Educational Attainments and Parenting Related Information associated with Parenting Skills in Mothers of Preschooler in Taiwan

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Abstract

Background: *The objective of this study was to self-develop a questionnaire assessing the parenting skills of mothers with preschooler, and to examine the association between demographic factors, parenting related information and parenting skills performance in Taiwanese mothers of 3-6 year-old-children.*

Methods: *This is a cross-sectional study covering 19 cities and counties of Taiwan, preschooler mother (71% 31–40 years; 59.6% college or university education levels) were recruited from certified public or private preschools. Using stratified random sampling, we distributed 1,200 copies of a self-designed Mother Parenting Skills Questionnaire (MPSQ) and collected 974 effective samples.*

Results: *The MPSQ was a 4-point scale and divided into nine parenting skill dimensions. The MPSQ Cronbach's α was .983, a test-retest showed a value of .892, and the explained variance amounted to 70.02%.The survey revealed that the overall parenting skill of Taiwanese mothers approximated toward the "satisfactorily met the criteria" score (M=2.96).Preschooler mothers' skills for meeting children's basic needs were excellent (M = 3.21). In descending order of excellence, these mothers also possessed skills related to the socialization (M = 3.03), generalization (M = 3.02), behavioral counseling (M = 3.01), personality adaptations and simultaneous learning (M = 2.97), mastery (M = 2.96), initiative (M = 2.95), preparation for parenting (M = 2.88), and Gestalt learning (M = 2.66). Stepwise multiple regression analyses revealed that performed better in overall parenting skill was predicted by mothers acquired parenting skills from professionals or physicians (β= 0.236), who had a master's degree or a higher educational level (β=0.217), acquired parenting skills from parenting seminars (β= 0.127), rather than from relatives and friends (β= -0.107), or TV media (β= -0.091), which explained13.2% of the variance of mother parenting skills.*

Conclusion: *The proposed MPSQ is good reliability and construct validity, can be used as the standardization tool for assessing parenting skills of the mothers of preschooler, and help them identify the advantage and weaknesses in their parenting skills and accordingly provide relevant recommendations for improvement. Mothers who had a master's degree or a higher educational attainment, and parenting related information from professionals or physicians, parenting seminars contribute to mothers' development of better parenting skills.*

Keywords: Taiwanese mother, preschooler, assessment tool, educational attainment, professionals or physicians, parenting seminars

Background

Family is the earliest place where young children learn about socialization [1]. In addition, family plays a crucial role in young children's upbringing, in which parents serve as their first teachers and role models. Therefore, parenting philosophies, parenting strategies, and parenting abilities exert a considerable effect on children's personality traits and interpersonal relationships as well as their cognitive, physiological, psychological, and social behavioral developments [2-5].

Parenting pertains to how parents educate and rear their children, and parenting abilities refer to parents' competence to care, raise, and educate their children [5-6]. These abilities include capability in helping children engage in cognitive learning as well as develop self-care, physical, and verbal communication skills[6-7]. The effect of parenting behavior on children has received substantial attention from academia. However, to answer the question regarding what skills are necessary for parenting children, associated many studies have mainly focused on subjects including parenting knowledge[6],parenting styles[7],parenting attitude[8], and parenting demands[9]. By contrast, few studies have explored the skills needed to educate and raise young children. Therefore, the present study investigated the said topic.

The ecological systems theory states that family and school are the earliest and most essential environments experienced by young children. Particularly, parents in family are the first people that young children are in contact with [10]. However, as children age and expand their social circles, they begin to meet people from outside the family (e.g., preschool). During this period, young children learn to engage in behaviors that conform to social norms or ones that are accepted by their peers[11].

According to Maslowar hierarchy of needs, the lowest level of physiological needs should be addressed first, followed by the needs of safety, love and belonging, and esteem; finally, the highest level of need is self-actualization[12].Erikson asserted that the development of self-awareness is a lifelong process and divided the formation and development of self-awareness into eight stages [13].In the present study, 3-6-year old preschooler were selected as the study participants, they experience a psychological crisis pertaining to "initiative vs. guilt"[13]. Hence, when parenting preschooler of this age group, the parents must consider the psychological crisis experienced by the children and provide them with the opportunity to practice and apply their learned skills[13, 14], thus cultivating their independence and maturity as well as improving their learning outcomes.

According to the level of parental control, Baumrind[15] divided parenting styles into three models, namely, authoritarian, authoritative, and permissive, and subsequently proposed a fourth model, called uninvolved parenting. In 1989, she further introduced two factors (i.e., response and demand) spanning two levels (i.e., high and low) to elucidate these models [16]. Over the past 20 years, numerous Taiwanese scholars have conducted surveys using the Maternal Parenting Style Questionnaire, which is based on Baumrind's theory. Their results indicate that most Taiwanese mothers adopt an authoritative parenting style, with a high response level and medium demand level [17-19]. Authoritative parenting behavior denotes parents who care for, communicate, and guide their children [20]. In this study, the constructs of parent-child communication, guidance, and interactions were used to develop the assessment tool.

When practicing parenting, parents play multiple roles such as a caregiver, observer, listener, respondent, preparer, participant, educator, and environment maintainer [15, 16, 20]; many of the aforementioned roles resemble those of a preschool teacher. Preschool teachers should utilise the following crucial teaching principles to develop children's various abilities, including the principle of preparation, generalization, initiative, personality adaptation, simultaneous learning, mastery, socialization, Gestalt learning, reinforcement[12, 14].Providing interdepartmental service to promote early childhood education and care is the current trend worldwide. Therefore, the Legislative Yuan approved the Early Childhood Education and Care Act in 2011. Subsequently, on 1 January 2012, Taiwan became the first Asian country that completed the transformation of early childhood education and care from a parallel to an integrated system [21]. In addition, in 2016, Taiwan's Ministry of Education announced the Curriculum Outlines for Preschool Care-taking Activities enhance the quality of early childhood education, which integrated physical movement and health, cognition, language, society, emotion, and aesthetics into a preschool teaching program, thereby ensuring children to acquire a complete life experience. Cultivate children's six core literacies (awareness and identification, expression and communication, caring and cooperation, reasoning and appreciation, imagination and creativity, and self-management) through the integrated learning of six learning field[21].

Based on the aforementioned literature on parenting theories, empirical research results, and Taiwanese preschool education policies, this study aimed to self-develop a questionnaire assessing the parenting skills of mothers with preschooler, and to examine the current parenting status of mothers with 3–6 year-old children in Taiwan.

Parenting is likely to function differently depending on family background and cultural context [22]. The results showed that the parenting efficacy and response level (a dimension of parenting attitude) of mothers in Taipei City or Kaohsiung City were higher than those of mothers in Taitung County, indicating a notable difference in parenting efficacy, attitudes or style among mothers in urban and rural areas [17, 18].

The favorable upbringing of children requires economic, human resource, and social assets; mothers' educational attainments are a crucial indicator of human resource assets in families; therefore, related surveys have rarely omitted this indicator [23]. In addition, study reported a high correlation between mothers' educational attainments and those of their spouses [24]. Survey study found that the levels of warmth or parental control demonstrated by Taiwanese mothers to their preschool children differed no significantly in terms of the children's sex [25]. However, several cross-sectional studies have indicated causes of significantly different for preschooler mothers' parenting attitudes or behaviors, such as their own age, educational attainments, and their children's age and sex[26, 27].Study found that older parents in United States tend to provide their children with more care and prompter responses to their needs [28]. However, Taiwan survey showed no significant differences in parenting belief and behavior among main caregivers of different ages [29]. The differences between the results of these studies might be attributable to the parenting implications, research region, and cultural background of the surveys.

