



# Confirmatory Factor Analysis of the Parenting Styles and Dimensions Questionnaire (PSDQ) in a Sample of Korean Immigrant Parents in New Zealand

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## Abstract

The Parenting Styles and Dimensions Questionnaire (PSDQ) is a widely used 26-item self-report measure based on Baumrind's conceptualizations of authoritarian and authoritative parenting styles. Despite its widespread application in parenting research across the globe, concerns have been expressed regarding the applicability of this measure in Asian immigrant samples. Furthermore, no studies have been conducted with Korean immigrant samples, with separate reporting for mothers and fathers, to provide data on the validity and reliability of the PSDQ. The purpose of current study was to conduct confirmatory factor analysis, based on pre-existing models, to evaluate the reliability of the PSDQ in use in Korean immigrant samples and to refine and revise them if necessary. A sample of 207 Korean immigrant parents of children (ages 6–10) in New Zealand completed the PSDQ. The results suggest that the revised models largely replicate the existing models, and most of the items that make up the authoritarian and authoritative scales were found to be sufficiently coherent and robust to be used.

**Keywords** Authoritarian parenting · Authoritative parenting · Confirmatory factor analysis · Korean immigrant parents · Parenting styles and dimensions questionnaire (PSDQ)

## Introduction

Parenting is perhaps one of the most important factors shaping a child's development (e.g., Kern and Jonyniene 2012). Children's successful social, emotional, intellectual, and behavioral development therefore depends on the degree to which their parents are actively involved in their lives. Regarding parental involvement, many developmental psychologists have explored how parents influence the development and competence of children, which they refer to as parenting style. Parenting style is a term coined by Baumrind to describe normal variations in parents' attempts to control and socialize their children (Baumrind 1991). Most of the research

on parenting style begins with Baumrind's typology (1971), which identifies three prototypic patterns of parenting designated authoritarian, authoritative, and permissive. Baumrind's typology of parenting styles has been used extensively in much of the parenting and family research conducted in Western societies. It has also been a fruitful focus for research on Asian and Asian-American parenting, including comparisons between Asian and Western samples (Chao 2001; Wu et al. 2002), as well as individual differences in parenting (Winsler et al. 2005).

Authoritarian parenting is characterized by parents who are highly demanding and controlling while, at the same time, unreceptive to their children's needs. Parents falling into this category value obedience, emphasize respect for authority, and impose rules without flexibility or discussing the rationale with their children (Baumrind 1971; Organista et al. 2010). Authoritative parenting reflects more of a democratic and egalitarian relationship between parents and children (Organista et al. 2010). Parents who use this style exercise control over their children by the use of firm guidelines, limits, and expectations. Unlike authoritarian parents, authoritative parents use rational explanation and give their children some input in decision-making. Parents who exhibit permissive parenting are

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responsive to the needs of their children and are lenient with them while avoiding use of confrontation and punishment (Baird 1971; Steinberg et al. 1992). Permissiveness has been shown to be an unreliable construct with Asian samples in Asian and Asian immigrant, including Koreans, parenting studies because such a lenient or *laissez faire* approach is relatively rare in such cultures (McBride-Chang and Chang 1998; Wu et al. 2002). Consequently, most research studies, including this one, with Asian and Asian immigrant parents have restricted focus to just authoritarian and authoritative styles.

Baumrind's classification of parenting styles significantly contributes to research explaining the ways in which parents socialize and discipline their children and the effects of parenting practices on their children's outcomes. Since effective parenting styles can optimize a child's development and well-being, there is a need to develop a valid psychometric instrument to assess parenting styles. In fact, this need has led to the development of a valid and reliable assessment instrument to describe different parenting styles (Steinberg et al. 1992). Along with these efforts, the Parenting Styles and Dimensions Questionnaire (PSDQ), which has been internationally recognized (Robinson et al. 2001), was developed to evaluate the parenting styles of both mothers and fathers of preschool children. This questionnaire was designed by authors in the U.S. to assess Baumrind's three main typologies of parenting, and a recent review based on the PSDQ claims that it can be used worldwide (Olivari et al. 2013).

While Baumrind's parenting styles and the relevant dimensions have been researched widely among diverse cultural groups, including Asian groups, existing research generally uses the Western-derived measures without explicitly testing generalizability to non-Western parents (Choi et al. 2013b). Only one study, Wu et al. (2002), used a multi-sample confirmatory factor analysis procedure to test the measurement model of the authoritarian and authoritative constructs with Chinese mothers. Research on the psychometric properties of the PSDQ, therefore, has been largely neglected, especially with Asian and Asian-immigrant samples. Therefore, it has been suggested that one of the ways to fill this measurement gap is to examine existing measures for validity and reliability (Choi et al. 2013b).

Where Korean immigrant parenting has been studied in Western countries, much of the research has been primarily focused on parenting concepts, such as authoritarian and authoritative parenting, as defined in Western cultures (e.g., Choi et al. 2013a; Kim and Rohner 2002). Findings from these studies indicate that Korean immigrant fathers and mothers are perceived by themselves and their adolescent children as showing an authoritative parenting style (Kim and Rohner 2002; Kim 2005). However, when gender differences between Korean immigrant mothers and fathers were taken into account, fathers had a greater tendency to use authoritarian parenting practices than mothers (Choi et al. 2013a). These Western conceptualizations of authoritarian and authoritative

parenting styles fit the traditional description of Korean paternal and maternal roles expressed by 'strict father, benevolent mother' (Kim and Rohner 2002).

Nonetheless, Baumrind's parenting style constructs were first developed based on norms from European-American families. Hence, a number of studies have raised questions concerning whether these Western parenting constructs can be applied equally to cultures beyond European-American groups (Chao 2001; Choi et al. 2013a; Choi et al. 2013b). Specifically, researchers argue that while using Western-derived concepts of parenting may be useful for comparative purposes, they may not fully capture the parenting behaviors in Asian samples (Choi et al. 2013a; Kim and Wong 2002). For example, the use of shame is a prevalent parenting practice in Chinese societies (Wong and Tsai 2007), suggesting that authoritarian and authoritative styles may be insufficient for such societal contexts. Alternatively, other researchers argue that authoritarian and authoritative parenting patterns are present in Asian countries such as China, Korea, and Taiwan, and similar to Western societies, have relevance for children's academic success and social adjustment (Pong et al. 2010; Chen et al. 2000b). However, in spite of these different views, both research traditions allow for the idea that different parenting practices may be prioritized and valued (Chao 2001; Chen et al. 2000a) and thus have different meanings and implications for parents and children depending on the sociocultural context in which these practices occur. The current study extends this line of work by examining whether Western parenting constructs, regardless of the meaning attached to them, are applicable to Korean immigrant mothers and fathers.

