Abstract

Filial piety is a Confucian concept that guides how children treat and take care of their parents. The Filial Behavior Scale (FBS) is a 25-item instrument developed in the Chinese context measuring behavioral manifestations of filial piety. Although the components of filial piety have been found to be relevant across cultures, little research has investigated the psychometric properties of the FBS in other cultural contexts. The present study evaluated the factor structure, internal consistency, measurement invariance, and construct validity of the FBS across three cultural groups: the United States, Italy, and Malaysia. Participants were 1,090 emerging adults (67% females; M_{age} = 21.29 years, SD = 1.97; White Americans: n = 455, White Italians: n = 428, Malays: n = 328). A two-factor structure emerged across groups: Obedience/Obligation (behaviors showing obedience and obligation towards parents) and Relationship (behaviors expressing affection and promoting positive parent-child relationships). The two factors demonstrated adequate internal consistency, full configural, partial metric, and partial scalar invariance, as well as unique associations with depressive symptoms and parent-child relationships across groups. These findings yielded a more nuanced understanding of filial behavior and supported the utility of a two-factor FBS among emerging adults in various cultural contexts.

Keywords: filial piety, psychometric properties, cross-cultural, emerging adults

Evaluating the Filial Behavior Scale Across Three Cultural Groups Using

Exploratory Structural Equation Modeling

Filial piety is a Confucian concept that emphasizes children's responsibility to love, respect, and support their parents (Yeh & Bedford, 2003). Although rooted in Confucian philosophy, components of filial piety are shared by various cultural groups, such as Malaysian (Tan et al., 2021), South Korean (Sung, 1995), Vietnamese (Ha et al., 2020), U.S. (Lim et al., 2022), Polish (Różycka-Tran et al., 2021), and Spanish (Kao & Travis, 2005) cultures. Most existing measures of filial piety focus on attitudes and beliefs, whereas the behavioral aspects are largely neglected or conflated with other components. To better understand behaviors driven by filial piety, Chen et al. (2007) developed the 25-item Filial Behavior Scale (FBS) to measure the behavioral manifestations of filial piety in the Chinese context. However, the FBS has rarely been validated in other cultural contexts.

The present study aimed to evaluate the psychometric properties of the FBS among three ethnic-dominant groups in their respective countries: White Americans, White Italians, and Malay Malaysians. The three groups share certain components of filial values (Inguglia et al., 2016; Lim et al., 2022; Nainee et al., 2016) but vary in other important values such as individualism/independence and collectivism/interdependence (Hofstede, 2022), and thus were suitable for the cross-cultural validation of the FBS. We focused on emerging adult (i.e., 18-25 years old) samples in this study, as individuals tend to feel a strong sense of family obligation when moving from adolescence to emerging adulthood (Fuligni & Pedersen, 2002).

Filial Piety

Filial piety is defined as a set of norms, values, and practices that prescribe how children should treat their parents, which involves a wide range of behaviors such as showing love, respect, obedience, and taking care of aged parents (Ho, 1994). Yeh and Bedford (2003) proposed a dual filial piety model that distinguished between reciprocal filial piety (RFP) and authoritarian filial piety (AFP), where RFP encompasses children's voluntary support rooted in love and gratitude towards parents, and AFP entails children's absolute obedience to parents based on family hierarchy. Recently, Bedford and Yeh (2021) conceptualized filial piety as universal psychological motivations for RFP and AFP.

Both RFP and AFP have implications for individual adjustment and family relationships. RFP has been consistently associated with positive outcomes such as greater life satisfaction (Tan et al., 2021) and better parent-child relationship (Li et al., 2014), whereas AFP has been linked with maladaptive outcomes such as lower self-esteem (Leung et al., 2010) and poorer family functioning (Li et al., 2014), as AFP often requires children to suppress their own wishes and comply with parents' wishes (Bedford & Yeh, 2021).

Filial Behavior Scale

As the concept of filial piety originated from the Chinese Confucian culture, most measures of filial piety were developed among Chinese populations, and these measures tend to focus on filial values and attitudes (Ho, 1994; Yeh & Bedford, 2003); however, filial behaviors may reflect unique psychological processes and serve distinct functions, as filial behaviors were only moderately correlated with filial attitudes and were predicted by a set of

social values (e.g., conservation) above and beyond filial attitudes among Chinese college

students (Chen et al., 2007). To fill this gap, Chen et al. (2007) developed the 25-item single-

factor FBS, which captured a wide range of filial behaviors that reflect key components (e.g.,

obedience, respect, emotional and financial support) involved in other widely used

instruments of filial piety (Ho, 1994; Yeh & Bedford, 2003). The scale showed good

reliability and validity in Chinese samples, with scores being positively correlated with filial

attitudes and interdependent self-construal (Chen et al., 2007), but the psychometric

properties of the FBS have rarely been examined in other cultural contexts.