Mothers' ability to care for their children is influenced by both internal and external factors, including personal educational attainments, parenting effectiveness, and the availability and usefulness of social support [26, 30, 31]. Study has found that continuous, public-funded childcare services, provided by experts or physicians, contribute to mothers' development of better childcare and parenting skills [32]. Empirical research explored changes in parenting attitudes among Taiwanese mothers by administering in-depth interviews to six mothers. Analyzing the interview content revealed that factors affecting their changes in parenting attitudes included significant response or reminder from others, social learning (e.g., growth course), and religion [33]. These factors facilitate the mothers to become aware of the shortcomings in their parenting styles, evoke certain emotions in them, and thereby motivate them to change their parenting attitudes.

China study found that apart from TV/film/broadcasting, rural parents' utilization of other parenting deliveries including books/magazines/newspapers, family/friends, schools (eg., parenting meetings), Web, and expert lectures was less than that of urban parents [34]. According to the concepts of microsystem, mesosystem, exosystem, and macrosystem in social ecological models [10] and the empirical findings [26, 30-34], the present study divided the information sources of maternal parenting skills into seven categories, namely, relatives and friends, parenting seminars, professionals or physicians, television (TV) media, broadcasts, newspapers and magazines, and the Internet.With today's highly developed information system, there are numerous and diverse sources of information related to mothers' parenting skills. However, the accuracy and effectiveness of such information, and its relevance to personal parenting skills await further exploration.According to the aforementioned research results, the present study also aimed to investigate how mothers' parenting skills are correlated with their residence location, age, educational attainments, information sources of parenting skills, and their children's age and sex.

Methods

Pilot sample and sampling method

In this study, a draft MPSQ was developed after relevant parenting theories, empirical studies on parenting skills and Taiwan preschool education policies were reviewed. Subsequently, five experts and scholars (3 early childhood education professors and 2 preschool educator) were invited to review the questionnaire content. Thus, the content validity of the MPSQ was established. Holden and Edwards (1989) indicated that most parenting questionnaires do not specify the age of children being targeted by the questionnaire items [35]. Consequently, inferring the results of these questionnaires to children of various age groups may yield inaccurate findings. Therefore, the present study set the age of children as 3–6 years, and recruited mothers with children of this age group to answer the MPSQ. We recruited a pilot sample of mothers of children aged 3–6 attending preschools in Northern, Central, Southern, or Eastern Taiwan. Convenience sampling was adopted to select 50 mothers from each region. Of the 200 MPSQ distributed, 178 were returned; 11 incomplete questionnaires were excluded, thus yielding 167 valid questionnaires (a valid return rate of 83.5%). Subsequently, reliability and validity analysis was performed, with the results serving as the basis for developing the official questionnaire.

Reliability and validity analysis of the questionnaire

An item analysis was performed to examine the adequacy of each questionnaire item. Three criteria were employ to dele inadequate items: (1) a critical value <5.0; (2) a correlation coefficient between a single item and its associated construct < 0.5; and (3) that deleting the item would increases the questionnaire reliability.

If an item met two or more of the aforementioned criteria, it was deleted. The item analysis found that none of the 81 items in the parenting skill scale met the criteria. After an item analysis was performed, factor analysis was subsequently implemented to obtain the construct validity of the scale. The Kaiser–Meyer–Olkin (KMO) value of the parenting skill scale was .938; the approximate chi-square distribution of Bartlett's test of sphericity was 12474.393; and $p = .000 < .001$ implied statistical significance. The results indicated that several common factors existed among the 81 items in the parenting skill scale; thus, the items were highly appropriate for factor analysis. The adequacy of factor analysis was excellent, and thus a principal component analysis was conducted for preliminary analysis, followed by a varimax orthogonal rotation was performed for factor extraction. An item factor loading of less than 0.32 indicated that the factor could only explain less than 10% of the observed variance, thus suggesting that the item should be considered for deletion. Accordingly, after the factor analysis, a factor loading of less than 0.32 was regarded as the standard for item deletion, and a total of 13 items were deleted. An eigenvalue refers to the amount of variance accounted for by a component and is the sum of the squared factor loadings for each variable with a common factor. This study retained the factors with an eigenvalue>1; in addition, on the basis of factor loading and communality, each factor in the scale was reorganized and renamed after the factors were extracted. "Personality adaptability" and "simultaneous learning" pertained to Factor 2 and thus the two factors were combined as "personality adaptation and simultaneous learning." The factors in the parenting skill scale of the official questionnaire were arranged as follows: parenting preparation (Factor 1), personality adaptation and simultaneous learning (Factor 2), generalization skill (Factor 3), meeting children's basic needs skill (Factor 4), behavioral counseling skill (Factor 5), Gestalt skill (Factor 6), mastery skill (Factor 7), initiative skill (Factor 8), and socialization skill (Factor 9). After factor analyses, 13 items in the parenting skill scale were deleted, thereby reducing the total number of items from 81 to 68. The revised parenting skills scale yielded a Cronbach's α of .983and explained 70.02% of the total variance. The number and reliability of the items in each subscale before and after they were deleted (Table 1) indicated that the research instrument possessed favorable internal consistency and reliability.

Table 1 Reliability and Test-Retest Reliability Analysis of the Preschooler Mother Parenting Skills Questionnaire (MPSQ)

MPSQ Dimensions	Items Before Deletion		Items After Deletion		Test-Retest Reliability
	N	Cronbach'sα	*N*	Cronbach'sα	
Meeting basic needs	8	.885	8	.885	.851
Parenting preparation	13	.936	12	.933	.901
Generalization	11	.939	8	.901	.876
Initiative	7	.887	7	.887	.812
Gestalt	7	.902	7	.902	.831
Personality adaptations and simultaneous learning	15	.944	13	.948	.924
Mastery	4	.880	4	.880	.865
Socialization	9	.925	6	.899	.866
Behavioral counseling	7	.849	3	.742	.790
Overall scale	81	.986	68	.983	.892

Official sample and sampling method

This study recruited a sample of mothers of children aged 3–6 attending one of 19 public or private preschools in Northern, Central, Southern, and Eastern Taiwan. Stratified random sampling was employed to recruit mothers of preschooler aged 3–6 for the official sample, with 535, 324, 276, and 65 (N=1,200) mothers from Northern, Central, Southern, and Eastern Taiwan, respectively. A total of 1,035 questionnaires were returned (a return rate of 86.3%), and 974 valid questionnaires (a valid return rate of 81.2%) were obtained after excluding the invalid questionnaires because of incomplete or inconsistent responses. Two weeks after the official questionnaire was distributed, the researchers randomly sampled 50 mothers of preschoolers from the 974 valid questionnaires to analyze the correlation coefficient of each item to determine the test–retest reliability of the scale. Table 1 presents the test-retest reliability was acceptable (range .79 to .924).

Statistical Analysis

All data were coded, entered, and analysed using Statistical Package for Social Sciences (SPSS Chinese Version 12.0). The descriptive results were expressed as numbers (*N*), percentages (*%*), and means (*M*) ± standard deviation (*SD*). Continuous variables were analysed using an independent *t* test or a one-way analysis of variance (ANOVA). The Scheffe test (homogeneity of variance) or the Games-Howell test (heterogeneity of variance) was performed as a posthoc test. Stepwise regression included regression models in which the predictive variables were selected using an automatic procedure. All results were considered statistically significant at $p< 0.05$.