Moreover, to date, no studies of the psychometric properties of the PSDQ have been conducted with Korean immigrant samples. Hence, questions such as 'is the Parenting Styles and Dimensions Questionnaire (PSDQ) a reliable instrument for use with a Korean or Korean immigrant population?' remain unanswered. Therefore, the purpose of this study was to assess whether the models derived from previous Western studies could be replicated and to assess their psychometric properties using a sample of 207 Korean immigrant parents in New Zealand. Additionally, among the small body of studies into the psychometric properties of the PSDQ, only one type of informant, mostly mothers, has been included (Kern and Jonyne 2012; Wu et al. 2002). To address this gap, this study included a father sample, with CFA conducted separately for mothers and fathers.

## Method

### Participants

In New Zealand, Asians are one of the fastest-growing ethnic groups, making up 12% of the population. The Asian

population grew 33% between 2006 and 2013 (from 117,000 to 472,000), the highest growth rate of any New Zealand ethnic group (Statistics New Zealand 2014). Korean immigrants, who are the focus of this paper, constitute the fourth-largest Asian ethnic group in New Zealand, with 30,200 people (Statistics New Zealand 2014). This study was part of a larger survey study of the parenting practices of Korean immigrant parents in New Zealand (Authors, 2016). The current study extends and replicates our previous work by comparing the goodness-of-fit of competing models suggested by the extant literature using data from 207 parents.

Korean immigrants in this study were defined as persons born in Korea of Korean parents, residing in New Zealand at the time of the study, New Zealand citizens, permanent residents, or temporary residents with student or working visas. A total of 207 Korean parents (128 mothers and 79 fathers) participated and returned the survey. The average age was 33.9 years ( $SD = 12.5$ ) for mothers and 34.3 years ( $SD = 11.0$ ) for fathers. The average child age was 7.8 years ( $SD = 1.8$ ). The parents were well educated, with 98.7% ( $N = 78$ ) of fathers and 89.1% ( $N = 114$ ) of mothers having a university bachelor degree or higher. In terms of their marital status, 88.9% ( $N = 184$ ) of the parents were married and living with a long-term partner, while 10.6% ( $N = 22$ ) of the parents reported being divorced, and one parent was widowed. Sixty-eight mothers and fathers were dyadic pairs from the same families living together; 28 mothers had partners living with them in New Zealand who did not respond to the questionnaire, and 32 mothers were divorced, widowed, or were transnational mothers whose partners were living in Korea. Seven fathers were divorced, and four fathers were transnational fathers. In terms of annual family income, 18.3% ( $N = 38$ ) of the families had incomes lower than NZ\$40,000, whereas 64.3% ( $N = 133$ ) had incomes between NZ\$40,001 and NZ\$80,000, and 16% ( $N = 33$ ) had incomes greater than NZ\$80,000. Independent samples *t*-tests were performed on mothers' and fathers' demographic characteristics. The characteristics of mothers and fathers were statistically equivalent with respect to age, marital status, educational level, or family income.

## Procedures

After receiving ethics approval from the University's Human Participants Ethics Committee, participants were primarily recruited with the cooperation of the Korean religious organizations and Korean language schools in New Zealand. Questionnaires, with self-addressed stamped envelopes, were distributed by Korean community leaders to eligible parents via post. Other participants were recruited through notices on Korean community websites and newspapers, and in places frequented by Korean parents. Interested parents contacted the researcher by phone to obtain questionnaires via mail. Each

participant was provided with both English and Korean versions of the questionnaires so that parents were able to use their preferred language. Completed questionnaire was mailed to the researcher.

## Measure

The questionnaire was translated and back-translated into Korean by a professional bilingual translator. Any discrepancies were discussed and reduced through an iterative review process by the translator and the researcher.

## Parenting Styles and Dimensions Questionnaire (PSDQ)

The modified version of the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson et al. 2001), as developed by Wu et al. (2002), contained 26 items forming two stylistic patterns of parenting: authoritarian and authoritative. The authoritative scale yields three subscales: warmth/acceptance has seven items; reasoning/induction with four items; and democratic participation also four items. The authoritarian scale contains three subscales: verbal hostility with three items; physical punishment with five items; and punitive/non-reasoning strategies with three items. Parents rated the frequency of their parenting behaviours and practices on each item using a 5-point scale ranging from 1 (never) to 5 (always). In a review of the psychometric properties of the PSDQ, Olivari et al. (2013) suggest that very few articles have provided information about psychometric analyses (e.g., factor analysis or item response scale analysis) conducted to verify the validity and reliability of the scale. Robinson et al. (2001), for example, report the following reliabilities for the English version: authoritarian ( $\alpha = .82$ ) and authoritative ( $\alpha = .86$ ). Olivari et al. suggest that the Cronbach's alpha levels are generally adequate for both the authoritarian (.62–.95) and authoritative (.71–.97) parenting scales. Given the long established weaknesses of relying on Cronbach alpha to show that items belong to each other and correspond well to the data, it is surprising and disappointing that fewer studies do not make use of confirmatory factor analysis in evaluating the psychometric properties of inventories (Green and Yang 2009).

## Statistical Analysis

The statistical analyses in this study were performed with IBM SPSS (IBM SPSS Statistics V.19 for Windows; IBM, New York, New York, USA) and AMOS v20 (Arbuckle 2011). Missing data were minimal, with less than 5% of the total number of cases in the data set. Missing data were replaced using the expectation maximization algorithm. In accordance with Cohen's criteria correlation coefficients and effect sizes in the order of .10, .30, and .50 were considered small,

medium, and large (Cohen 1988). Confidence intervals (CI) were calculated for each effect size, which were significant if their 95% confidence intervals did not cross zero.