As the cornerstone of the Confucian ethics, filial piety is endorsed more strongly in

collectivist/interdependence-focused cultures than in individualistic/independence-focused

cultures, especially in Asian cultures (Tan et al., 2021). However, components of filial piety

are shared in other cultures as well. For example, young adults from both Western (Canada,

U.S., Australia, New Zealand) and Asian (The Philippines, South Korea, China, and Japan)

countries feel an obligation to support elderly parents (Gallois et al., 1999). Moreover,

although filial piety values have been found in diverse cultures, behavioral patterns driven by

these values may vary (Chen, 2010). To explore cultural similarities and differences in filial

behaviors, evaluation of the FBS as a valid tool that can be applied in various cultural

contexts is necessary, and such evaluation can also inform the conceptualization of filial piety

behavioral patterns across cultures.

Cross-Cultural Validation of the FBS in Malaysia, Italy, and the United States

The endorsement of filial piety is positively predicted by collectivistic values (Lim et

al., 2022). To evaluate the FBS across diverse cultural contexts that differ in filial behaviors, we selected three countries located at different points along the continuum of individualism-collectivism: Malaysia, Italy, and the United States. Among the three countries, Malaysia is closer to the collectivism end, the United States is closer to the individualism end, and Italy falls in between (Hofstede, 2022). Moreover, we focused on the dominant ethnic groups (i.e., Malays, White Italians, and White Americans) that can best represent the mainstream cultures in these countries to align with our purpose of cross-cultural validation of FBS.

Malaysia is a multi-racial culture comprised of Malay, Chinese, Indian, and indigenous communities, with Malays being the largest ethnic group. Malaysia is a highly collectivist culture where harmonious social relationships and family interdependence are strongly valued (Baharudin et al., 2021). Despite undergoing Westernization, filial piety remains a fundamental principle guiding Malaysian family socialization (Nainee et al., 2016), where children are expected to respect, obey, and support their parents. Limited research examining filial piety in the Malaysian context found filial piety to be associated with generally positive outcomes, such as greater life satisfaction (Tan et al., 2021) and better socio-emotional adjustment (Ismail et al., 2009).

Both Italy and the United States are individualistic cultures emphasizing autonomy, independence, and self-reliance; however, Italy is relatively more collectivistic than the United States (Hofstede, 2022), especially in the southern regions. Most Italian families engage in practices promoting both individual autonomy and family interdependence (Inguglia et al., 2016). Moreover, partly due to the limited support from the social welfare

system, many Italian emerging adults rely on their families for financial support and live with

their parents (Crocetti & Meeus, 2014). Thus, maintaining a strong family connection may be

particularly important for Italian emerging adults' well-being.

Compared to Italy, family socialization practices in the United States emphasize less

on family obligations and focus more on fostering independence and self-sufficiency,

especially in the mainstream White American culture (Inguglia et al., 2016). However, filial

concepts have been found among White Americans as well. For example, filial piety,

communalism, and familism comprised a latent construct of family/relationship primacy

across White, Black, Hispanic, and Asian Americans (Schwartz et al., 2010). Moreover, filial

piety beliefs positively predicted White American adults' attitudes towards caring for elderly

parents (Lim et al., 2022). In sum, the variations in collectivist versus individualistic values

among Malaysian, Italian, and U.S. cultures warrant an investigation of the concept of filial

piety in all three groups.

The Current Study

The purpose of this study was to examine the psychometric properties of the FBS

using emerging adult samples across three cultural groups: the United States, Italy, and

Malaysia. The first aim was to evaluate the factor structure and internal consistency of the

FBS. We expected that the FBS would demonstrate a one-factor model and good reliability in

these samples (Chen et al., 2007). The second aim was to test the measurement invariance of

the FBS. We expected that the FBS would be invariant across the three cultural groups. The

third aim was to test the construct validity of the FBS by examining its concurrent

associations with emerging adults' depressive symptoms and parent-child relationship quality (affection, intimacy, and conflict). Based on the literature, we expected that filial behavior would be associated with fewer depressive symptoms and better parent-child relationships; these associations would be stronger in the Malaysian sample than in the Italian and U.S. samples, as filial piety is more normative and compatible with the cultural values of collectivistic cultures than individualistic cultures (Bedford & Yeh, 2021).

Method

Participants

Participants were 1,090 emerging adults (67% females; M_{age} = 21.29 years, SD = 1.97) attending universities in the United States, Italy, and Malaysia. The U.S. sample included 455 White individuals in Baltimore, Maryland (68% females; M_{age} = 20.44 years, SD = 1.66). The Italian sample included 428 White individuals in Palermo, Sicily (62% females; M_{age} = 22.39 years, SD = 1.86). The Malaysian sample included 207 Malay individuals in Kuala Lumpur (76% females; M_{age} = 20.91 years, SD = 1.71).

