for them to establish a career. This has contributed to the declining birthrate in Taiwan (Chiu & Wei, 2011; Jan, 2009; Lin, 2021; McCrary & Royer, 2011; National Development Council, 2022).

In Taiwan, the female employment rate is about 50% and the average total number of children per woman is only 1.2. This number is very low compared to Taiwan and South Korea. It has been widely argued that there is no strong relationship between the female employee rate and the birth rate. Iceland has a female employment rate of more than 86% and a total fertility rate of about 1.8 compared with Sweden's female employment rate of more than 80% and a total fertility rate of more than 1.9.

2.3.4. Insufficient Government Incentives to Encourage Having Children

The government has introduced numerous measures to encourage having children including the issuance of childbirth allowances, childcare expense subsidies and marriage subsidies. However, the effects of these incentives have been unsatisfactory. Taiwan launched new fertility encouragement measures that expanded subsidy targets for infertility treatment and in vitro artificial fertilization and canceled what was often referred to as the "rich exclusion clause." In addition, married women are able to apply for infertility treatment benefits under the new measures (BBC NEWS, 2022; Jan, 2009; Lin, 2021; National Development Council, 2022).

2.4. Studies on the Effects of the Low Birthrate in Taiwan on Preschool Enrollment from 2016 to 2022

Jan (2009) discovered that the low birthrate in Taiwan had the following effects on preschool admissions: (1) insufficient student resources and increased competition for admissions among preschools. (2) Parents developing

higher standards related to the size, facilities and educational quality of preschools and (3) insufficient enrollment and a waste of resources resulting in the deterioration of the financial situation of the preschools. Numerous researchers have reported that a low birthrate can lead to an increase in marketing expenses, an increase in enrollment difficulty and a decline in the enrollment rate of preschools. Furthermore, the low birthrate has led to most preschools having insufficient students and parents being left with an increasing number of options for choosing preschools which has caused them to develop higher standards related to the quality of preschool education and preschool facilities (Lin, 2007; Lin, 2021).

Lin (2007) reported that preschool marketing must incorporate numerous social characteristics to achieve marketing that targets both families and young children. Preschool marketing should involve effective market communication and advertising, parent- and child-oriented marketing strategies and an emphasis on parent and child experiences. Preschools are required to upgrade their software facilities, enhance teachers, students' and parents' teaching experiences and design diverse and innovative courses that integrate social educational resources to achieve positive word of mouth. The low birthrate has considerably influenced preschool operations and has led to changes in the demographic structure of the Taiwanese population which has resulted in a reduction in the student population and changes in class structures, enrollment and marketing methods. Private preschools do not have the support of government funds, have experienced reduced class sizes and have reduced scale of operations and their expenses to ensure that they can continue running normally with the increase in the difficulty of enrolling students and the decrease in the number of students. Furthermore, the low birthrate has caused preschools to face unprecedented business problems and competition in enrollment which has considerably increased the difficulty and cost of enrollment (Lin, 2007).

The National Digital Library of Theses and Dissertations and the NCL (National Central Library) Taiwan Periodical Literature database were used to analyze dissertations and journal articles on the effects of the low birthrate in Taiwan on preschool enrollment from 2016 to 2022. The researchers used keywords such as low birthrate and preschool enrollment to obtain the results presented in Table 1.

Table 1. Studies on the effects of the low birthrate in Taiwan on preschool enrollment from 2016 to 2022.