Confirmatory factor analysis (CFA), rather than exploratory factor analysis, was chosen as the most appropriate procedure to evaluate the a priori structure of the PSDQ. CFA is also used when the aim is to test two or more competing theoretical models and compare the goodness of fit of the competing models (Byrne 2013). Generally, CFA is considered a large sample method ( $N > 500$ ) (Chou and Bentler 1995). It is also generally accepted that a sufficiently large sample size can give confidence or adequate precision such that the measurement model will stabilize and produce dependable results (Lewis 2017). The procedures can be viable with smaller samples, although there is a greater risk that improper solutions (e.g., ultra-Heywood negative error variance or inter-correlations  $>1.00$ ) will occur by chance; approximately 2% of the time with samples of approximately 400 (Boomsma and Hoogland 2001).

A small-sample CFA can be facilitated with several techniques. One of the techniques used in this study was maximum likelihood estimation, which is robust for non-normality, and can ensure estimable models. With very small samples (i.e.,  $n = 50$ ) as many as 10–12 items are needed to recover a factor, and six to eight items are recommended when  $n = 100$  (Marsh et al. 1998). Hence, when factors do not have many items, it may be legitimate to merge them into a single factor to address the impact of small sample size. Hence, CFA with maximum likelihood procedure was used to test a series of alternative (i.e., competing) plausible models (e.g., hierarchical-factor and orthogonal factors) for the structure of the PSDQ, based on the relevant theories and empirical research.

Initially, a multi-group confirmatory factor analysis (MGCFA) procedure was used to test the measurement models of the PSDQ. The purpose of MGCFA is to determine whether factor loadings, intercepts, residuals, covariances, and structural paths are invariant across both the fathers and mothers. Both authoritarian parenting style (i.e., three latent constructs; verbal hostility, physical coercion, nonreasoning/punitive), and authoritative parenting (i.e., three latent factors; warmth/acceptance, reasoning/induction, and democratic participation) were independently subjected to MGCFA across father and mother groups. However, separate analyses for mothers and fathers were because the MGCFA invariance testing showed that different items contributed to the constructs for each group; in other words, mothers' and fathers' parenting styles differed in which items contributed to the factors.

The fit of the three competing models of the authoritarian factor structure suggested by the literature were tested first and compared, to ascertain which model provided the best fit to the data. Models 1 and 2 corresponded to the Wu et al. (2002) a priori factor pattern. The first of these tested was a single-

factor model combining the 11 items of authoritarian parenting style from all three constructs (i.e., physical coercion, verbal hostility, and punitive/non-reasoning) onto a single factor. Wu et al. (2002) developed this single-factor model to test whether three constructs were well distinguished and to make a comparison to their proposed first-order three-factor model. The second model was the first-order three factor inter-correlated model with no parameters constrained. The Wu et al. (2002) model proposes that the 11 items of authoritarian parenting are grouped in three latent sub-factors in which the relationships among the three latent factors are explained by their inter-correlations. The final model to be tested was a modification of the second model and specified a hierarchical factor model in which the three first-order factors form a second-order 'mothers' and 'fathers' authoritarian' factor.

In Wu et al. (2002), the authoritative parenting factor included three latent constructs (warmth/acceptance, reasoning/induction, and democratic participation) measured with 15 items. Again, a single-factor, an inter-correlated first-order three factor, and a hierarchical model were compared with no constraints imposed.

Improper solutions (e.g., negative error variances and non-positive definite covariance matrix) occurred due to the relatively small sample size. To address the negative error variance, the variance parameter was constrained to a small positive number (i.e., 0.005); if twice the standard error was greater than the observed value. When a model did not show acceptable minimum fit to the data, items with statistically non-significant path loadings and items with cross-loadings to others factors  $>.30$  or with strong modification indices (i.e.,  $>20$ ) were deleted to ensure that the items conformed to the expectation of simple structure.

The quality of fit for CFA models was determined by reference to a number of fit indices. Because the chi-square statistic is overly sensitive to larger samples ( $n > 100$ ), the ratio of chi-square divided by degree of freedom ( $\chi^2/df$ ) is used (Bollen 1989). Ratios with  $p$ -values  $>.05$  are deemed acceptable. It is noteworthy that the comparative fit index (CFI) tends to be depressed (i.e.,  $<.90$ ) when models are complex (i.e.,  $>3$  factors), while values of the root mean square error of approximation (RMSEA) tend to decrease (i.e.,  $<.08$ ) when models are complex (i.e.,  $>3$  factors) (Fan and Sivo 2007). This means that good models may have values associated with rejection (e.g.,  $CFI <.90$  or  $RMSEA >.08$ ) through processes independent of the model quality. In line with current advice (Fan and Sivo 2007; Marsh et al. 2004), acceptable fit for a model were determined if  $\chi^2/df < 3.80$ , gamma hat  $>.90$ , the lower bound of the 90%CI for  $RMSEA \leq .08$ , and the standardized root mean residual (SRMR)  $\leq .08$ . To reduce the risk of biased fit indices associated with small sample sizes, the Swain correction, calculated with an R-function, was used to adjust fit indices (Boomsma and Herzog 2013).

## Results

### Internal Consistency Reliability

The scale inter-correlations, internal consistency reliability coefficients, means, and standard deviations for PSDQ are shown in Table 1. Reliability tests in the current study revealed Cronbach's alphas of .79 and .91 for Korean immigrant mothers' authoritarian and authoritative scales, respectively, and  $\alpha = .87$  and .89 for Korean immigrant fathers' authoritarian and authoritative scales, respectively. Inspection of the correlations between the PSDQ scale total scores and their subscales can help to establish construct validity and internal reliability (Schmitt 1996). The Pearson correlation coefficient between authoritative and authoritarian parenting styles was statistically significant for both mothers and fathers. The correlation between authoritarian parenting style and authoritative parenting style was moderately negative and similar in size,  $r = -.42$  for mothers and  $r = -.47$  for fathers. The correlations between different parenting dimensions were also statistically significant for most interrelations. For mothers, the correlations between authoritarian style and its subscales had values of  $r = .12$  to .54, while between authoritative style and its subscales, the values ranged from  $r = .60$  to .94. For fathers, the correlations between authoritarian style and its subscales had values of  $r = .56$  to .88, while between authoritative style and its subscales, the values ranged from  $r = .54$  to .93. Together, these correlations are suggestive of similar patterns in the structure of the PSDQ scales for both fathers and mothers.