Results

Demographic characteristics and parenting related information of preschooler mother

Table 2Demographic characteristics and parenting related information of preschooler mother（*N*=974）

Demographic characteristics	**Group**	***N***	***%***	**Rank**
Mother	Northern Taiwan	402	41.3%	1
residence	Central Taiwan	276	28.3%	2
	Southern Taiwan	250	25.7%	3
	Eastern Taiwan	46	4.7%	4
Mother	21–25 years	7	0.7%	6
age	26–30 years	90	9.2%	4
	31–35 years	310	31.8%	2
	36–40 years	382	39.2%	1
	41–45 years	163	16.7%	3
	46–50 years	18	1.8%	5
	≧51 years	4	0.4%	7
Mother	≦Junior high school	27	2.8%	5
education	High school	259	26.6%	2
level	College	223	22.9%	3
	University	357	36.7%	1
	Master	104	10.7%	4
	Doctor of Philosophy	4	0.4%	6
Preschool children	3years	117	12.0%	4
age	4years	274	28.1%	2
	5years	404	41.5%	1
	6years	179	18.4%	3
Preschool children	Boy	453	46.5%	2
sex	Girl	521	53.5%	1
Parenting related information				
1.TV media	Yes	287	29.5%	5
	No	687	70.5%	
2.Broadcasts	Yes	38	3.9%	7
	No	936	96.1%	
3.Newspapers or magazines	Yes	457	48.2%	2
	No	517	51.8%	
4.Internet	Yes	457	46.9%	3
	No	517	53.1%	
5.Parenting seminars	Yes	260	26.7%	6
	No	714	73.3%	
6.Relatives and friends	Yes	584	60.0%	1
	No	390	40.0%	
7.Professionals or physicians	Yes	269	30.4%	4
	No	678	69.6%	

Table 2 indicated that mothers of preschooler, 41.3%, 28.3%, 25.7%, and 4.7% resided in Northern, Central, Southern, and Eastern Taiwan, respectively. Most of the children came from mother age of 36–40 years (39.2%) and 31–35 years (31.8%). Most of the children came from mother education of university (36.7%). Most of the children age came from 5 years (41.5%), followed by those with 4 years (28.1%); these two categories combined accounted for nearly 70% of all participants. Girls slightly outnumbered boys in the study, with 521 girls (53.5%) and 453 boys (46.5%).The information sources of parenting skill of preschooler mother, 60%, 48.2%, 46.9%, 30.4%, 29.5%, 26.7%, and 3.9% came from relatives and friends, newspapers or magazines, Internet, professionals or physicians, TV media, parenting seminars, and broadcasts, respectively.

Questions and Classification of parenting skills

The MPSQ was a 4-point scale. Of the 68 questions listed in the scale, only 3 questions were negatively worded; all other 65 questions were positively worded. For these 65 questions, answers "*did not meet the criteria,""moderately met the criteria,""satisfactorily met the criteria,"* and "*excellently met the criteria"* were given a score of 1, 2, 3, and 4, respectively. By contrast, for Questions E36–E38, the same answers were given a reverse score of 4, 3, 2, and 1, respectively. Therefore, the lowest attainable score was 68, and the highest possible score was 272. The proposed MPSQ yielded the following parenting skill scores attained by mothers of young children in Taiwan: a lowest score of 117, a highest score of 269, and an average score of 201.22. In accordance with calculations based on the top 27% and bottom 27% scores of the MPSQ, the cutoff point of each parenting skill was obtained; the parenting skills of the mothers were then classified into three levels: *requires improvement*, *average*, and *excellent*. Total scores less than 187 were classified as *requires improvement* (N = 268); scores ranging from 188 to 212 were classified as *average* (N = 430); and scores greater than 213 were classified as *excellent* (N = 276). The analysis results indicated that the total scores for the nine parenting skill dimensions of the mothers in the *excellent* group was significantly higher than those of the mothers in the *average* and *requires improvement* groups. Furthermore, the total scores for the nine parenting skill dimensions of the mothers in the *average* group were also significantly higher than those of the mothers in the *require improvement* group (Table 3).

Table 3Classification of preschooler mother parenting skills（*N*=974）

MPSQ Dimension	Group	*N*	*M*	*SD*	*Min*	*Max*	*F*	*p*	Post-hoc analysis
Meeting basic needs	①Low	268	22.71	2.35	16	28	496.93	.000	③＞①
	②Middle	430	25.30	2.14	21	32		***	③＞②
	③High	276	28.88	2.45	20	32			②＞①
	Total	974	25.60	3.26	16	32			
Parenting preparation	①Low	268	28.16	3.66	14	36	849.93	.000	③＞①
	②Middle	430	34.37	3.19	25	44		***	③＞②
	③High	276	40.97	4.17	30	48			②＞①
	Total	974	34.53	6.00	14	48			
Generalization	①Low	268	20.44	2.62	11	27	744.97	.000	③＞①
	②Middle	430	23.95	2.02	14	31		***	③＞②
	③High	276	28.32	2.65	22	32			②＞①
	Total	974	24.22	3.79	11	32			
Initiative	①Low	268	17.35	2.25	11	23	722.04	.000	③＞①
	②Middle	430	20.39	1.67	15	26		***	③＞②
	③High	276	24.17	2.50	16	28			②＞①
	Total	974	20.62	3.30	11	28			
Gestalt	①Low	268	17.72	1.43	12	21	98.45	.000	③＞①
	②Middle	430	18.47	1.42	15	23		***	③＞②
	③High	276	19.61	1.92	14	28			②＞①
	Total	974	18.59	1.73	12	28			
Personality adaptations and	①Low	268	32.22	4.11	21	39	974.71	.000	③＞①

simultaneous learning	②Middle	430	38.22	2.30	29	50		***	③＞②
	③High	276	45.23	4.14	38	52			②＞①
	Total	974	38.56	5.96	21	52			
Mastery	①Low	268	10.09	1.60	4	14	448.01	.000	③＞①
	②Middle	430	11.74	1.09	8	16		***	③＞②
	③High	276	13.75	1.68	9	16			②＞①
	Total	974	11.85	1.97	4	16			
Socialization	①Low	268	15.41	2.45	7	24	505.21	.000	③＞①
	②Middle	430	17.98	1.70	12	24		***	③＞②
	③High	276	21.14	2.30	13	24			②＞①
	Total	974	18.17	3.00	7	24			
Behavioral counseling	①Low	268	7.75	1.29	3	12	318.90	.000	③＞①
	②Middle	430	8.98	1.07	4	12		***	③＞②
	③High	276	10.39	1.36	6	12			②＞①
	Total	974	9.04	1.57	3	12			
Overall scale	①Low	268	171.77	13.64	117	187	2022.82	.000	③＞①
	②Middle	430	199.32	6.73	188	212		***	③＞②
	③High	276	232.42	13.67	213	269			②＞①
	Total	974	201.12	25.30	117	269			

*p<0.5.**p<0.01.***p<0.001.Parenting skills were classified into three levels: requires improvement (Low), average (Middle), and excellent (High).

Analyzing mothers' performance in nine parenting skills

Among all nine skills, these mothers' skills for meeting children's basic needs were excellent (M=3.21). In descending order of excellence, these mothers also possessed skills related to the socialization (M = 3.03), generalization (M = 3.02), behavioral counseling (M = 3.01), personality adaptations and simultaneous learning (M = 2.97), mastery (M = 2.96), initiative (M = 2.95), and preparation for parenting (M = 2.88). Among the nine parenting skills, the skill related to the Gestalt learning (M=2.66) was the most unsatisfactory; however, the score on this skill was higher than the median (2.5 points) was, between moderately and satisfactorily met the criteria (Table 4).

Table 4 Situation analysis of preschooler mother parenting skills（*N*=974）

MPSQ Dimensions	Subscale			Item		excellently met the criteria percentage	Rank
	N	*M*	*SD*	*M*	*SD*		
Meeting basic needs	8	25.60	3.26	3.21	.40	80.25%	1
Socialization	6	18.17	3.00	3.03	.50	75.75%	2
Generalization	8	24.24	3.79	3.02	.47	75.50%	3
Behavioral counseling	3	9.05	1.57	3.01	.52	75.25%	4
Personality adaptations and simultaneous learning	13	38.56	5.96	2.97	.45	74.25%	5
Mastery	4	11.86	1.97	2.96	.49	74.00%	6
Initiative	7	20.63	3.30	2.95	.47	73.75%	7
Parenting preparation	12	34.53	6.01	2.88	.50	72.00%	8
Gestalt	7	18.59	1.73	2.66	.24	66.50%	9
Overall scale	68	201.22	25.30	2.96	.37	74.00%	

Item M = subscale M ÷subscale N. The MPSQ was a 4-point scale. Answers "*did not meet the criteria,""moderately met the criteria,""satisfactorily met the criteria,"* and "*excellently met the criteria"* were given a score of 1, 2, 3, and 4, respectively.