Author	Year	Paper title	Research method	Study content
Yang (2016)	2016	Research on strategies of preschools responding to low fertility. The examples of five preschools in Changhua.	Case study	This study analyzed the strategies preschools employed in response to the low fertility rate. The strategies included improving developmental features, environmental equipment planning, improving teachers' professional development, improving curriculum and instruction design, ensuring cooperation between parents and teachers, employing an admissions promotion model and community resource linking.
Chen (2017)	2017	Research on the business model innovation and flip of preschool in sub-replacement fertility.	Survey study	This study proposed that preschools seeking to transform should employ the following business models: (a) models using the Internet to match teachers with several short-term, necessary services such as home-care, pickup, babysitting and extracurricular activity-related services and (b) models that provide physical childcare-related consultation services such as parent education, child development and learning, and inter preschool interaction.
Tan (2020)	2020	Preschool's strategy for responding to the	Case study	This study analyzed resource integration and the strategic alliances, solidarity and

Author	Year	Paper title	Research method	Study content
		phenomenon of birthrate.		competitiveness of clustered organizations that preschools employ to cope with the influence of the low birthrate on enrollment.
Dai (2020)	2020	A case study on the key factors contributing to the success of private preschool operators under the declination of children. A case study of a kindergarten in Taoyuan city.	Case study	This study identified the key external factor for the success of preschool operations as high operational performance. The key internal factor was determined to be shifting the focus of marketing.
Cheng (2020)	2020	Business strategy of preschools to low birth rate: An example of a public preschool in New Taipei city.	Case study	The results of this study indicated the following business strategies in response to the low birthrate: (a) increasing the diversity of courses, (b) improving interpersonal interactions and (c) improving the functionality of environmental equipment.

Source: Chen (2017); Cheng (2020); Dai (2020); Tan (2020) and Yang (2016).

These studies have provided evidence of the effects of the low birthrate in Taiwan on preschool enrollment from 2016 to 2022.

3. RESEARCH DESIGN

3.1. Research Tools

This study conducted a survey among Taiwanese preschool teachers by using the self-developed impact of Taiwan's declining birthrate on preschools questionnaire with the Coping Orientation to Problems Experienced (COPE) scale. The COPE scale is a 28-item self-report questionnaire designed to measure effective and ineffective methods used to cope with stressful problems. In the present study, the brief COPE was used to measure coping methods employed in response to the impact of the declining birthrate on preschool enrollment.

The online questionnaire developed with reference to Murayama (2004) and Li, Liu, and Li (2012) was used to collect data from 167 participants in 25 randomly selected preschools.

The random sampling method was employed to randomly select 25 preschools. The management of these preschools was contacted and we requested to be allowed to join the parent social network group of each class. We periodically sent online questionnaires to the parents of students in different classes at different preschools and randomly collected data. When a sufficient number of valid samples were obtained, no further invitations to complete the questionnaire were sent.

3.2. Data Collection

The questionnaire consisted of three parts. The first was used to collect the participants' background information, including their job responsibilities, the number of employees in the preschool, the preschool's startup capital and the number of children enrolled in the preschool in the current year. The second part was used to determine whether the declining number of births led to lower enrollment. The third part was used to investigate the methods the preschools adopted to cope with the influence of the lower birthrate on student enrollment. The items in the second and third parts of the questionnaire were rated on a Likert scale.

3.3. Data Analysis

The Statistical Package for Social Science (SPSS) will be applied for the major data analysis method. The data gathered from the online survey were analyzed in Statistical Product and Service Solutions (SPSS) by using descriptive statistics and variance analysis. The basic characteristics of the respondents were obtained. The results

are presented as frequencies and percentages to explore the coping strategies that the preschools employed when faced with student enrollment problems. Descriptive analysis was used to determine the influence of the lower birthrate on preschool enrollment. The results are presented as means and standard deviations. One-way multivariate analysis of variance (MANOVA) was used to determine the influence of the lower birthrate on preschool enrollment in preschools with different enrollment systems and to identify differences in the preschools' coping strategies (Cohen, 1998).

4. RESULTS AND DISCUSSION

4.1. Reliability and Validity

The internal consistency of the questionnaire was determined by analyzing the response data to ensure the reliability and validity of the study results (Cohen, 1998). A Cronbach's alpha of 0.822 was obtained for the developed questionnaire indicating that it had favorable internal consistency and reliability. The COPE scale had a Cronbach's alpha of 0.911 which indicates that it had favorable internal consistency and reliability.