### Tests of Differences in Self-Reported Authoritarian and Authoritative Parenting Styles between Mothers and Fathers

An inspection of mean scores (Table 1) indicated that fathers used more authoritarian parenting than mothers, with a medium effect size (Cohen's  $d = -.43$ ). No statistically significant difference was found between mothers' and fathers' self-reports of their authoritative parenting. An inspection of mean scores indicated that both mothers and fathers ( $d = .23$ ) displayed moderately high levels of authoritative parenting. The mean sub-scale scores within each construct consistently reflected the same patterns between mothers and fathers as observed in the total scores.

## CFA

### Authoritarian Parenting – Mother Sample Only

The goodness-of-fit indices of competing models for mothers' authoritarian parenting are shown in Table 2. Table 2 shows

that the single-factor model had rather poor fit to the data, with CFI, RMSEA, and SRMR values that were outside the recommended cut-offs. The first-order three-factor model also did not fit well. The hierarchical model provided a slightly better fit than the single-factor and the first-order three-factor models. Negative error variances appeared on the verbal hostility factors from the hierarchical factor model and were fixed to a small positive number (0.005) because the standard errors suggested there was a high probability that the true value was greater than zero.

Of the alternative models tested, the hierarchical factor model in which the three first-order factors form a second-order factor was judged to fit best with the Korean immigrant mothers. This hierarchical model was further revised by examining the modification indices, which suggested that one item (i.e., "I yell or shout when my child misbehaves"), intended to measure the verbal hostility factor, loaded onto the punitive/non-reasoning factor. The revised model removed that item (Fig. 1). All of the standardized regression coefficients were above .50, and the model fit for the revised hierarchical factor model resulted in an improved, largely acceptable fit to the data ( $\chi^2 = 110.9$ ,  $df = 43$ ;  $\chi^2/df = 2.58$ ;  $p = .11$ ; CFI = .77;  $\gamma$  hat = .93; RMSEA = .112 (90% CI = .08–.13); SRMR = .087).

### Authoritarian Parenting - Father Sample Only

A similar procedure was followed for the authoritarian model with the father sample. The single-factor and the first-order three-factor models also did not provide good fit (Table 3). Therefore, a hierarchical factor model was tested. The analysis showed that one item from physical coercion (i.e., "I slap my child") and one item from verbal hostility (i.e., "I argue with my child") had very low loadings onto their respective factors; thus, they were removed.

The CFA was rerun on the remaining nine items (Fig. 2), and the hierarchical three-factor model resulted in improved and largely acceptable fit to the data ( $\chi^2 = 64.6$ ,  $df = 24$ ;  $\chi^2/df = 2.69$ ;  $p = .10$ ; CFI = .87;  $\gamma$  hat = .90; RMSEA = .147 (90% CI = .08–.11); SRMR = .073). The standardized loadings were high, ranging from .70 to .83.

Note that while the three factors proposed by Wu et al. (2002) were recovered for both the father and mother samples of Korean parents in New Zealand, there were small differences between the two groups and with the original models. Slightly different combinations of items were needed for mothers and fathers, but the general impression was that there was considerable similarity (i.e., physical coercion 4 of 5 identical items; verbal hostility 2 of 2 identical items; punitive/non-reasoning 3 of 4 identical items). Hence, the factor means were created for each group separately using slightly different combinations of items, but were deemed to be conceptually equivalent. It was expected that the small sample sizes in each

**Table 1** Scale inter-correlations, internal consistency reliability coefficients, means, and standard deviations for PSDQ - Mother ( $N = 128$ ) and father ( $N = 79$ ) sample

Scale	1	2	1a	1b	1c	2a	2b	2c
<b>Mother</b>								
1. Authoritarian	(.79)							
2. Authoritative	-.43**	(.91)						
1a. Physical coercion			(.69)					
1b. Verbal hostility			.54**	(.37)				
1c. Punitive/ non-reasoning			.45**	.12	(.78)			
2a. Warmth/ acceptance			-.38**	-.31**	-.42**	(.85)		
2b. Reasoning/ induction			-.20*	-.31*	-.14*	.72**	(.76)	
2c. Democratic participation			-.27**	-.23**	-.31**	.81**	.60**	(.69)
<i>M</i>	1.90	3.87	1.80	1.94	1.95	4.05	3.87	3.69
<i>SD</i>	.43	.63	.48	.54	.70	.66	.74	.70
<b>Father</b>								
1. Authoritarian	(.87)							
2. Authoritative	-.47**	(.89)						
1a. Physical coercion			(.81)					
1b. Verbal hostility			.62**	(.63)				
1c. Punitive/ non-reasoning			.56**	.61**	(.78)			
2a. Warmth/ acceptance			-.49**	-.69**	-.33**	(.85)		
2b. Reasoning/ induction			-.17	-.36**	-.03	.74**	(.71)	
2c. Democratic participation			-.38**	-.59**	-.28*	.70**	.54**	(.45)
<i>M</i>	2.13	3.72	1.99	2.28	2.10	3.85	3.69	3.64
<i>SD</i>	.62	.66	.66	.66	.86	.77	.80	.67

Reliability given in parentheses

\* $p < .05$  \*\*  $p < .01$

group were responsible for the differences in models and that with samples of 400 or more, the original factor structure could well be recovered.

### Authoritative Parenting – Mother Sample Only

The goodness-of-fit indices of competing models for the mothers’ authoritative parenting are shown in Table 4. The single-factor and first-order three-factor models did not represent the data well. In the hierarchical model, the error variance of one indicator (warmth/acceptance) was negative; thus, it was fixed to 0.005. However, the hierarchical model was found to fit the data only marginally better; hence, this model was further revised.

Three items had factor loadings less than .50 (i.e., warmth/acceptance: “I give comfort and understanding when my child is upset”; reasoning/induction: “I explain the consequences of the child’s misbehavior”; and democratic participation: “I take my child’s desire into account before asking him or her do something”); thus, these items were removed. A revised hierarchical model that removed these three items (Fig. 3) had adequate fit ( $\chi^2 = 98.4$ ,  $df = 52$ ;  $\chi^2/df = 1.89$ ;  $p = .17$ ; CFI = .94; gamma hat = .94; RMSEA = .084 (90% CI = .06–.11); SRMR = .057). All of the standardized regression coefficients for the final scale were greater than .59.