Table 5Analyzing preschooler mothers'performance in nine parenting skills（*N*=974）

MPSQ Item number and content		*M*	*SD*	subscale rank	excellently met the criteria percentage	scale rank
A1	When teaching my children, I consider maintaining their physical and mental health and safety to be the main objective.	3.23	.55	5	80.75%	5
A2	I always pay attention to my children's physical needs (e.g., food, drink, and sleep).	3.31	.55	3	82.75%	3
A3	I always pay attention to my children's health, practicing preventative sick.	3.24	.54	4	81.00%	4
A4	I always pay attention to my children's psychological and emotional needs (e.g., when crying and fussing) and promptly provide a feeling of warmth and trust.	3.11	.57	6	77.75%	11
A5	I respond promptly to my children's emotional expression cues.	3.03	.55	7	75.75%	27
A6	I attentively observe my children's emotional expression signals.	3.02	.61	8	75.50%	29
A7	I pay attention to my children's home safety, complying with the "one don't and four do's" principle (don't leave the children's line of sight, do consider the furniture arrangement, do limit the opening of windows, do validate the balcony height, and do apply protective measures to corners and hard floors).	3.41	.62	1	85.25%	1
A8	I establish good parent–child relationships with my children.	3.33	.55	2	83.25%	2
B9	I use short stories or interesting facts to arouse my children's learning motivation.	2.98	.69	4	74.50%	37
B10	I make good use of the skill of asking questions, to arouse my children's use sensory observation.	2.92	.64	6	73.00%	45
B11	I make good use of the skill of asking questions, actively proposing queries that arouses my children's learning motivation.	2.91	.64	7	72.75%	48
B12	I explain the value and use of newly purchased storybooks to my children.	2.82	.72	9	70.50%	55
B13	I explain the value and use of newly purchased stationery items to my children.	2.97	.65	5	74.25%	40
B14	I use settings of real objects and specimens to arouse my children's learning motivation.	2.57	.71	12	64.25%	65
B15	I use settings of pictures and photographs to arouse my children's learning motivation.	2.66	.72	11	66.50%	64
B16	I arouse my children's learning motivation by playing and singing with them.	2.89	.70	8	72.25%	51
B17	I use everyday natural phenomena (e.g., animal sounds, budding or blossoming flowers, rain, thunder) to arouse my children's learning motivation.	2.99	.69	3	74.75%	36
B18	I use events that are appropriate for the season (e.g., eating rice dumplings during the Dragon Boat Festival) to arouse my children's learning motivation.	2.99	.66	2	74.75%	35
B19	I use timely events and things that happen around us to arouse my children's learning motivation.	3.03	.64	1	75.75%	26
B20	I use completed works of art (e.g., clipart and paintings) to	2.80	.69	10	70.00%	58

	arouse my children's learning motivation.					
C21	I assist my children in recalling past experiences and use those recollections as the foundation for explaining new knowledge.	2.94	.66	6	73.50%	43
C22	I prompt my children to connect new knowledge with their experiences.	2.91	.65	7	72.75%	47
C23	I frequently use images (e.g., picture cards of cats and tigers) and real objects to teach my children to distinguish between similar things.	2.90	.70	8	72.50%	49
C24	My children's experiences, abilities, and performance are my main consideration in assisting them to select learning content.	3.04	.62	5	76.00%	25
C25	I proceed from easy to difficult when helping my children to select learning content.	3.08	.59	3	77.00%	14
C26	When teaching my children the concept of time, I start with the present (e.g., today) before moving on to the past (e.g., yesterday).	3.06	.60	4	76.50%	19
C27	I proceed from simple to complex when helping my children to select learning content.	3.16	.58	1	79.00%	8
C28	I assist my children in connecting the content they have learned with daily life.	3.13	.61	2	78.25%	10
D29	When my children encounter a learning opportunity, I encourage them to observe, think, and try it on their own.	3.05	.62	3	76.25%	22
D30	I employ the technique of "learning by doing," allowing them to learn spontaneously.	2.92	.64	5	73.00%	46
D31	I encourage my children to boldly attempt opportunities as I provide patient guidance.	2.89	.66	6	72.25%	50
D32	I encourage my children to use both their hands and their brain, fostering the ability to solve problems independently.	3.02	.62	4	75.50%	28
D33	I attach importance to my children's learning process, not just their results.	3.08	.62	2	77.00%	15
D34	I arrange an abundant living environment (e.g., pasting a poster in the toilet that illustrates how to use the toilet), enablingmy children spontaneous learn from their surroundings.	2.36	.76	7	59.00%	68
D35	I cultivate my children's ability to be independent (e.g., the ability to eat by themselves and implement independent initiatives).	3.19	.62	1	79.75%	7
E36 ★	I teach my children by applying a segmented approach to teaching.	2.56	.69	6	64.00%	66
E37 ★	When teaching my children, I prioritize "cognitive fields" (e.g., mathematics and science).	2.55	.71	7	63.75%	67
E38 ★	When teaching my children, I prioritize "linguistic fields."	2.71	.68	5	67.75%	63
E39	When teaching my children, I focus on the learning content as a whole.	2.81	.66	3	70.25%	57
E40	When teaching my children, I integrate the learning content with practical activities.	2.82	.66	2	70.50%	54
E41	When teaching my children, I incorporate various fields (e.g., physical movement and health, cognition, language, society, emotions, and aesthetics) to provide my child with a full life experience.	2.77	.67	4	69.25%	60

E42	I teach my children to be aware of, face, adapt to, and change their environment.	3.00	.59	1	75.00%	34
F43	I bring up my children according to their individual differences.	3.01	.60	8	75.25%	32
F44	I guide my children appropriately, based on their current cognitive development.	3.04	.56	6	76.00%	23
F45	I select suitable learning content based on my children's interests and talents.	3.06	.56	2	76.50%	17
F46	I teach my children appropriately, according to the importance I attach to their individual differences.	3.05	.58	5	76.25%	21
F47	I adjust the pace of my teaching based on my children's learning situation.	2.98	.58	9	74.50%	38
F48	I observe whether my children possess particular talents, allowing them to attain full development.	3.02	.64	7	75.50%	31
F49	I teach my children to compare themselves to themselves.	2.77	.70	12	69.25%	61
F50	I encourage my children to discover their interests by engaging in different types of learning activity.	3.06	.60	3	76.50%	18
F51	I observe whether my children have attained their learning goals and adjust my teaching methods accordingly.	2.88	.61	10	72.00%	52
F52	I cultivate good habits and values in my children.	3.09	.59	1	77.25%	13
F53	In my children's learning process, I consider not only knowledge attainment but also the development of skills, character, and favorable attitudes.	3.05	.60	4	76.25%	20
F54	I employ diverse activities to cultivate various skills in my children (e.g., awareness and identification, expression and communication, caring and cooperation, reasoning and appreciation, imagination and creativity, and self-management).	2.72	.65	13	68.00%	62
F55	When planning my children's learning activities, I try to incorporate a variety of learning content, such as knowledge, skills, attitudes, and interests.	2.82	.64	11	70.50%	56
G56	When my children learn new things, I continually provide practice opportunities, enabling them to attain proficiency.	2.85	.63	4	71.25%	53
G57	During my children's learning process, I provide appropriate prompts and assistance.	3.04	.56	1	76.00%	24
G58	During the process of guiding my children, I provide ample time for practice.	2.95	.59	3	73.75%	42
G59	I observe my children's learning outcomes; if the expected standard is not achieved, I provide additional practice opportunities.	3.01	.56	2	75.25%	33
H60	I often allow my children to collaborate with a family member in completing a task (e.g., help someone sweep the floor).	3.11	.66	2	77.75%	12
H61	I select social activities rich in life skills (e.g., grocery shopping at the market together) as opportunities for teaching my children.	3.21	.62	1	80.25%	6
H62	I teach my children to have a social skill of honor, but I do not emphasize individual performance.	3.02	.61	4	75.50%	30
H63	I take advantage of family activities (e.g., making dumplings) to cultivate my children's socialization skills.	2.98	.71	5	74.50%	39
H64	I provide my children the opportunity to personally participate in and experience community activities.	2.78	.72	6	69.50%	59