Measures

Filial Behavior

The FBS consists of 25 items assessing filial behaviors (Chen et al., 2007; e.g., "When I make decisions, I consider their impact on my parents;" Table 2 presents additional sample items). Items were rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores representing higher levels of filial behaviors. αs = .86, .87, and .87 for U.S., Italian, and Malaysian samples, respectively.

Depressive Symptoms

Depressive symptoms were assessed using the 20-item Center for Epidemiological Studies Depression Scale (Radloff, 1977; e.g., "I felt depressed"). Participants rated the frequency of experiencing depressive symptoms in the past week on a 4-point Likert scale from 1 (*rarely or none of the time*) to 4 (*most or all of the time*). αs = .91, .88, and .85 for U.S., Italian, and Malaysian samples, respectively.

Parent-Child Relationship Quality

Nine items from the Network of Relationship Inventory (Furman & Buhrmester, 1985) were used to assess parent-child relationship affection (e.g., "How much does this person really care about you?"), intimacy (e.g., "How much do you share your secrets and private feelings with this person?"), and conflict (e.g., "How much do you and this person get upset with or mad at each other?"). Each dimension consists of three items. Participants rated how much each relationship quality occurred in their relationships with father and mother separately on a 5-point Likert scale from 1 (*little or none*) to 5 (*the most*). Most parent-child relationship quality dimensions demonstrated moderate to high reliability across three groups (αs ranging from .76 to .92), with the exceptions of mother-child and father-child conflict in the Malaysian sample (αs = .62 and .61).

Procedure

Participants were recruited through university courses and postings of flyers. The U.S. sample completed questionnaires in English, and the Italian and Malaysian samples used the Italian- and Malay-language versions of questionnaires, respectively. Specifically,

questionnaires were translated from English to Italian and Malay and back-translated to

English to ensure that the meaning of the items was consistent. All discrepancies were

resolved through discussion among translators. Ethical approval was obtained from the

[Blinded] Institutional Review Board.

Data Analyses

We first tested the one-factor FBS using confirmatory factor analysis (CFA). As the

model did not fit well in any group, we explored the factor structure using exploratory

structural equation modeling (ESEM) within each group. Compared to EFA, ESEM is an

advanced factor analytic approach with the advantage of providing model fit indices that help

determine the optimal number of factors. By allowing cross-loadings between items and

latent factors, ESEM also provides more accurate estimates for goodness-of-fit, factor

correlations, and structural relations than CFA (Morin et al., 2020). Next, we conducted

multiple-group CFA to test the invariance of FBS across cultural groups in terms of the

pattern of loadings on latent factors (i.e., configural invariance), item loadings (i.e., metric

invariance), and item intercepts (i.e., scalar invariance). Internal consistency was estimated

using McDonald's ω, which makes fewer and more realistic statistical assumptions than

Cronbach's alpha and largely avoids the problems associated with assumption violation

(Dunn et al., 2014).

Construct validity of the FBS was assessed by a series of multiple regression models

where FBS factors predicted depressive symptoms and parent-child relationship separately in

each group (one regression model for each outcome). Age and gender were controlled as

these variables were significantly correlated with the outcomes (rs ranged from -.14 to .16).

Model fit was evaluated using the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). Good model fit was indicated by CFI > .95, RMSEA < .05, and SRMR < .08. Acceptable model fit was indicated by CFI > .90, RMSEA < .08, and SRMR < .10 (Hu & Bentler, 1999). Bayesian information criterion (BIC) was considered in determining the optimal number of factors. Models with lower BIC were preferred. Nested measurement invariance models were evaluated using the criteria of ΔCFI < .010, ΔRMSEA < .015, and ΔSRMR < .030 (Cheung & Rensvold, 2002).

Analyses were performed using Mplus 8.6. As some FBS items were skewed, the robust maximum likelihood estimator was used. An oblique Geomin rotation with an epsilon value of 0.5 was used for ESEM. Less than 1% of the data were missing. Little's MCAR test suggests that the data were missing completely at random, $\chi^2 = 446.97$, $df = 422$, $p = .193$. Missing data were handled using full information maximum likelihood.

Results

As the one-factor FBS yielded a poor fit for all samples, ESEM models specifying two to four factors were conducted in each sample (see Table 1). For the U.S. sample, the three-factor solution had the lowest BIC and acceptable model fit. However, two factors both pertained to behaviors expressing positive affection towards parents. To obtain more information, we conducted EFA and an elbow occurred at the 3rd factor in the scree plot, indicating that the factor did not contribute significantly to explaining the item variances.