### Authoritative Parenting - Father Sample Only

Following the same procedure, it was found that all three models tested had poor fit for fathers (Table 5).

The same two items as the mothers (i.e., democratic participation: “I apologize to my child when I make a mistake in parenting” and warmth/acceptance: “I show sympathy when my child is hurt or frustrated”) had weak loadings. After the removal of these two items, the fit to the data was still poor. Because two of the factors had few items (i.e., two or three) and the relatively small sample size of fathers, it was decided to merge all of the authoritative parenting items retained from the hierarchical modeling into a single factor. The CFA results the trimmed single factor showed a better and largely acceptable fit than the hierarchical structure model ( $\chi^2 = 64.9$ ,  $df = 35$ ;  $\chi^2/df = 1.86$ ;  $p = .17$ ; CFI = .91; gamma = .94; RMSEA = .082 (90% CI = .05–.11); SRMR = .057) (Fig. 4). Hence, it is apparent that mothers and fathers in this study can be compared only on the total authoritative scale score since 10 of the 12 items are identical. All the standardized factor loadings were above .50.

Having established a preferred model for each parenting style for both groups, the Swain adjusted fit indices were determined (Table 6). It is noteworthy that the correction

**Table 2** Goodness-of-fit indices of models for the mothers’ authoritarian parenting ( $N=128$ )

Model	$k$	$\chi^2$	$df$	$\chi^2/df$	$p$	CFI	Gamma hat	RMSEA	SRMR
Single-factor model	11	169.9	44	3.86	.05	.65	.85	.150	.111
Three factor model (correlated)	11	124.7	41	3.04	.08	.77	.89	.127	.097
Hierarchical model	11	125.7	43	2.92	.09	.77	.91	.123	.096
A revised hierarchical model*	11	110.9	43	2.58	.11	.77	.93	.112	.087

\* represents a final revised model used in the study

index is close to 1.00 suggesting that the sample sizes did not severely compromise the fit of the models to the data.

### Discussion

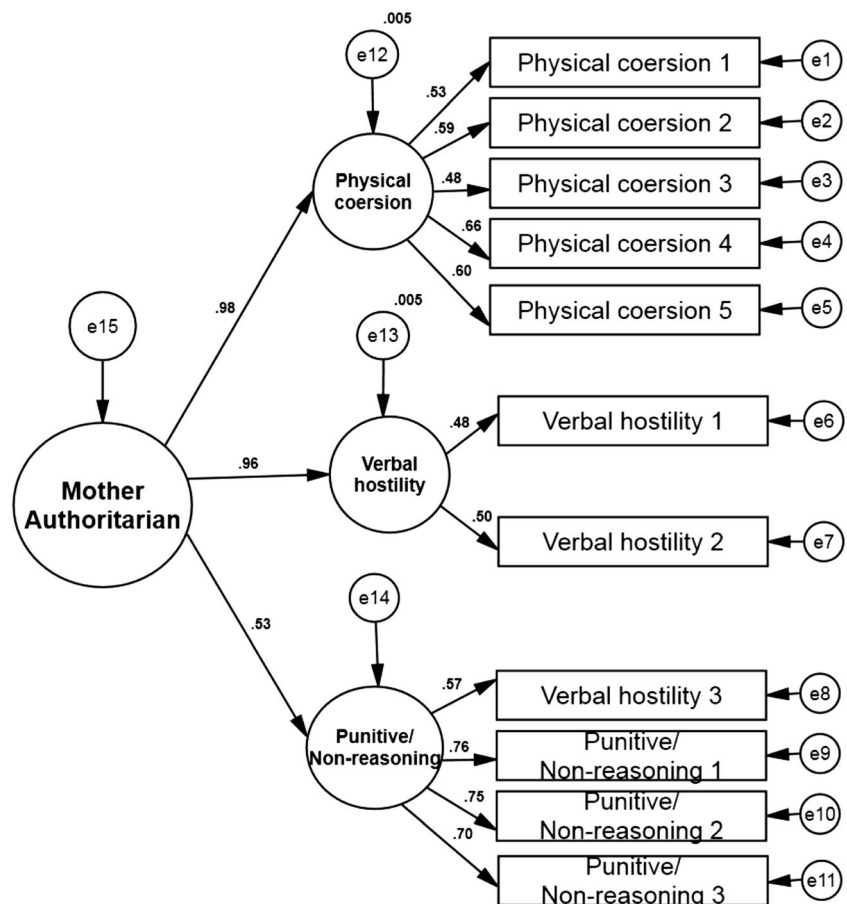
This study was conducted to determine the psychometric properties of a Korean version of the PSDQ. The study revealed that the Cronbach alpha values and scale inter-correlations suggested reasonable consistency between mothers and fathers and stronger estimates of reliability values than previous translation studies in Spanish (Diaz 2005), Turkish (Onder and Gulay 2009), and Portuguese (Pedro et al. 2015). However, careful factor analytic modeling of three

different frameworks showed that the PSDQ did not have identical structure between mothers and fathers. Further, the quality of fit was generally weak until items were removed or factor structures changed. Although, the current study was able to test a reliable and valid version of the PSDQ for use with Korean immigrant mothers and fathers in New Zealand that generally supported the three-factor model of the authoritarian constructs developed by Wu et al. (2002), modifications were needed to achieve adequate fit to the data.