H65	I provide my children with opportunities to interact with the people, things, and objects around them.	3.07	.61	3	76.75%	16
I66	I (or a family member) accompany my children during a time-outto manage the situation and prevent danger.	3.15	.60	1	78.75%	9
I67	During a time-out, I prevent my children from interacting with objects or engaging in activities that they like.	2.93	.68	3	73.25%	44
I68	I promptly reward my children's behavior.	2.97	.68	2	74.25%	41
A:meeting basic needs; B: parenting preparation; C: generalization; D:initiativeprinciple; E:Gestalt principle; F: personality adaptation and simultaneous learning;G: masteryprinciple;H: socializationprinciple; I:behavioral counseling. ★：question was negatively worded.						

Current status of parenting skills observed among mothers

The MPSQ is developed and administered in Standard Mandarin and translated into English for this paper. As shown in Table 5, for the 8 items (A1– A8) related to meeting the basic needs of children, mothers of young children generally met the criteria satisfactorily. Their performance in the item related to maintaining children's home safety was the most satisfactory (*M*=3.41), followed by that related to establishing an excellent parent–child relationship (*M*=3.33) and that related to meeting children's physiological needs (*M*=3.31). In addition, the dimension of observing and responding to children's emotions, mothers of preschooler generally scored the lowest in Items 5 (*M* = 3.03) and 6 (*M* = 3.02), albeit they reached the level of satisfaction.

As shown in Table 5, among the 12 items (B9 – B20) related to preparation for parenting, mothers of preschooler scored approximate to satisfactory performance in most items. Regarding methods mothers used to motivate their children to learn, in a descending order of scores obtained were using current news events or random incidents happened in the surrounding to educate children (*M*=3.03; 75.75%), and using seasonal items or natural phenomena observable in daily life (*M*=2.99; 74.75%) to educate children. Among the 12 items related to preparation for parenting, the scores on Items 14 and 15 were the lowest, mothers used settings of real objects and specimens (*M* = 2.57, 64.25%) , or pictures and photographs (*M* = 2.66, 66.50%) to arouse their children's learning motivation ranging between moderately and satisfactorily meeting the criteria. Table 5 showed that most mothers of children moderately or satisfactorily met the criteria of the 8 items (C21 – C28) related to the generalization skill. The score for Item 27 was the highest (*M* = 3.16) whereas that on Item 23 (*M* = 2.90) was the lowest, indicating that among all parenting skills of generalization, mothers often overlooked using pictures or real objects to teach children how to discriminate between similar objects.

The results showed that among the 7 items (D29 – D35) relevant to the initiative principle, the score for Item 35 (*M*=3.19) was the highest and was satisfactory. Among all 68 questions and initiative principle dimension, the score for Item 34 (*M*=2.36) was the lowest and moderately met the criteria, indicating that for skills relevant to the initiative principle mothers in Taiwan overlooked using well-designed environmental stimuli (e.g., pasting a poster in the toilet that illustrates how to use the toilet) to help children to be independent (Table 5). In this dimension, among the 7 items (E36 – E42) related to the parenting skills of gestalt, in addition to Item 42 (*M* = 3.00), the other 6 items did not reached a satisfactory level, and the score for Item 37 (*M*=2.39) was the lowest, indicating that when examined with gestalt-based parenting skills, Taiwanese mothers were shown to overemphasize the cognitive field (e.g., teaching mathematics and science).According to the results, among the 13 items (F43 – F55) related to the parenting skills of personalized adaptation and simultaneous learning, the score on Item 52(*M*=3.09) was the highest, whereas that on Item 54(*M*=2.72) "employ diverse activities to cultivate children various skills (e.g., awareness and identification, expression and communication, caring and cooperation, reasoning and appreciation, imagination and creativity, and self-management)" was the lowest (Table 5). As shown in Table 5, for the 4 items (G56 - G59) related to the parenting skills of mastery, the largest proportion of mothers met the criteria satisfactorily. Particularly, the average score for Item 57 (*M*=3.04) and Item 59 (*M* = 3.01) reached a satisfactory level. In this dimension, the score for item 56 (*M*=2.85) was the lowest; however, the score was approximate to the satisfactory level. As shown by the results, among the 6 items (H60- H65) related to the parenting skills of socialization, the score for Item 61 "I select social activities rich in life skills (e.g., grocery shopping at the market together) as opportunities for teaching my children." (*M*=3.21;) was the highest, achieving the level of satisfaction, 80.25% mothers answer "*excellently met the criteria"*; by contrast, the score for Item 64 "I provide my children the opportunity to personally participate in and experience community activities." (*M*=2.78) was the lowest, 69.50% mothers answer "*excellently met the criteria"*.

The results showed that among the 3 items (I66 - I68) related to the parenting skills of behavioral counselling, the score for Item 66 (M=3.15) was the highest, achieving the satisfactory level. Although the score for Item 67 (M=2.93) was the lowest, it approximated to the satisfactory level.

Demographic characteristics and performance of mother parenting skills

There were no significant differences between mothers ages, preschooler ages and sex for nine and overall parenting skills of preschooler mother. The results showed that meeting the basic needs (F=4.14, $p<.01$) and preparation for parenting skills (F=3.12, $p<.05$) of mothers in northern Taiwan were significantly higher than those of mothers in eastern Taiwan. Mothers who had a master's degree or a higher educational level exhibited significant better nine parenting skills, as well as overall performance than mothers who had a high school(or a lower educational level), college, or university (Table 6).

Table 6 Association between demographic variables and performance of mothers parenting skills (N = 974)

Demographic variables	Mother residence	Mother age	Mother Education	Children age	Children sex
Item MPSQ dimensions	①Northern ②Central ③Southern ④Eastern	①≦30 years ②31-35 years ③36-40 years ④≧41 years	①≦ High school ② College ③University ④≧Master	①3 years ②4 years ③5 years ④6 years	①boy ②girl
Meeting basic needs	F=4.14** ①＞④s	F=2.47 NS	F=7.92*** ④＞①s ④＞②s ④＞③s	F=1.74 NS	t=-1.55 NS
Parenting preparation	F=3.12* ①＞④s	F=1.42 NS	F=12.30*** ④＞①s ④＞②s ④＞③s	F=2.78 NS	t =-.35 NS
Generalization	F=2.51 NS	F=1.62 NS	F=11.45*** ④＞①s ④＞②s ④＞③s	F=2.59 NS	t =-.72 NS
Initiative	F=.235 NS	F=.08 NS	F=5.97*** ④＞①s ④＞②s ④＞③s	F=1.44 NS	t =-.84 NS
Gestalt	F=1.18 NS	F=.35 NS	F=9.12*** ④＞①g ④＞②g ④＞③g	F=1.85 NS	t =-1.29 NS
Personality adaptations and simultaneous learning	F=1.87 NS	F=1.64 NS	F=11.97*** ④＞①s ④＞②s ④＞③s	F=1.11 NS	t =-1.13 NS
Mastery	F=.11 NS	F=.38 NS	F=4.96** ④＞①s ④＞②s ④＞③s	F=.66 NS	t =-1.06 NS
Socialization	F=.89 NS	F=1.57 NS	F=5.49** ④＞①s ④＞②s ④＞③s	F=.59 NS	t =-.95 NS
Behavioral counseling	F=.30 NS	F=.26 NS	F=4.12** ④＞①s ④＞②s ④＞③s	F=1.16 NS	t =-1.34 NS
Overall scale	F=2.09 NS	F=1.17 NS	F=12.41*** ④＞①s ④＞②s ④＞③s	F=2.01 NS	t=-1.14 NS

Notes:*p<.05.**p<.01.***p<.001; s-Scheffe; g- Games-Howell; NS, no significant.