According to Widaman (2007) exploratory factor analysis (EFA) can be applied when the number of variables is unknown and the relationships between variables are unclear. By contrast, confirmatory factor analysis can be employed to verify a suspected relationship structure between variables. An analysis of our data set indicated EFA to be suitable for our study.

The construct validity of the developed questionnaire was then determined by analyzing the questionnaire items. Items that were determined to be inappropriate were removed. The Kaiser–Meyer–Olkin (KMO) value was 0.812 and the results of the Bartlett's test for sphericity were significant (double value: 521051; $p \leq 0.001$). Four dimensions were identified through the analyses. The total explained variance was 64.700% indicating that the questionnaire had favorable internal consistency. After the COPE scale construct validity was determined, all items were reviewed and the items that were not applicable were removed. The KMO value was 0.834 and the results of the Bartlett's test for sphericity were significant (double value: 774.361; $p \leq 0.001$) which indicates that the items are suitable for factor analysis. Dimensional factors were extracted through the analysis. The total explained variance was 76.721%. The analytical results indicate that the questionnaire had favorable internal consistency (Cohen, 1998).

4.2. Descriptive Statistics

According to Table 2, 39% of the respondents were aged between 41 and 50 years. This was the largest age group. Only 17 (10%) respondents were aged 51 or older. The sex distribution of the respondents is presented in Table 3.

Table 2. Age distribution of respondents.

Age range	Number	Percentage
22–30	30	18%
31–40	55	33%
41–50	65	39%
51+	17	10%
Total	167	100%

Table 3. Sex distribution of respondents.

Sex	Frequency	Percentage	Effective percentage
Male	3	1.8	1.8
Female	164	98.2	98.2
Total	167	100.0	100.0

Table 4. Years of running and managing a preschool.

Years	Frequency	Percentage	Effective percentage
<1 year	21	12.6	12.6
1–2 years	19	11.4	11.4
3–5 years	32	19.2	19.2
6–10 years	27	16.2	16.2
11–20 years	38	22.8	22.8
>20 years	30	18.0	18.0
Total	167	100.0	100.0

Most respondents had worked in a preschool for 11–20 or for 3–5 years (see Table 4). In terms of enrollment, 35.9% of the respondents faced student shortages and 54.5% reported having hit their enrollment targets (see Table 5).

Table 5. Current year preschool enrollment.

Enrollment	Frequency	Percentage	Effective percentage
Shortage	60	35.9	35.9
Excess	16	9.6	9.6
Met target	91	54.5	54.5
Total	167	100.0	100.0

Table 6. Opinion distribution: The lower birthrate has led to student shortages in preschools.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	10	6.0	6.0
Disagree	27	16.2	16.2
Neutral	61	36.5	36.5
Agree	46	27.5	27.5
Strongly agree	23	13.8	13.8
Total	167	100.0	100.0

According to the data presented in Table 6, 41.3% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to student recruitment challenges for preschools.

Table 7. Opinion distribution: The lower birthrate has led to student recruitment challenges for preschools.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	12	7.2	7.2
Disagree	27	16.2	16.2
Neutral	57	34.1	34.1
Agree	49	29.3	29.3
Strongly agree	22	13.2	13.2
Total	167	100.0	100.0

The investigation of the respondents' opinions regarding the causation between the lower birthrate and preschools' challenges related to hitting enrollment targets revealed that 42.5% of the respondents agreed that the lower birthrate has increased the difficulty of preschools in meeting their recruitment targets (see Table 7).

Table 8. Opinion distribution: The lower birthrate has made it more difficult for preschools to meet their recruitment targets.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	14	8.4	8.4
Disagree	28	16.8	16.8
Neutral	49	29.3	29.3
Agree	59	35.3	35.3
Strongly agree	17	10.2	10.2
Total	167	100.0	100.0

The lower birthrate in Taiwan has caused the competition among preschools to become more intense. As indicated in Table 8, 45.5% of the respondents strongly agreed or agreed that the lower birthrate has led to enrollment competition among preschools.