### Verbal Hostility

Slightly different combinations of items were obtained for the mothers and fathers, with the most pronounced differences in

**Fig. 1** Mother authoritarian model



**Table 3** Goodness-of-fit indices of models for the fathers’ authoritarian parenting ( $N = 79$ )

Model	$k$	$\chi^2$	$df$	$\chi^2/df$	$p$	CFI	Gamma hat	RMSEA	SRMR
Single-factor model	11	118.0	44	2.68	.11	.78	.85	.147	.084
Three factor model (correlated)	11	97.0	41	2.37	.12	.84	.88	.133	.077
Hierarchical model	11	97.0	41	2.37	.12	.84	.89	.132	.077
A revised hierarchical model*	9	64.6	24	2.69	.10	.87	.90	.147	.073

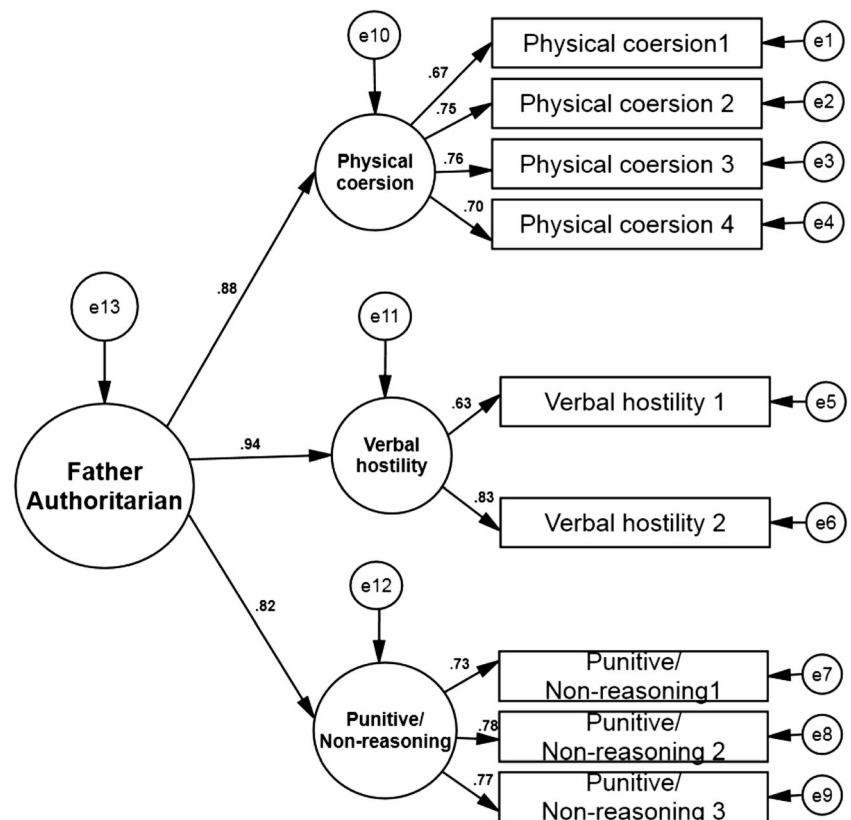
\* represents a final revised model used in the study

the verbal hostility dimension. The different combinations of items obtained for mothers and fathers may be due to two reasons: (1) the wording of items and (2) the different parenting roles of Korean mothers and fathers.

First, the wording of “I yell or shout when my child misbehaves” may not represent the ‘verbal hostility’ construct well for mothers. In support of this view, Kim and Hong’s (2007) study that examined the perceptions of Korean-American parents’ discipline found that if the child did not conform, Korean-American parents, particularly mothers, tended to yell, scold, and give warning for punishment. Hence, Korean immigrant mothers may view yelling and scolding more as punishment rather than as verbal hostility. Second, it is possible that consistent with Asian cultural norms, the statement “I argue with my child” is seen as unnecessary or not feasible by Korean fathers. In Korean or

Confucian heritage culture, disagreeing and arguing with parents, especially with fathers, is regarded as disrespectful (Schmidt 2006). Research suggests that Korean-American fathers hold more traditional views of parent-child relationships than mothers and children (Kim and Cain 2008) and view themselves as the authority of the household (Kim 2005). Koreans still adhere more firmly to traditional Confucian principles of family organization than Japanese and Chinese individuals (Stowell 2003). This is even more evident in Korean parents who grew up in the Confucian heritage culture. For example, Korean-American parents in Kim and Cain’s (2008) study expected their children to obey them without talking back or questioning their authority because that was how they were raised as children in Korea. Similarly, Asian-American children reported that they believed it is not acceptable to openly contradict their fathers (Oda 2010). Therefore,

**Fig. 2** Father authoritarian model





**Table 4** Goodness-of-fit indices of models for the mothers’ authoritative parenting ( $N = 128$ )

Model	$k$	$\chi^2$	$df$	$\chi^2/df$	$p$	CFI	Gamma hat	RMSEA	SRMR
Single-factor model	15	237.9	90	2.64	.10	.83	.87	.114	.079
Three factor model (correlated)	15	297.9	90	3.30	.07	.76	.79	.135	.179
Hierarchical model	15	221.9	89	2.49	.11	.85	.88	.108	.078
A revised hierarchical model*	12	98.4	52	1.89	.17	.94	.94	.084	.057

\* represents a final revised model used in the study

unquestioning obedience to fathers may explain why arguments between fathers and children do not load onto the expected factor.

Third, in addition to verbal hostility, item 6 (i.e., “I slap my child”) from the physical coercion dimension was removed from the father model but not from the mother model, perhaps because of the differences between mothers’ and fathers’ impulsive and emotional behaviors in the discipline process. In support of this, Kim and Hong (2007) found in their study that only Korean-American mothers responded in an impulsive manner when slapping a child. They admitted that slapping a child with an open hand was an action that they performed when driven by their emotions. This suggests that mothers are less likely than fathers to regulate their emotions when using physical punishment. In Korean culture, it is