Therefore, the two-factor solution was selected. For the Italian sample, the three-factor

solution had the lowest BIC and acceptable model fit. However, after removing items with

main loadings < .40 and cross-loadings > .30, only two items were retained in one of the

factors. The scree plot also showed an elbow at the 3rd factor. Therefore, we selected the two-

factor solution with the second-lowest BIC. For the Malaysian sample, the two-factor

solution had the lowest BIC and accept model fit except for CFI. After removing items with

main loadings < .40 and cross-loadings > .30 within each group, the two-factor ESEM model

fit well and had the lowest BIC. Therefore, a two-factor ESEM model with a varying number

of items (15, 10, and 13 items for U.S., Italian, and Malaysian samples, respectively) was

selected across all three samples.

Table 1

Goodness-of-Fit Indices

Model	SB-χ^2	*df*	CFI	RMSEA[90% CI]	SRMR	BIC
White American						
One-factor CFA	1133.46	275	.652	.083[.078-.088]	.087	32461.97
Two-factor ESEM	582.13	251	.866	.054[.048-.060]	.048	31964.53
Three-factor ESEM	446.31	228	.911	.046[.040-.052]	.040	31935.51
Four-factor ESEM	353.30	206	.940	.040[.033-.047]	.034	31958.60
15-item two-factor ESEM	180.51	76	.935	.055[.045-.065]	.039	18363.73
10-item two-factor CFA	83.87	34	.950	.057[.042-.072]	.054	12510.12
White Italian						

	SB-χ^2	df	CFI	RMSEA [CI]	SRMR	BIC
One-factor CFA	829.92	275	.743	.069[.063-.074]	.067	29638.87
Two-factor ESEM	577.80	251	.849	.055[.049-.061]	.048	29494.08
Three-factor ESEM	449.23	228	.897	.048[.041-.054]	.040	29479.63
Four-factor ESEM	637.85	206	.800	.070[.064-.076]	.035	29530.73
10-item two-factor ESEM	52.86	26	.965	.049[.030-.068]	.029	12056.02
10-item two-factor CFA	90.33	34	.926	.062[.047-.078]	.055	12166.74
Malay						
One-factor CFA	595.30	275	.764	.075[.067-.083]	.071	12349.34
Two-factor ESEM	467.26	251	.841	.065[.055-.074]	.056	12317.40
Three-factor ESEM	541.56	228	.769	.082[.073-.090]	.047	12355.94
Four-factor ESEM	320.26	206	.916	.052[.040-.063]	.041	12368.88
13-item two-factor ESEM	69.54	50	.972	.043[.012-.066]	.036	5742.57
10-item two-factor CFA	81.01	34	.908	.082[.059-.105]	.050	4690.21

Note. SB-χ^2 = Satorra-Bentler scaled χ^2; *df* = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SRMR = standardized root mean squared residual; BIC = Bayesian information criterion; CFA = confirmatory factor analysis; ESEM = exploratory structural equation modeling.

Although specific items varied, the item contents of the two FBS factors were similar across cultural groups. The first factor consisted of behaviors reflecting children's obedience or felt obligation towards parents and was labeled "Obedience/Obligation." The second factor consisted of behaviors reflecting or promoting positive parent-child relationships and was

labeled "Relationship." To allow for the test of measurement invariance, we only retained

items that were shared by two or more cultural groups, which resulted in a 10-item two-factor

CFA model (see Supplemental Materials for detailed information on the final two-factor

ESEM and CFA models). The model achieved an acceptable to good fit across three groups

and had the lowest BIC in U.S. and Malaysian samples (see Table 1). Therefore, the 10-item

two-factor FBS was selected as the final solution. Table 2 presents the items, loadings, and ω

coefficients of this final model. The two factors demonstrated acceptable to good reliability in

all three groups. The correlations between the two factors in U.S., Italian, and Malaysian

samples were .51, .45, and .84 (ps < .001), respectively.

Table 2

Standardized Factor Loadings of the Final Two-Factor CFA Model

Item	White American		White Italian		Malay	
	Obedience/ Obligation	Relationship	Obedience/ Obligation	Relationship	Obedience/ Obligation	Relationship
1. When I make decisions, I consider their impact on my parents.	.53		.48		.42	
18. I obey my parents under all circumstances.	.62		.73		.79	
22. I do what my parents want me to do.	.70		.60		.69	
25. When my interests conflict with those of my parents, I sacrifice my own interests.	.63		.47		.69	
7. I give presents to my parents.		.46		.52		.51
10. I accompany my parents to do what they like.		.49		.49		.65

15. I often call home.		.67		.57		.64
17. I often chat with my parents in order to improve our relationship.		.77		.66		.81
19. I tell my parents that I miss them.		.61		.69		.69
20. No matter how busy my study or work is, I try to make time to meet with my parents.		.84		.71		.64
ω	.72	.82	.67	.78	.76	.82

Note. All factor loadings were significant at *p* < .001.