Table 9. Opinion distribution: The lower birthrate in Taiwan has led to enrollment competition among preschools.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	7	4.2	4.2
Disagree	19	11.4	11.4
Neutral	27	16.2	16.2
Agree	78	46.7	46.7
Strongly agree	36	21.6	21.6
Total	167	100.0	100.0

As presented in Table 9, 68.3% of the respondents strongly agreed or agreed that the lower birthrate has led to increased marketing costs for preschools.

Table 10. Opinion distribution: The lower birthrate in Taiwan has led to an increase in marketing costs.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	4	2.4	2.4
Disagree	32	19.2	19.2
Neutral	44	26.3	26.3
Agree	69	41.3	41.3
Strongly agree	18	10.8	10.8
Total	167	100.0	100.0

As indicated in Table 10, 52.1% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to preschools experiencing budget deficits, and this has increased the pressure on preschool owners.

Table 11. Opinion distribution: The lower birthrate in Taiwan has led to budget deficits in preschools, which has increased the pressure of running a preschool.

Rating	Frequency	Percentage	Effective percent
Strongly disagree	7	4.2	4.2
Disagree	29	17.4	17.4
Neutral	36	21.6	21.6
Agree	73	43.7	43.7
Strongly agree	22	13.2	13.2
Total	167	100.0	100.0

As indicated in Table 11, 56.9% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to parents having developed higher expectations for preschools.

Table 12. Opinion distribution: The lower birthrate in Taiwan has led to parents having higher expectations for preschools.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	3	1.8	1.8
Disagree	12	7.2	7.2
Neutral	19	11.4	11.4
Agree	71	42.5	42.5
Strongly agree	62	37.1	37.1
Total	167	100.0	100.0

As indicated in Table 12, 79.6% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to parents spending more on their children's preschool education.

Table 13. Opinion distribution: The lower birthrate in Taiwan has led to parents spending more money on their children's preschool education.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	2	1.2	1.2
Disagree	12	7.2	7.2
Neutral	35	21.0	21.0
Agree	86	51.5	51.5
Strongly agree	32	19.2	19.2
Total	167	100.0	100.0

As indicated in Table 13, 70.7% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to parents having more preschool options.

Table 14. Opinion distribution: The lower birthrate in Taiwan has led to parents having more preschool options.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	3	1.8	1.8
Disagree	6	3.6	3.6
Neutral	16	9.6	9.6
Agree	90	53.9	53.9
Strongly agree	52	31.1	31.1
Total	167	100.0	100.0

As presented in Table 14, 85% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to a higher turnover rate of recruiters employed by preschools.

Table 15. Opinion distribution: The lower birthrate in Taiwan has led to a higher turnover rate of recruiters employed by preschools.

Rating	Frequency	Percentage	Effective percentage
Strongly disagree	5	3.0	3.0
Disagree	28	16.8	16.8
Neutral	46	27.5	27.5
Agree	57	34.1	34.1
Strongly agree	31	18.6	18.6
Total	167	100.0	100.0

As indicated in Table 15, 52.7% of the respondents strongly agreed or agreed that the lower birthrate in Taiwan has led to a higher turnover rate of recruiters employed by preschools.

5. LIMITATIONS

The only participants in this study were teachers and childcare providers at preschools due to personnel and situational limitations. Enhancing the generalizability of the findings involves enrolling teachers from public and private preschools, administrators and children and their parents as participants. In addition, preschools have adopted numerous coping strategies under the condition of a low birthrate.

Future studies should specifically focus on preschool marketing methods and coping strategies to improve the depth and breadth of our understanding of the influence of the low birthrate on preschool enrollment.