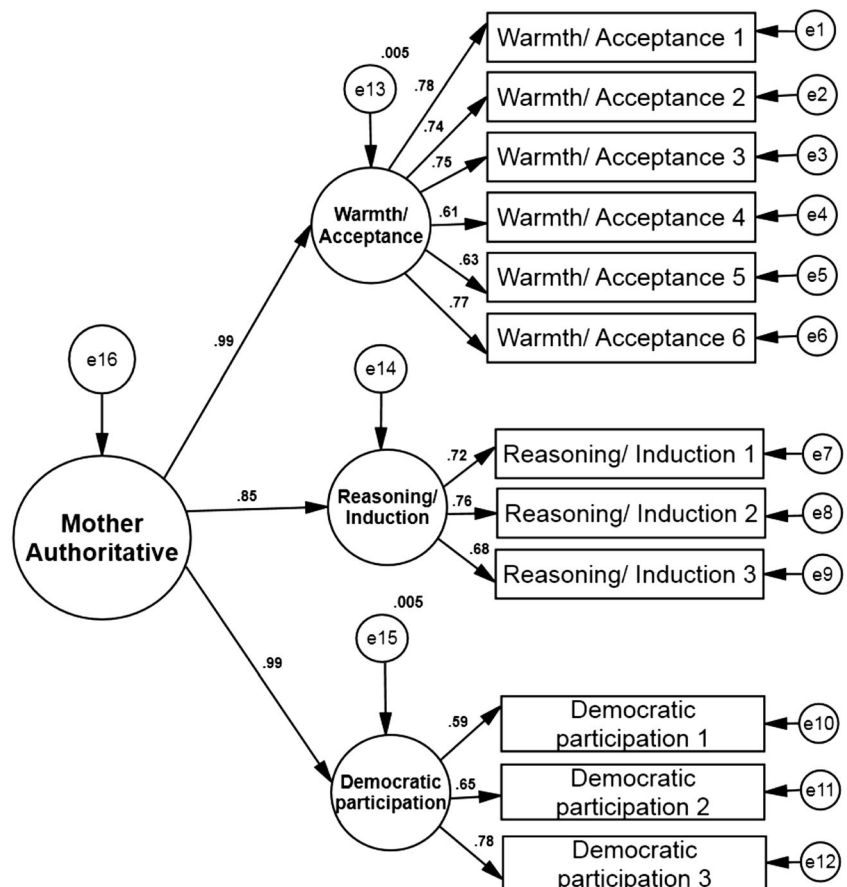
believed that a father must not express emotions of happiness and anger; this may explain why item 6 was retained in the mother model but was removed from the father model.

In general all PSDQ dimensions were equivalent in meaning for mothers and fathers, except for the verbal hostility dimension. Notwithstanding the differences in the results for mothers and fathers, the general impression is that there was considerable similarity between mothers and fathers and that the results are in line with Wu et al. (2002).

### Authoritative Parenting

Regarding authoritative parenting, the results obtained here partially support Wu et al.’s (2002) authoritative constructs for both fathers and mothers in this study. However, slightly

**Fig. 3** Mother authoritative model



**Table 5** Goodness-of-fit indices of models for the fathers’ authoritative parenting ( $N = 79$ )

Model	$k$	$\chi^2$	$df$	$\chi^2/df$	$p$	CFI	Gamma hat	RMSEA	SRMR
Single-factor model	15	212.7	90	2.36	.12	.77	.83	.132	.091
Three factor model (correlated)	15	288.8	90	3.21	.07	.62	.75	.168	.219
Hierarchical model	15	210.0	88	2.39	.12	.77	.83	.133	.091
A revised single factor model*	10	64.9	35	1.86	.17	.91	.94	.082	.057

\* represents a final revised model used in the study

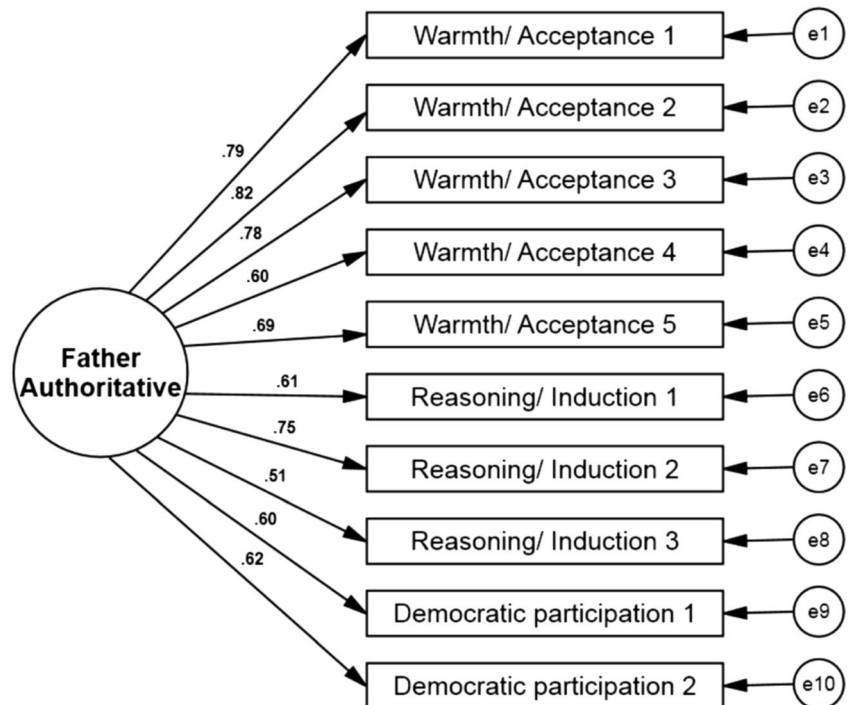
different factor structures were obtained for the mothers and fathers. The three factors proposed by Wu et al. (2002) were recovered for only the mothers in this sample, whereas, for fathers, a single-factor model was recovered. One possible reason for not replicating Wu et al.’s (2002) three-factor structure for fathers is that Wu et al. (2002) only used mothers. Hence, the presence of 79 fathers in the current sample provides an interesting hint that gender differences may occur in terms of the factor structure of authoritative parenting.

For the mother model, item 4 (“I give comfort and understanding when my child is upset”) and item 5 (“I show sympathy when my child is hurt or frustrated”) of the warmth/acceptance dimension share closely related meanings. When they are translated into Korean, two different meanings equivalent to the words “comfort” and “sympathy” were found. Thus, these two items have very similar meanings with respect to the Korean language. In fact, item 4 was retained because this item had the least skew, while item 5 was highly skewed.

For fathers, showing sympathy and giving comfort when the child is upset or hurt is not considered within a father’s domain, which may explain why these items had low factor loadings among the fathers. These two items seem to strongly reflect maternal devotion, which refers to a mother’s unconditional love and empathetic understanding of her children. This is an important traditional parenting practice that persists in modern Korean society (Kim and Choi 1994; Kim et al. 2005).