Table 3

Measurement Invariance Tests

Model	SB-χ^2	*df*	CFI	RMSEA [90%CI]	SRMR	Model Comparison	ΔSB-χ^2	Δ*df*	ΔCFI	ΔRMSEA	ΔSRMR
1 Configural invariance	255.02	102	.932	.064[.054-.074]	.054						
2 Metric invariance	299.05	118	.919	.065[.056-.074]	.083	2-1	43.66***	16	.013	.001	.029
2a Partial metric invariance[a]	289.95	116	.922	.064[.055-.074]	.072	2a-1	34.94***	14	.010	.000	.018
3 Scalar invariance	607.74	130	.787	.101[.093-.109]	.106	3-2a	366.27***	14	.135	.037	.034
3a Partial Scalar invariance[b]	316.92	126	.915	.065[.056-.073]	.079	3a-2a	27.19**	10	.007	.001	.007

Note. SB-χ^2 = Satorra-Bentler scaled χ^2; *df* = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SRMR = standardized root mean squared residual.

[a] Loadings of item 1 and 10 in the Malaysian sample were freely estimated.

[b] Intercepts of item 10, 19, and 22 in the Italian sample and item 1, 10, and 22 in the Malaysian sample were freely estimated.

[**] $p < .01.$ [***] $p < .001.$

Table 3 presents the results of the cross-cultural measurement invariance tests. The configural invariance model yielded a good fit, suggesting that the factor structure was equivalent across groups. The metric invariance model achieved an acceptable fit, however, the model fit was significantly worse than the configural invariance model. We released the constraint on the loadings of item 1 (lower than the U.S. group) and item 10 (higher than the U.S. group) in the Malaysian sample based on the modification indices. The model fit improved and a partial metric invariance was achieved, suggesting that the item loadings were partially equivalent across groups. The scalar invariance model fit the data poorly and the fit indices got significantly worse than the partial metric invariance model. We released the constraint on the intercepts of item 10 and item 19 in the Italian sample and item 22 in both Malaysian and Italian samples (all items were lower than the U.S. group). The model fit improved and supported a partial scalar invariance, suggesting that the item intercepts were partially equivalent across groups.

Associations between FBS factors and depressive symptoms and parent-child relationship quality after controlling for age and gender are presented in Table 4. The two FBS factors were entered in each model simultaneously to examine their unique contributions. Obedience/Obligation was associated with less mother-child conflict in the U.S. and Malaysian samples and less father-child conflict in the U.S. sample. No significant associations regarding Obedience/Obligation were found in the Italian sample. Relationship was associated with fewer depressive symptoms, greater parent-child affection and intimacy, and less parent-child conflict in U.S. and Italian samples, except for a non-significant

association between Relationship and father-child conflict in the U.S. sample. In the

Malaysian sample, Relationship was only associated with greater parent-child intimacy but

not associated with depressive symptoms or other parent-child relationship qualities.

Table 4

Associations Between FBS factors and Depressive Symptoms and Parent-child Relationship

	β(SE)					
	White American		White Italian		Malay	
Outcome	Obedience/Obligation	Relationship	Obedience/Obligation	Relationship	Obedience/Obligation	Relationship
Depressive Symptoms	.09(0.08)	-.18(0.07)*	-.02(0.07)	-.17(0.08)*	-.10(0.22)	-.06(0.22)
Mother-child relationship quality						
Affection	-.01(0.08)	.42(0.06)***	-.06(0.06)	.49(0.06)***	.24(0.24)	.22(0.21)
Intimacy	.01(0.07)	.48(0.06)***	-.03(0.07)	.44(0.06)***	-.06(0.23)	.61(0.22)**
Conflict	-.19(0.08)*	-.19(0.07)*	-.09(0.07)	-.32(0.06)***	-.46(0.22)*	.25(0.20)
Father-child relationship quality						
Affection	.06(0.07)	.35(0.07)***	-.06(0.07)	.36(0.07)***	.50(0.29)	-.19(0.30)
Intimacy	.12(0.06)	.30(0.06)***	-.01(0.08)	.43(0.07)***	-.18(0.20)	.61(0.19)**
Conflict	-.17(0.07)*	-.03(0.07)	.05(0.07)	-.19(0.07)**	-.27(0.23)	-.18(0.22)

Note. Standardized regression coefficients are presented. Age and gender were controlled as covariates in all regression models. CI = confidence

interval.

[*] $p < .05$, [**] $p < .01$, [***] $p < .001$.