6. REFLECTION

This research focuses on important phenomena (i.e., the low birthrate). We used a survey design to investigate our research questions related to the influence of Taiwan's declining birthrate on preschool enrollment. Low birthrates have become a global social problem that can be observed in a country's fertility rate, a country's aging population structure and the age structure of the country's population. Taiwan is experiencing a low birthrate. This phenomenon has considerably affected preschool enrollment. Governments at all levels cannot rely solely on

economic incentives such as paid parental leave, maternity subsidies, childcare allowances, and quasi-public care to solve the problem of declining birthrates. Governments should actively consider providing other service items to incentivize couples of childbearing age to have children (Lin, 2016). Finally, the present study discovered that most of the respondents give more importance to the quality of the education and facilities of their preschools. Therefore, preschools are recommended to focus on marketing services specific to their preschools such as their personalized services and pick up services. Furthermore, preschools should improve their hardware facilities and diversify their teaching to improve the overall quality of the preschool. Many respondents reported that under the influence of the low birthrate, private preschools are generally concerned about their enrollment and operations which leads them to focus more on their operations and management. Preschools may expand their activities by engaging in joint education, renting out space and offering education to both younger and older students (Lin, 2021).

7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

Parents have begun to pay an increasing amount of attention to the quality of preschool education under the influence of the lower birthrate. Furthermore, the low birthrate has led to parents having more preschool options and a higher preschool admissions staff turnover rate. The present study discovered the following reasons for the low birthrate in Taiwan through a review of the literature:

- (1) Low wages and high housing prices.
- (2) Changing perspectives on raising children to take care of older individuals.
- (3) A higher female employment rate.
- (4) Insufficient government incentives to encourage having children.

Every year, the number of children born in Taiwan declines due to the nation's falling birthrate (Jan, 2009). However, the literature review and questionnaire of the present study indicate that the number of preschools in Taiwan has increased slightly. The competition for preschool enrollment has become more intense. Although Taiwanese preschools face numerous operations-related difficulties, the lower birthrate also offers numerous development opportunities. This was an empirical study in which 167 teachers and childcare personnel in preschools in Taiwan were recruited to participate in a questionnaire survey regarding the influence of the low birthrate on preschool enrollment and the preschools' strategies for coping with this influence. The results of the questionnaire and the literature review provided answers to this study's research questions.

The government has increased its investment in public childcare services and has introduced policies such as children-rearing subsidies and daycare to improve their quality and encourage young parents to have children (Yang, 2019). However, the lower birthrate has led to increased competition among private preschools. Most of these preschools face insufficient enrollment and financial difficulties. The long-term insufficient enrollment has led to investors in the schools having less confidence in the benefits of continuing their investments. This can lead to facilities aging and falling into disrepair, continued implementation of regressive teaching methods, and less favorable teacher–student ratios. In a nutshell, the lower number of students has transformed preschool ecosystems and caused some preschools to operate in crisis mode.

The results of the present study reveal that 35.9% of the preschools of the respondents are faced with the problem of insufficient enrollment and 54.5% of the respondents are full. Most preschools are facing an excess whereas some are facing reduced class sizes and difficulty recruiting students.

The low birthrate in Taiwan has generally led to insufficient enrollment, difficulty in recruiting students, insufficient preschool enrollment, more intense competition for students, increased marketing costs, reduced funds, and more layoffs which may lead to considerable challenges in their operations and management. According to the questionnaire results of this study, parents have developed increasingly high expectations regarding the size,

facilities and educational quality of preschools because of the influence of the low birthrate on preschool enrollment. In addition, many preschools face deteriorating financial situations.