Sources of parenting skill information and performance of mother parenting skills

Mothers that did not acquire parenting skills from TV media performed substantially better in meeting basic needs (t=-2.37, $p<.05$), preparation skills (t=-2.23, $p<.05$), personalized adaptation and simultaneous learning skills (t=-1.97, $p<.05$), and their overall performance (t=-1.98, $p<.05$). However, the remaining six skills performance was not significantly different in mother who did and did not acquire parenting skills from TV media. Preschooler mothers parenting skills acquiring from broadcasts or internet were not correlated to nine and overall parenting skills performance. Mothers that did acquire parenting skills from newspapers or magazines performed substantially better in generalization (t=2.07, $p<.05$) and socialization skills (t=2.27, $p<.05$). However, the remaining seven skills, as well as overall performance were not significantly different in mother who did and did not acquire parenting skills from newspapers or magazines. Mothers that did acquire parenting skills from parenting seminars, professionals or physicians performed in nine parenting skills and their overall performance were significant better than that did not acquire parenting skills from parenting seminars, professionals or physicians. Mothers that did acquire parenting skills from relatives and friends performed substantially worse in meeting basic needs (t=-2.25, $p<.05$), preparation skills (t=-2.81, $p<.01$), generalization (t=-2.98, $p<.01$), skills (t=-2.78, $p<.01$), personalized adaptation and simultaneous learning skills (t=-2.92, $p<.01$), socialization skills (t=-2.49, $p<.05$) and overall performance (t=-3.12, $p<.01$). However, acquiring parenting skills from relatives and friends appeared to have no impact on mothers' promotion of gestalt skills, mastery skills, and behavioral counseling skills (Table 7).

Table 7 Association between parenting related information and performance of mothers parenting skills (N = 974)

Source of parenting skill	TV media	Broadcasts	Newspapers or magazines	Internet	Parenting seminars	Relatives or friends	Professionals or physicians
Item MPSQ dimensions	①Yes (N=287) ②No (N=687)	①Yes (N=38) ②No (N=936)	①Yes (N=469) ②No (N=505)	①Yes (N=457) ②No (N=517)	①Yes (N=260) ②No (N=714)	①Yes (N=584) ②No (N=390)	①Yes (N=269) ②No (N=678)
Meeting basic needs	t=-2.37* ②>①	t=-.96 NS	t=1.54 NS	t=.05 NS	t=2.57* ①>②	t=-2.25* ②>①	t=4.35*** ①>②
Parenting preparation	t=-2.23* ②>①	t=-.94 NS	t=.70 NS	t=-.32 NS	t=4.02*** ①>②	t=-2.81** ②>①	t=5.02*** ①>②
Generalization	t=-1.42 NS	t=-.81 NS	t=2.07* ①>②	t=1.22 NS	t=2.94** ①>②	t=-2.98** ②>①	t=6.96*** ①>②
Initiative	t=-1.05 NS	t=.21 NS	t=.79 NS	t=1.13 NS	t=3.86*** ①>②	t=-2.78** ②>①	t=4.29*** ①>②
Gestalt	t=-1.00 NS	t=.81 NS	t=.76 NS	t=.84 NS	t=2.14* ①>②	t=-1.43 NS	t=2.96** ①>②
Personality adaptations and simultaneous learning	t=-1.97* ②>①	t=-.31 NS	t=1.15 NS	t=.98 NS	t=3.85*** ①>②	t=-2.92** ②>①	t=5.05*** ①>②
Mastery	t=-.79 NS	t=-.97 NS	t=.85 NS	t=-.10 NS	t=2.38* ①>②	t=-1.90 NS	t=3.61*** ①>②
Socialization	t=-.81 NS	t=-.30 NS	t=2.27* ①>②	t=.97 NS	t=3.16** ①>②	t=-2.49* ②>①	t=4.91*** ①>②
Behavioral counseling	t=-1.62 NS	t=-.39 NS	t=.90 NS	t=-.49 NS	t=2.29* ①>②	t=-1.74 NS	t=4.07*** ①>②
Overall scale	t=-1.98* ②>①	t=-.59 NS	t=1.50 NS	t=.62 NS	t=3.96*** ①>②	t=-3.12** ②>①	t=5.91*** ①>②

Notes:*p<.05.**p<.01.***p<.001; A higher score indicated a better performance ofparenting skill.
Abbreviations: NS, no significant.

Demographic characteristics and information sources of parenting skill as predictors of mothers parenting skills

A stepwise multiple regression analysis showed that mothers who had a master's degree or a higher educational level, and acquired parenting skills from professionals or physicians, performed better nine and overall parenting skills. Mothers who acquired parenting skills from TV media, performed worse in meeting their children's basic needs (β= -0.081), preparation skills (β= -0.074), personalized adaptation and simultaneous learning skills (β= -0.083), and overall performance (β= -0.091). Mothers who acquired parenting skills from relatives and friends, performed worse in meeting their children's basic needs (β= -0.075), preparation skills (β= -0.083), generalization (β= -0.105), initiative (β= -0.095), personalized adaptation and simultaneous learning skills (β= -0.097), socialization (β= -0.089), and overall performance (β= -0.107). Mothers who acquired parenting skills from parenting seminar, performed better in preparation skills (β= 0.101), initiative (β= 0.104), personalized adaptation and simultaneous learning skills (β= 0.095), socialization (β= 0.076), and overall performance (β= 0.127). Mothers who acquired parenting skills from newspapers or magazines, performed better in generalization (β= 0.094), and socialization (β= 0.067) (Table 8).

Table 8 Demographic variables and parenting related information and performance of mothers parenting skills: A stepwise multiple regression analysis (N = 974)