Discussion

The present study examined the psychometric properties of the FBS using emerging adult samples from the United States, Southern Italy, and Malaysia. Contrary to our hypothesis, the one-factor model of FBS did not fit well in our samples. Instead, a 10-item two-factor model was revealed in all three cultural groups: Obedience/Obligation pertains to children's obedience to the hierarchical family role obligations and Relationship pertains to behaviors that promote positive parent-child relationships or express children's genuine affection towards parents. The two-factor FBS showed adequate internal consistency and full configural, partial metric, and partial scalar invariance across three cultural groups. Construct validity of the scale was demonstrated by distinct patterns of associations between the two FBS factors and depressive symptoms and parent-child relationships among U.S., Italian, and Malaysian emerging adults.

Factor Structure and Measurement Invariance

The two-factor FBS model aligns with Yeh and Bedford's (2003) dual filial piety model that distinguished between authoritarian and reciprocal filial piety, with Obedience/Obligation and Relationship parallel to authoritarian and reciprocal filial piety, respectively. The equivalent factor structure found across three cultural groups indicates a certain degree of universality in the two behavioral components of filial piety. These findings support Bedford and Yeh's (2021) conceptualization of filial piety as rooted in authoritarian and reciprocal psychological motivations, rather than surface norms, attitudes, and behaviors. Specifically, they propose that authoritarian and reciprocal filial piety are motivated by the

need for collective identification and interpersonal relatedness, respectively (Bedford & Yeh, 2021). As the psychological needs underlying the two types of filial piety are culturally-shared, the structure of filial behavior driven by these mechanisms is also likely to demonstrate cross-cultural similarity.

Despite the same factor structure, the item loadings and intercepts were only partially equivalent across groups. Specifically, the Malay group perceived item 1, "When I make decisions, I consider their impact on my parents," as less relevant (i.e., lower loadings) to Obedience/Obligation than the U.S. group. The more critical role of family ties and mutual help between family members in the Malay culture (Baharudin et al., 2021) than in the U.S. culture may lead Malay emerging adults to be less likely to attribute such behavior as a filial obligation, but more of a social norm. In contrast, the U.S. group perceived item 10, "I accompany my parents to do what they like," as less relevant to Relationship than the Malay group, which may reflect their strong value of independence and individuation in U.S. family relationships (Inguglia et al., 2016).

Differences in intercepts show that the U.S. group, when endorsing the same levels of latent filial behavior factors, tends to score higher on several items regarding obeying and keeping company with parents (i.e., items 10, 19, and 22) than the Italian and Malaysian groups, suggesting that U.S. emerging adults may apply different standards of comparison. As the U.S. mainstream White culture is more individualistic than the other two cultures (Hofstede, 2022), when rating filial behaviors that are more aligned with collectivistic values, U.S. emerging adults are likely to compare themselves with typical individuals in their own

culture and perceive a larger difference than the other two groups. Future qualitative research

is needed to further understand how specific filial behaviors are viewed within different

cultural contexts.

Notably, the two FBS factors were significantly and positively correlated in all three

groups, and this correlation was particularly high in the Malaysian sample ($r = .84$). This

difference may be due to the strong emphasis on social harmony and the hierarchical family

system in the Malay Muslim culture, where children are expected to depend on parents for

guidance and obey parents' instructions, which serve as important ways to maintain positive

parent-child relationships (Baharudin et al., 2021). Thus, behaviors showing respect and

obedience and behaviors showing affection and intimacy towards parents tend to be more

closely related among Malay emerging adults than the other two cultural groups.

The inconsistency between the factor structure of the FBS found in this study and in

Chen et al.'s (2007) study among Chinese college students may reflect differences in the time

of data collection and methodological approaches. Obedience, respect, and obligations are

important ways of expressing affection towards parents based on the traditional, hierarchical

perspective of filial responsibilities. With the rapid development of modernization and

globalization, emerging adults in Malaysia, Italy, and the U.S. may have a more egalitarian

view of filial piety and parent-child relationships (Inguglia et al., 2016; Tan et al., 2021).

Thus, behaviors reflecting genuine affection and gratitude towards parents are more likely to

be distinguished from the authoritarian behavioral manifestations of filial piety even in

contemporary Malay families. Another possible explanation for the inconsistency is the

different methodological approaches. Chen et al. (2007) used EFA to select the factor

solution, whereas we used ESEM which has the advantage of generating model fit indices

and BIC values in determining the optimal number of factors. Moreover, we explored the

factor structure of the FBS separately in each cultural group and consistently found a two-

factor solution, which also corroborated our findings. Future studies that examine the factor

structure of the FBS using ESEM in a contemporary Chinese sample for comparison with

other cultural groups are essential to further validate our results.

Construct Validity

Our hypotheses regarding the associations between filial behavior and fewer

depressive symptoms and better parent-child relationships were generally supported.