7.2. Recommendations

Most Taiwanese preschools are facing financial difficulties of varying degrees because of the low birthrate. Therefore, preschools must improve their competitiveness in the market to ensure enrollment. According to the results of the present study, most preschool teachers in Taiwan have noted the influence of the low birthrate and have adopted coping strategies and made adjustments to respond to this trend. Taiwanese preschools prefer to modify their business strategies and company management in response to the intense competition for enrollment to mitigate the negative effects of lowering the birthrate. On the basis of the study results, the present study offers the following recommendations for preschools:

7.2.1. Increase Their Income and Reduce Their Expenditures

When enrollment is insufficient and the school's income is consequently reduced, the preschool must increase its income and reduce its expenditures. Preschool management should introduce new educational concepts. In addition, the aforementioned conditions are likely to induce facility restrictions and an oversupply of manpower. Preschools should therefore reform and adjust their operations and management through their equipment, applied teaching modes and human resource utilization. For example, preschools must focus more on each student and broaden their business offerings by providing transportation and particular interest programs by offering special interest classes and shuttle services (Murayama, 2004). Preschools can increase their sources of income by offering parents and students more customized services.

7.2.2. Strengthen Their Integrated Marketing and Focus on Brand and Word-of-Mouth Marketing

Li et al. (2012) suggested that preschools should strengthen their integrated marketing and focus on brand and word-of-mouth marketing. Preschools should comprehensively improve the effectiveness of their marketing by strengthening their enrollment-related advertising and providing promotional tuition plans to increase parents' willingness to enroll their children in the schools. Preschools should use community activities, interviews, television and online platforms to increase awareness and recognition of the school and develop a marketing plan to improve enrollment.

7.2.3. Conduct Internal and External Evaluations of Their Service Quality

Conducting internal and external evaluations of the preschool's service quality can enable efficient monitoring of quality and increase satisfaction with the school's services. Conducting such evaluations can also enable preschools to manage their reputations to ensure that they remain competitive.

Parental choice can have a significant influence on the quality of preschool provision in Taiwan (Hsieh, 2008). Preschools must remain aware of the needs of parents and children, maintain a close connection with parents and the community with respect to their operations and establish effective communication with the market.

7.2.4. Consistently Improve the Professional Quality of their Teachers and Childcare Personnel and Implement Curriculum Innovation

The declining birthrate has led to fewer young children which have led to teacher saturation in the market. Preschools must reduce their staff numbers and make structural adjustments. Schools should actively strengthen teacher education regarding the influence of the low birthrate on school development to improve the teachers' motivation during work by ensuring they understand that the low birthrate can cause parents to have higher expectations regarding the quality of education which may lead to higher expectations from teachers. A school can

obtain the support and confidence of its teachers and childcare personnel which can lead them to support school management reforms and thereby reduce the pressure resulting from the low birthrate on school management. Educational staff should improve their teaching, communication and professional skills and keep these skills up-to-date. Therefore, preschools should offer training and further education for teachers and childcare personnel. Education personnel and service staff can jointly participate in curriculum innovation through home-school activities and peer exchanges. Furthermore, preschools should improve teachers' professional capabilities and knowledge and offer guidance to assist teachers in providing innovative teaching and courses according to the needs of the parents and children and to offer children a multiple learning curriculum that aligns with the children's interests and characteristics (Avcı & Erhan, 2022; Shih & Chang, 2023; Shih, Wu, & Chung, 2023; Wang & Shih, 2022; Wu, 2022; Wu, 2023).

7.2.5. Improve Their Competitiveness in the Market

Preschools should also improve their software and hardware facilities, strengthen their teaching quality and promote their unique characteristics. The young children should be at the center of the teaching-learning process (Shih, 2020; Ye & Shih, 2021).

Preschools should actively coordinate and connect with parents in low birthrate settings. They should also apply more creative business tactics and implement special programmes to draw in both parents and children. Preschools must meet parents' and children's diverse needs by offering good service and teaching quality. In addition, preschools can improve the quality and effectiveness of their teaching, refine their operations and improve the sustainability of their operations and human resource management by consistently upgrading their software and hardware facilities. In this way, preschools can improve their competitiveness in the market.