MPSQ Dimensions	Variables	R	R^2	R^2 change	F	B	β
Meeting basic needs	≧Master degree[1]	0.148	0.022	0.022	21.81***	1.25	0.126
	Professionals or physicians [2]	0.189	0.036	0.014	17.98***	0.92	0.124
	TV media [3]	0.207	0.043	0.007	14.44***	-0.54	-0.081
	Relatives or friends [4]	0.221	0.049	0.006	12.47***	-0.65	-0.075
	Eastern Taiwan[5]	0.230	0.053	0.004	10.81***	-0.42	-0.063
Parenting preparation	≧Master degree[1]	0.177	0.031	0.031	31.26***	2.78	0.145
	Professionals or physicians[2]	0.222	0.049	0.018	25.06***	1.73	0.136
	Parenting seminar[6]	0.242	0.059	0.010	20.11***	1.37	0.101
	Relatives or friends[4]	0.260	0.068	0.009	17.55***	-1.04	-0.083
	TV media[3]	0.269	0.072	0.004	15.13***	-0.94	-0.074
	Eastern Taiwan[5]	0.272	0.075	0.003	14.54***	0.91	0.071
Generalization	Professionals or physicians [2]	0.218	0.048	0.048	48.50***	1.68	0.205
	≧Master degree[1]	0.261	0.068	0.020	35.43***	1.65	0.138
	Elder and relatives[4]	0.281	0.079	0.011	27.65***	-0.78	-0.105
	Newspapers or magazines[7]	0.297	0.088	0.009	25.33***	0.75	0.094
Initiative	Professionals or physicians[2]	0.136	0.019	0.019	18.41***	1.12	0.132
	≧Master degree[1]	0.176	0.031	0.012	15.57***	0.77	0.113
	Parenting seminar[6]	0.202	0.041	0.010	13.70***	0.75	0.104
	Relatives or friends[4]	0.222	0.049	0.008	12.61***	-0.63	-0.095
Gestalt	≧Master degree[1]	0.175	0.029	0.029	16.81***	0.53	0.096
	Professionals or physicians[2]	0.186	0.034	0.005	11.54***	0.32	0.085
Personality adaptations and simultaneous learning	≧Master degree[1]	0.182	0.033	0.033	33.18***	2.81	0.147
	Professionals or physicians[2]	0.226	0.051	0.018	26.12***	1.71	0.135
	Relatives or friends[4]	0.246	0.060	0.009	20.82***	-1.28	-0.097
	Parenting seminar[6]	0.263	0.069	0.009	17.98***	1.27	0.095
	TV media[3]	0.275	0.075	0.006	15.81***	-1.25	-0.083
Mastery	≧Master degree[1]	0.123	0.015	0.015	14.92***	0.66	0.107
	Professionals or physicians[2]	0.157	0.025	0.010	12.29***	0.42	0.092
Socialization	Professionals or physicians [2]	0.156	0.024	0.024	24.15***	0.95	0.138
	≧Master degree[1]	0.187	0.035	0.011	17.54***	0.86	0.095
	Relatives or friends [4]	0.205	0.042	0.007	14.19***	-0.52	-0.089
	Parenting seminar[6]	0.218	0.047	0.005	12.07***	0.50	0.076
	Newspapers or magazines[7]	0.223	0.052	0.005	11.08***	0.47	0.067
Behavioral counseling	Professionals or physicians[2]	0.130	0.017	0.017	16.58***	0.47	0.132
	≧Master degree[1]	0.146	0.021	0.004	10.58***	0.23	0.068
Overall scale	Professionals or physicians[2]	0.253	0.065	0.065	61.01***	0.98	0.236
	≧Master degree[1]	0.310	0.096	0.031	47.37***	0.87	0.217
	Parenting seminar[6]	0.335	0.113	0.017	37.79***	0.51	0.127
	Relatives or friends[4]	0.353	0.125	0.012	31.94***	-0.38	-0.107
	TV media[3]	0.364	0.132	0.007	26.97***	-0.25	-0.091

R: Multiple correlation coefficient; R^2:Coefficient of determination; *B*: Unstandardized regression coefficient; *β*:Standardized regression coefficient; **p*<.05.***p*<.01.****p*<.001

[1]reference group:mothers who had a high school degree or a lower educational level.

[2]reference group:acquired parenting skills rather than from professionals or physicians.

[3]reference group:acquired parenting skills rather than from TV media.

[4]reference group:acquired parenting skills rather than from relatives or friends.

[5]reference group:mothers resided in northern Taiwan.

[6]reference group:acquired parenting skills rather than from parenting seminars.

[7]reference group:acquired parenting skills rather than from newspapers or magazines.

Discussion

Overall, the present study determined that mothers who had 3- to 6-year-old children in Taiwan had generally exhibited satisfactory parenting skills. The results showed that for mothers of preschooler, the parenting skill of meeting the basic needs of home safety (85.25%), good parent–child relationships (83.25%), physical needs e.g., food, drink, or sleep (82.75%), prevention sick (81.0%), and physical and mental health (80.75%) of their children was considered as the first priority; moreover, cognitive learning (e.g., mathematics and science) or by applying a segmented approach to teaching were overemphasized. The gestalt-based skills in the present study were related to Taiwanese mothers' compliance with the Early Childhood Education and Care Act: a preschool program should be integrated as a whole, instead of being divided into several subjects [35].

The results of this study did not accord with Maslow's hierarchy of needs. The researcher considered that Taiwan is a developed country and most families are economically comfortable; in addition, the government has formulated comprehensive subsidy policies; thus, the basic physiological needs of children are typically met. However, in the past 30 years, accidental injury has been ranked the leading cause of death for 1- to 14-year-old children and teenagers, with the exception cancer being the leading death cause in 2013 [36]. Therefore, 85.25% mothers in Taiwan tend to prioritize home safety, among all items of children's basic needs. Mother-child cognitive interactions predict verbal and psychological development in children [37, 38], and mothers who are more socioemotionally sensitive to their children promote children's interpersonal communication ability [39].Reciprocal positive emotional sharing is essential to healthy parenting and wholesome child-parent relationships and provides an important context for optimal child development[40, 41]. However, this result shows that regarding the meeting basic needs dimension of understanding and responding to children's emotions, mothers of young children generally scored the lowest (Items 5 and 6), but there are still 75% mothers reached the level of *excellently*.

The primary role of teacher is to arrange the environment to facilitate independent interactions with the materials and expose the child to the learning goals through intermittent commenting and approval when children are successful [42]. Before teaching their children, parents must first motivate their children to learn by preparing suitable teaching materials; accordingly, children can develop their abilities evenly in multiple aspects. This result show that regarding methods mothers used to motivate their children to learn, in a descending order of scores obtained were using current news or random incidents happened in the surrounding (75.75%), using seasonal items or natural phenomena observable in daily life (74.75%), and short stories or interesting facts (74.50%). More than half of mothers (with under-5 year children from 28 developing countries) played with their children and took them outside, but only 25% of mothers read books and 35% of mothers told stories to their children [43]. This finding did not correspond with that of the study by Bornstein and Putnick (2012). This researcher inferred that such a difference might be derived from differences in socio-cultural and economic aspects as well as in social development. Among the 12 items related to preparation for parenting, the scores on Items 14 and 15 were the lowest, ranging between moderately and satisfactorily meeting the criteria. This finding indicated that when mothers intended to motivate children to learn, they often overlooked using situational arrangements such as paintings, photos, real objects, and specimens to educate their children, only 64~66% mothers reached the level of *excellently*.

The generalization skills refer to the ability of are used by parents to choose learning materials for their children in accordance with the abilities that their children already possess. Mothers commonly used parenting skills of generalization in Taiwan was from simple to complex (79.0%), and assist their children in connecting the content they have learned with daily life (78.25%).

The results indicating that among all parenting skills of generalization, mothers often overlooked using pictures or real objects to teach children how to discriminate between similar objects. This finding corresponded with that of preparation for parenting. Repeated visual exposures to the object more gradually led young children to just as rapid search. Experiment study confirmed the effects of labels to repeated presentations of the visual object, which should also influence the working memory representation of the object young children [44].

The skills relevant to the initiative principle refer to parents' competency in to patiently guide their children and encourage them to try, be independent, and develop motor skills. In the initiative parenting skills, mothers cultivate their children's ability to be independent (e.g., the ability to eat by themselves and implement independent initiatives) was considered as the first priority (79.75%). Because 3-6-year old children in the pre-operational stage lack abstract cognitive skills, utilizing real objects teaching aids favours developing their comprehension and learning skills[14]. The results indicating that for skills relevant to the initiative principle mothers in Taiwan, only 59.00% of the mothers of preschooler using well-designed environmental stimuli (e.g., pasting a poster in the toilet that illustrates how to use the toilet) to help children to be independent. The results accorded with the findings related to the skills of preparation for parenting and generalization. When motivating their children to learn, selecting learning materials for their children, and developing children's ability to be independent, mothers tended to overlook using pictures and real objects as teaching materials to rearrange the living space into an environment with abundant learning stimuli.