Relationship but not Obedience/Obligation was uniquely associated with fewer depressive

symptoms among White American and Italian emerging adults. Given the strong focus on

independence and autonomy in the White Western contexts (Inguglia et al., 2016), filial

behaviors reflecting children's voluntary support and genuine affection may be more essential

for White American and White Italian emerging adults' mental health than behaviors that

suppress children's wishes.

Similarly, Relationship, but not Obedience/Obligation, was uniquely and more

consistently associated with better parent-child relationships across three cultural groups. In

line with previous findings (Lim et al., 2022), our findings suggest that children's natural

feelings of gratitude and affection, rather than role requirements based on family hierarchy,

may be a culturally shared process that links filial behavior with positive parent-child

relationships. According to the social exchange theory (Emerson, 1976), social relationships are guided by the norm of reciprocity. Interdependent and mutually contingent social exchanges can foster stable and trusting relationships over time. Children who have perceived parents' warmth, support, and investments tend to repay their parents and engage in filial behaviors that express respect, love, and care, which in turn, may promote positive parent-child relationships.

Contrary to our expectations, there were fewer significant associations between FBS factors and depressive symptoms and parent-child relationships among Malay emerging adults, which may be partly due to the multicollinearity problem caused by the high correlation of the two FBS factors in the Malaysian sample. In addition, the relatively low reliability of the parent-child conflict subscales in this sample may have limited the power to detect significant associations. This result may also reflect the influences of other important values that encourage children to fulfill mutual obligations and maintain harmonious family relationships, such as the value of *budi bahasa* (courtesy/virtue) that guides Malays' social behavior, and the teachings of Islam as the dominant religion of Malay Malaysians that emphasize warm and close relationships with parents (Baharudin et al., 2021). Thus, filial piety may be only one of the various socio-cultural and religious norms and values in the Malay culture related to emerging adults' mental health and their parent-child relationships.

Limitations

The present study has several limitations. First, we focused on emerging adult samples, however, filial behaviors may vary as parent-child relationships change with

developmental stages, which may limit the generalizability of our findings to other age groups. Second, we only examined emerging adults attending University, who may be more dependent on their parents financially as they delay work responsibilities, which could affect their ability to engage in filial behaviors compared to their peers who are working. Third, we relied on cross-sectional, self-report data to test the construct validity of the FBS. Future research should provide further validity evidence using other assessment methods (e.g., behavioral observations) and multiple sources of information (e.g., parents' reports). Finally, our findings were based on the majority ethnic group within each of the country sample sites and may not generalize to other ethnic and cultural groups within these countries. Thus, future research on samples in different developmental stages, not attending university, using muti-informant longitudinal designs that examine potential ethnic/cultural differences in the patterns of filial behavior within these countries, are needed.

Conclusions

The present study evaluated the psychometric properties of the FBS across White American, White Italian, and Malay emerging adults. We identified a 10-item two-factor model of the FBS that showed evidence of internal consistency and measurement invariance across groups, providing evidence for the cross-cultural relevance of the dual filial piety model (Yeh & Bedford, 2003). The two-factor FBS also demonstrated construct validity by showing unique implications for individual and interpersonal adjustment. Overall, our findings advanced the conceptual knowledge of filial behavior, yielded a more nuanced understanding of the roles played by different types of filial behavior, and supported the

utility of a two-factor FBS in various cultural contexts.

Ethical Compliance Section

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Table 1

Goodness-of-Fit Indices

Model	SB-χ^2	*df*	CFI	RMSEA[90% CI]	SRMR	BIC
White American						
One-factor CFA	1133.46	275	.652	.083[.078-.088]	.087	32461.97
Two-factor ESEM	582.13	251	.866	.054[.048-.060]	.048	31964.53
Three-factor ESEM	446.31	228	.911	.046[.040-.052]	.040	31935.51
Four-factor ESEM	353.30	206	.940	.040[.033-.047]	.034	31958.60
15-item two-factor ESEM	180.51	76	.935	.055[.045-.065]	.039	18363.73
10-item two-factor CFA	83.87	34	.950	.057[.042-.072]	.054	12510.12
White Italian						
One-factor CFA	829.92	275	.743	.069[.063-.074]	.067	29638.87
Two-factor ESEM	577.80	251	.849	.055[.049-.061]	.048	29494.08
Three-factor ESEM	449.23	228	.897	.048[.041-.054]	.040	29479.63
Four-factor ESEM	637.85	206	.800	.070[.064-.076]	.035	29530.73
10-item two-factor ESEM	52.86	26	.965	.049[.030-.068]	.029	12056.02
10-item two-factor CFA	90.33	34	.926	.062[.047-.078]	.055	12166.74
Malay						
One-factor CFA	595.30	275	.764	.075[.067-.083]	.071	12349.34
Two-factor ESEM	467.26	251	.841	.065[.055-.074]	.056	12317.40
Three-factor ESEM	541.56	228	.769	.082[.073-.090]	.047	12355.94