There is another reason for the removal of reasoning/induction item 4 (“I explain the consequences of the child’s behavior”) from both the mother and father models. For example, Asian parents generally accept the view that children should learn to understand that there are consequences to their behaviors (Schmidt 2006). Similarly, Korean-American parents in Kim and Hong’s (2007) study reported that they tried to communicate with their children when they had different views on misbehavior or what potential disciplinary action for

**Fig. 4** Father authoritative model



**Table 6** Goodness-of-fit indices of the PSDQ models after Swain Correction

Model	<i>k</i>	Correction	$\chi^2$	<i>df</i>	$\chi^2/df$	<i>p</i> *	Gamma hat	CFI	RMSEA
Mothers' authoritarian	11	.963	106.84	43	2.48	.11	.91	.94	.108
Fathers' authoritarian	9	.948	61.23	24	2.55	.10	.90	.96	.142
Mothers' authoritative	12	.960	94.50	52	1.82	.16	.95	.96	.080
Fathers' authoritative	10	.945	61.30	35	1.75	.17	.94	.98	.099

*k* number of items; *df* degrees of freedom; *CFI* comparative fit index; *RMSEA* root mean square error of approximation; *SRMR* standardized root mean residual

negative actions and behaviors was employed. However, when parents attempted to teach their children by explaining to them, they experienced communication difficulty with their children because of the parents' lack of English speaking abilities and the children's limitations in their ability to speak and understand Korean. In the current study, Korean immigrant parents' average length of stay in New Zealand was 7 years, and the average age of their oldest child was 8 years. Generally, children learn English faster than their parents, and they do not acquire their native language as proficiently as they grow older. Therefore, Korean parents in this study may also experience communication difficulty with their children when disciplining them in Korean.

Item 4, "I apologize to the child when making a mistake in parenting," which is from the democratic participation factor, was retained in the mother model but removed from the father model. One possible reason why Korean fathers may not relate to this item is that Korean fathers tend to maintain distance, associated with the traditional status hierarchy, when interacting with their children (Kim et al. 2006). They are less verbally expressive, and most importantly, they tend to save face and ask their children to obey (Kim and Cain 2008). Apologizing to children might thus be considered face threatening for Korean immigrant fathers.

It is possible that the lack of equivalence in the factor structure for mothers and fathers may be due to differences in item interpretation. However, the more likely explanation is that the factor structure for mothers and fathers was unequal because of the small sample sizes used to factor analyze a large number of items. Nevertheless, the authoritative parenting style model explained more variance and provided a better fit to the data than the authoritarian parenting style model in the current study. It would appear that the 10 authoritative items measuring authoritative parenting style were adequate indicators for Korean immigrant mothers and fathers. Most items had adequate and similar factor loadings for mothers and fathers, providing evidence for conceptual equivalence. Since the three-factor structure of the authoritative model was recovered with the larger mother sample, it is assumed that the failure to do so with fathers is a function of sample size rather than any inherent characteristic of fathers.

## Conclusion

Therefore, the current findings provide some insight regarding the question of whether the Western conceptualizations of authoritarian and authoritative parenting styles can be applied to Korean immigrant parents in New Zealand. The present findings can be regarded as a positive response to this question, as the findings clearly suggest that the revisions make sense theoretically and conceptually and retained most parts of the original models. Hence, the present findings suggest that the concept of authoritarian and authoritative parenting styles developed in the West is applicable to Korean immigrant parents, and these findings can be regarded as interesting additions to the literature on parenting styles. Nonetheless, while the PSDQ items themselves may be useful in assessing parenting styles of Korean immigrants, the factors themselves and their consequential scale scores may not be defensible, without significant modification.

Our results also support the assertion (e.g., Costigan and Koryzma 2011; Yu et al. 2016) that higher orientation toward the host culture is positively associated with familiarity with Western culture, which may in turn be associated with more Western parenting practices (e.g., more warmth, reasoning, and monitoring). Our results showing that Korean immigrant parents scored high on authoritative parenting are consistent with those of Kim and Hong (2007) and Kim et al. (2013), who reported that compared to recent immigrant parents, Korean-American parents who had been living in the U.S. longer or who had more access to American parenting practices adopted aspects of European-American parenting (i.e., reasoning, more praising, hugging/kissing, and adding/removing privileges) consistent with an authoritative parenting style.

Although this study has provided a comprehensive assessment of the construct validity of the PSDQ and has made a novel contribution to the literature on the administration of the PSDQ to Korean immigrant parents, the study is not without its limitations. First, a gender balance was not achieved, as there were fewer fathers than mothers in the sample. This limited the extent to which comparisons could be made between paternal and maternal parenting. For example, the

three-factor structure of the authoritative model failed to recover for the father sample, whereas it was successfully obtained for the larger mother sample. Therefore, future studies would need to include a larger sample of father-reported data to replicate the original three-factor structure. Indeed, larger sample sizes across the board would improve the generalizability of the current models, which do fit the current data, to the whole population of Korean immigrant parents. Next, in line with much other research on parenting, the data were entirely based on self-reported questionnaires completed by parents. Future research should seek to use multi-method assessments that incorporate observational methodologies. In addition, the verbal hostility dimension was not equivalent in meaning for mothers and fathers. Therefore, future studies should revise this dimension, and the different parental roles for mothers and fathers with respect to punishment and verbal hostility need to be taken into account. As a note of caution, one should keep in mind that physical coercion is an issue that is sensitive to individual cultures. For this reason, differences in mothers' and fathers' responses regarding this item might be affected not only by the differences between mothers' and fathers' impulsive and emotional behaviors in the discipline process but also by the social desirability of parents in answering the survey. The use of other informants, such as children, would be helpful for validating these findings. Finally, it is intriguing that about one-fifth of the sample were divorced, widowed, or living transnationally alone. It may be that such parents do have significantly different parenting styles to that of married or living together parents. The very small sample size of this group meant that it was not possible to investigate this concern; however, future research with 'solo' immigrant Korean parents may be extremely informative.

The results of the current study provide a basis for other researchers to continue exploration of the PSDQ with larger samples of Korean immigrant parents in New Zealand or other English speaking nations. In addition, Korean-New Zealand family therapists, counselors and parenting professionals could use the Korean version of the PSDQ to develop a proper comprehension of parenting styles within the context of immigration and, from the results, design more effective interventions for relevant parenting skills. In conclusion, the results of this study suggest that although some items from the originally proposed scales were inappropriate for the current sample, most of the items making up the authoritarian and authoritative scales were applicable to both mothers and fathers. This result indicates that a model of parenting constructs derived from Western parenting styles is measurable in a Korean sample.

### Compliance with Ethical Standards

**Conflict of Interest** The author declares no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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