Gestalt in psychology means wholeness. Based on the Taiwanese preschool education policies [21], parents should avoid solely indoctrinating children with knowledge; instead, they should help children to learn from their surroundings and develop their abilities comprehensively through activities. The present study indicating that when examined with gestalt-based parenting skills, only Item 42 achieving the satisfactory level the other six items the score was between moderately and approximate to the satisfactory level. Result indicated that 40.25% Taiwanese preschooler mothers were shown to overemphasize the cognitive field (e.g., teaching mathematics and science). The result accorded with that of the study by Nelson et al., who investigated parenting in East Asian countries [45]. Thus, parents of preschooler should avoid indoctrinating their children with knowledge; instead, they are suggested to aid their children in learning from the immediate surroundings, acquiring complete life experiences, and developing their abilities comprehensively through activities [21].

Regarding the personality adaptation and simultaneous learning skills, personality adaptation means that to provide appropriate teaching to their children, parents are required to have the ability to choose teaching materials that suit their children's interests, talents, and levels of cognitive development [46]. This dimension of parenting skills was derived from the theory of the principle of personality adaptations. The simultaneous learning skill refers to children's competence in developing multiple abilities in a learning activity. In other words, in addition to a specific main objective of learning, children can simultaneously acquire other learning effects, such as learning knowledge, skills, attitudes, ideals, and concepts as well as developing interests and favorable habits; these additional learning effects are categorized as accretion learning [14].The results indicated that 74.25% mothers with preschooler in Taiwan possessed adequate skills regarding the dimension of adaptation and simultaneous learning. In this skill dimension that cultivate good habits and values in children was considered as the first priority (77.25%). In particular, these mothers performed moderately but not satisfactorily in aiding their children in developing the six core literacies (awareness and identification, expression and communication, caring and cooperation, reasoning and appreciation, imagination and creativity, and self-management), which were compiled by the Ministry of Education [21] .

Mastery means that parents would provide children with multiple opportunities of practicing [47]and applications to enable the children achieve mastery and eventually, to meet the desired goals. From an active perspective, mastery allows children to freely apply what they have learned, and thus enhancing their learning effects; from a passive perspective, mastery prevents children from forgetting what they have learned [12]. Through repeated learning, children can develop proficiency in concentration, perseverance, and determination [14].The results showed that mothers in Taiwan generally possessed parenting skills of mastery, specifically in providing their children with appropriate prompts and assistance or multiple opportunities of practicing before the children achieve mastery. Socialization is an important process by which a person interacts with or learns from the external social environment in accordance with his or her personal traits and dispositions [10, 14]. Socialization skills refer to parents' competence to evaluate current social environment and their children's abilities, and on the basis of such knowledge, providing their children with appropriate opportunities to live a community-based life, develop

favorable habits required in a community-based life, respect themselves and others, and collaborate with other people to complete an entire task or a piece of work. The results also indicated that when helping their children develop their socialization abilities, mothers most likely started from providing the children with opportunities to interact with family members; gradually, they expand the scope of socialization to include their children in the interactions with the external environment (e.g., the preschool or community). The results corresponded with the theory of ecological systems proposed by Bronfenbrenner[10]. According to the theory of ecological systems, young children develop in various contexts; the relationships between these contexts substantially influence the development of children. In other words, the theory of ecological systems indicates that children learn and develop in inter situations comprising family and school [48].

Corporal punishment is also associated with a long string of adverse development, internalizing symptoms, and health-related consequences [49, 50]. This study should focus on building parenting skills of behavioral counselling in the use of other behavioral techniques, limiting the use of corporal punishment. In the present study, the behavioral counselling skills refer to the competence of mothers to teach their children and to help them develop correct behaviors by using reinforcement or isolation techniques. If caregivers face children with anger and hostility or punish children inappropriately, then these children can feel ashamed, embarrassed, guilty, timid, rejected, or even angry.

Accordingly, these children might present strong negative emotions and hyper behaviors when interacting with their peers [51, 52]. Therefore, whether mothers possess correct behavioral counselling skills is crucial for the emotional and behavioral development of their children. According to the results, most mothers of preschooler in Taiwan satisfactorily met the criteria of behavioral counselling skills.

Survey study revealed that mothers in Taipei City scored significantly higher than those of Taitung County in two dimensions of parental performance, namely, 'persistence' and 'thinking patterns and emotional reactions,' and in overall paternal performance [53]. In the present study, the meeting basic needs and preparation parenting skills of mothers with preschooler differ with respect to the urban–rural gap. In addition, compared to mothers with university or a lower level education, mothers with a master's degree or a higher educational level were found to perform significantly better in all nine dimensions of parenting skills, as well as perform better overall. It is believed that educational level deeply affects the openness of parenting beliefs (the ability to be flexible in adjusting to one's original core upbringing beliefs, in light of external information); parents with a higher level of education are likely to take more to actively absorb new parenting related information [54]. Study found that parents' educational background is likely to influence their parenting beliefs, parenting functions, and children's well-being [26, 55]. Parents with a higher level of education have more belief in cognitive constructions, and are aware that children are rather than passive receivers during learning processes. Hence, they tend to give children more control over their learning processes, encouraging them to take the initiative to develop, and thereby create more healthy learning habits in the family. As a result, their children's subjective well-being is relatively better [32, 55].

China survey found that elementary school parents' utilization of parenting deliveries, ranked from high to low, were TV/film/broadcasting (64.2%), books/magazines/newspapers (55.3%), family/friends (44.5%), schools (40.2%), Web (28.3%), and expert lectures (21.8%). The information sources of parenting skill of Taiwanese preschooler mother, ranked from high to low, were relatives and friends (60.0%), newspapers or magazines (48.2%), Internet (46.9%), professionals or physicians (30.4%), TV media (29.5%), parenting seminars (26.7%), and broadcasts (3.9%). The differences between the results of these two studies might be attributable to the parenting implications, research subjects, region and time, and cultural background of the surveys. This study found that when mothers used parenting skills learned from television media, or relatives and friends, their performance in meeting basic needs, preparation skills, promotion of general skills, initiative skills, or personalized adaptation and simultaneous learning skills, was visibly poorer. Two possible explanations are: (1) there are approximately 100 television channels in Taiwan; although they are regulated by the National Communications Commission and are based on relevant laws, the accuracy of each program cannot be comprehensively verified, and (2) the parenting skills provided by relatives and friends came mostly from their own earlier parenting experiences, the theoretical basis and accuracy of which are doubtful. In the present study, acquire parenting skills from professionals or physicians was the strongest factor in the overall implementation of better parenting skills in preschooler mother. This finding did correspond with that of the study by Rowe et al. [32].

Limitations and future directions

Several limitations to this study need to be acknowledged. First, in Taiwan, the primary caregivers of 77.0%–80.7% of preschooler are their mothers whereas the primary caregivers of 17.4%–19.7% of preschooler are their fathers. The primary caregivers of 2%–3% of preschooler are their legal guardians or other people [56, 57]. In the future, researchers should explore whether a significant difference in parenting exists between preschool children's mothers and fathers. Second, in this study, the MPSQ possessed excellent reliability and validity. In the future, researchers should use this scale to help parents improve their parenting skill and to develop multimedia teaching programs that can serve as a reference for preschool children's parents and other researchers.

Conclusions

The proposed MPSQ is reliability, content validity, and construct validity, and can effectively determine the level of nine parenting skill dimensions (meeting children's basic needs, parenting preparation, generalization, initiative, gestalt, personality adaptation and simultaneous learning, mastery, socialization, and behavior counseling) of preschooler mothers to help them identify the advantage and weaknesses in their parenting skills and accordingly provide relevant recommendations for improvement. Thus, this proposed assessment tool can enable the balanced development of various abilities of the parents' children.

Mothers who had a master's degree or a higher educational level, performed better nine and overall parenting skills. Mothers that acquired parenting skills from professionals and physicians, or parenting seminars performed significantly better in all nine dimensions, and in the overall implementation of parenting skills, compared to mothers that did not utilize the two channels. Therefore, it is suggested that preschool teachers take the initiative to invite mothers with a lower educational level to participate in parenting seminars given by professionals or physicians, so that they can obtain better parenting related information.

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