	SB-χ²	df	CFI	RMSEA [90% CI]	SRMR	BIC
Four-factor ESEM	320.26	206	.916	.052[.040-.063]	.041	12368.88
13-item two-factor ESEM	69.54	50	.972	.043[.012-.066]	.036	5742.57
10-item two-factor CFA	81.01	34	.908	.082[.059-.105]	.050	4690.21

Note. SB-χ^2 = Satorra-Bentler scaled χ^2; *df* = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SRMR = standardized root mean squared residual; BIC = Bayesian information criterion; CFA = confirmatory factor analysis; ESEM = exploratory structural equation modeling.

Table 2

Standardized Factor Loadings of the Final Two-Factor CFA Model

Item	White American		White Italian		Malay	
	Obedience/ Obligation	Relationship	Obedience/ Obligation	Relationship	Obedience/ Obligation	Relationship
1. When I make decisions, I consider their impact on my parents.	.53		.48		.42	
18. I obey my parents under all circumstances.	.62		.73		.79	
22. I do what my parents want me to do.	.70		.60		.69	
25. When my interests conflict with those of my parents, I sacrifice my own interests.	.63		.47		.69	
7. I give presents to my parents.		.46		.52		.51
10. I accompany my parents to do what they like.		.49		.49		.65

15. I often call home.			.67		.57	.64
17. I often chat with my parents in order to improve our relationship.			.77		.66	.81
19. I tell my parents that I miss them.			.61		.69	.69
20. No matter how busy my study or work is, I try to make time to meet with my parents.			.84		.71	.64
ω	.72	.82	.67	.78	.76	.82

Note. All factor loadings were significant at *p* < .001.

Table 3

Measurement Invariance Tests

Model	SB-χ^2	*df*	CFI	RMSEA [90%CI]	SRMR	Model Comparison	ΔSB-χ^2	Δdf	ΔCFI	ΔRMSEA	ΔSRMR
1 Configural invariance	255.02	102	.932	.064[.054-.074]	.054						
2 Metric invariance	299.05	118	.919	.065[.056-.074]	.083	2-1	43.66***	16	.013	.001	.029
2a Partial metric invariance[a]	289.95	116	.922	.064[.055-.074]	.072	2a-1	34.94***	14	.010	.000	.018
3 Scalar invariance	607.74	130	.787	.101[.093-.109]	.106	3-2a	366.27***	14	.135	.037	.034
3a Partial Scalar invariance[b]	316.92	126	.915	.065[.056-.073]	.079	3a-2a	27.19**	10	.007	.001	.007

Note. SB-χ^2 = Satorra-Bentler scaled χ^2; *df* = degrees of freedom; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SRMR = standardized root mean squared residual.

[a] Loadings of item 1 and 10 in the Malaysian sample were freely estimated.

[b] Intercepts of item 10, 19, and 22 in the Italian sample and item 1, 10, and 22 in the Malaysian sample were freely estimated.

[**]$p < .01$. [***]$p < .001$.

Table 4

Associations Between FBS factors and Depressive Symptoms and Parent-child Relationship

	β(SE)					
Outcome	White American		White Italian		Malay	
	Obedience/Obligation	Relationship	Obedience/Obligation	Relationship	Obedience/Obligation	Relationship
Depressive Symptoms	.09(0.08)	-.18(0.07)*	-.02(0.07)	-.17(0.08)*	-.10(0.22)	-.06(0.22)
Mother-child relationship quality						
Affection	-.01(0.08)	.42(0.06)***	-.06(0.06)	.49(0.06)***	.24(0.24)	.22(0.21)
Intimacy	.01(0.07)	.48(0.06)***	-.03(0.07)	.44(0.06)***	-.06(0.23)	.61(0.22)**
Conflict	-.19(0.08)*	-.19(0.07)*	-.09(0.07)	-.32(0.06)***	-.46(0.22)*	.25(0.20)
Father-child relationship quality						
Affection	.06(0.07)	.35(0.07)***	-.06(0.07)	.36(0.07)***	.50(0.29)	-.19(0.30)
Intimacy	.12(0.06)	.30(0.06)***	-.01(0.08)	.43(0.07)***	-.18(0.20)	.61(0.19)**
Conflict	-.17(0.07)*	-.03(0.07)	.05(0.07)	-.19(0.07)**	-.27(0.23)	-.18(0.22)

Note. Standardized regression coefficients are presented. Age and gender were controlled as covariates in all regression models. CI = confidence

interval.

$^*p < .05,$ $^{**}p < .01,$ $^{***}p < .001.$