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Appendix A. Questionnaire.

Influence of Taiwan's Declining Birthrate on Preschool Enrollment, with the Coping Orientation to Problems Experienced Scale

The aim of this questionnaire is to achieve an understanding of how the lower birthrate in Taiwan has affected preschools' student enrollment and how these preschools have coped with these challenges. Click the answer that most closely reflects your personal experience. Thank you for your participation.

(1) Personal background

1. I am a preschool

☐ Principal ☐ Teacher ☐ Educare provider ☐ Educare assistant

2. Years of running and managing a preschool working in

☐ 0–2 years ☐ 3–5 years ☐ 6–10 years ☐ 11–20 years ☐ >20 years

3. Was the student enrollment at the preschool you work in as expected this year?

☐ Met the recruitment target ☐ Exceeded the recruitment target ☐ Student shortage

(2) Influence of lower birthrate in Taiwan on preschool student enrollment

4. The lower birthrate has led to student shortages for preschools.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

5. The lower birthrate has led to student recruitment challenges for preschools.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

6. The lower birthrate has made it more difficult for preschools to meet their recruitment targets.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

7. The lower birthrate in Taiwan has led to enrollment competition among preschools.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

8. The lower birthrate in Taiwan has led to an increase in marketing costs for preschools.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

9. The lower birthrate in Taiwan has led to budget deficits in preschools, which increases the pressure of running a preschool.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

10. The lower birthrate in Taiwan has led to parents having higher expectations for preschools.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

11. The lower birthrate in Taiwan has led to parents spending more money on their children's preschool education.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

12. The lower birthrate in Taiwan has led to parents having more preschool options.

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

13. The lower birthrate in Taiwan has led to a higher turnover rate of recruiters employed by preschools.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
14. The lower birthrate in Taiwan has led to more management challenges and a shortage of preschool recruiters.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
15. Principals face more uncertainty with respect to student enrollment due to the lower birthrate in Taiwan.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
(3) Coping strategies					
16. Because they are facing a lower birthrate, preschools are generally paying more attention to the quality of teaching.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
17. Because they are facing a lower birthrate, preschools should diversify their operations to increase their revenue.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
18. Because they are facing a lower birthrate, preschool owners and managers should be practical and re-allocate school resources.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
16. Because they are facing a lower birthrate, preschools have been enrolling fewer students.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
20. Because they are facing a lower birthrate, preschools must add featured programs to attract students.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
21. Because they are facing a lower birthrate, preschools should develop a marketing plan to improve enrollment.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
22. Because they are facing a lower birthrate, preschools should offer more engaging activities and leverage their resources.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
23. Because they are facing a lower birthrate, preschools should improve their human resource management to ensure they do not experience teacher shortages.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
24. Because they are facing a lower birthrate, preschools should invest in educational equipment to promote student learning.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
25. Because they are facing a lower birthrate, preschools should establish their own brand as a recruitment strategy.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
26. Because they are facing a lower birthrate, preschools should use innovative marketing strategies and expand their student enrollment channels.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
27. Because they are facing a lower birthrate, preschools should improve their communication with parents.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
28. Because they are facing a lower birthrate, preschools should improve their communication with the local community to enable the use of community resources for recruitment.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
29. Because they are facing a lower birthrate, preschools should make an effort to improve teachers' professional capabilities and knowledge.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
30. Because they are facing a lower birthrate, preschools should establish a positive brand image for themselves.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
31. Because they are facing a lower birthrate, preschools should use differentiated marketing strategies and offer school bus transportation or childcare services for extended hours.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
32. Because they are facing a lower birthrate, preschools should improve the quality of their operations to ensure they remain competitive in the early childhood education market.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
33. Because they are facing a lower birthrate, preschools should cut costs and identify a means of increasing their income to reduce the pressure of running the preschool.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neutral	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
===== Thank you for taking the time to complete this questionnaire. =====					

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