The Development and Validation of a Family Wellbeing Index for Hong Kong Chinese Families

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Abstract

Family wellbeing is studied worldwide. However, there is a dearth of studies on the wellbeing of families in Chinese societies such as Hong Kong, nor is there any socially relevant and culturally unique instrument for measuring such wellbeing. This paper reports the validity and reliability of an instrument that was developed to assess the wellbeing of Hong Kong Chinese families. Through a comprehensive literature review, interviews with service users from a diversity of backgrounds, consultation meetings with experts on families and related issues, and a pilot study, the framework of a family wellbeing index was developed. Using data from 1343 participants collected via a cross-sectional telephone survey, we employed exploratory factor analysis and confirmatory factor analysis to develop the factorial structure of the tool. Six domains, six subdomains, 23 single-question indicators, and 26 questions were constructed. The six domains were family solidarity, family resources, family health, social involvement, social resources, and work-life balance. The internal consistency of the overall index was 0.904. The scale had a significant predictive effect on the subjective appraisal of the current and future status of the wellbeing of a family, which provided initial evidence of convergent validity. The results of the confirmatory factor analysis confirmed that the construct of the tool encompassed different domains. This study is significant because it provides directions for future studies on family wellbeing and insights for social policy formulation and social service development.

Keywords Chinese · Family · Scale development · Wellbeing

Highlights

- Five steps were used to develop a family wellbeing index for Hong Kong Chinese families.
- The results of the exploratory factor analysis showed that the factorial structure of this family wellbeing index included six domains and six subdomains.
- The results of the confirmatory factor analysis indicate that the six-factor index fits the data well.
- This is the first study in a Chinese context to develop a socially relevant and culturally specific index of family wellbeing.

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Hong Kong is a largely ethnically homogenous society, with 92% of the population comprised of ethnic Chinese (Home Affairs Department, 2018). The family ideology in Hong Kong in the 1970s was that of "centripetal familism" (Salaff, 1981), which means that people put the interests of the family as a whole above those of any individual family member. Even though such an ideology has evolved in the past decades, many Hong Kong Chinese people still uphold such beliefs as the importance of living with their parents, filial piety, and the involvement of grandparents in parenting (Wong et al., 2019).

Family plays a significant role in the wellbeing of individuals as well as in the betterment of a society. The concept

of family wellbeing is widely used in formulating public policies, and many empirical studies have been conducted in other countries to understand and measure family wellbeing, so as to formulate policies and develop services for families in general and families with special needs in particular (IHC New Zealand, 2016; Zimmerman, 2013). A rigorous tool to measure family wellbeing is lacking in Chinese societies such as Hong Kong. Most local studies have used an adapted scale to measure family wellbeing (e.g., Hong Kong Family Welfare Society, 2017). There have also been a few studies in which a self-constructed tool was used (Policy 21 Limited, 2012a, 2019). Nevertheless, the psychometric properties of both types of scales are unclear or lacking in some aspects.

Malaysia is the first Asian country to have constructed a family wellbeing index with sound psychometric properties for the Malaysian population. This index was created in 2011 and contains seven domains (i.e., family relationships, family economy, family health, family safety, family and community, family and religion/spirituality, and housing and environment) and 24 subjective indicators (National Population and Family Development Board, 2015; Noor et al., 2014). It was further modified by adding a new domain (i.e., family and communication technology) in 2016 (National Population and Family Development Board, 2017). While the Malaysian family wellbeing index is a pioneer work in Asia, the cultural applicability of the study to Hong Kong society may be limited due to contextual differences between the two places. Malaysia's population is comprised of three ethnic groups: Malays, Chinese, and Indians, in contrast to Hong Kong's, where most people are ethnically Chinese. Islam is the national religion of Malaysia; while Hong Kong is a secular society with a diversity of beliefs and practices among its population, including Christianity and Chinese folk religions (Home Affairs Bureau, 2016).

Because of the differences between the two societies, and the lack of a family wellbeing index with sound psychometric properties in Hong Kong, there is a great need for such an index to be constructed for Hong Kong. The aim of the present study is to systematically identify the key determinants of family wellbeing for Hong Kong Chinese families and to assess the psychometric properties of the family wellbeing index that is developed.

Conceptualizing Wellbeing

Family wellbeing is a broad and general concept for which it is difficult to use a one-size-fits-all definition (Wollny et al., 2010). Concepts such as quality of life, life satisfaction, and living conditions are related to family wellbeing, and have been adopted to conceptualize it in empirical studies conducted in Macau (Wan et al., 2014)

and internationally (Berger-Schmitt & Jankowitsch, 1999). In reviewing family wellbeing studies conducted in Western countries, Wollny et al. (2010) provided three guidelines for viewing the construct. First, family wellbeing can be regarded as a multi-dimensional concept encompassing different domains and as an amalgamation of different types of wellbeing (i.e., physical, social, economic, and psychological). Second, it can be viewed as the degree to which individual needs (e.g., food and shelter) and family functions (such as the nurturance of the next generation) are fulfilled. Third, there are also implied criteria by which families are regarded as "well" or "unwell"; these are subjective and may vary from one society to another due to differences in the underlying social, cultural, political, and economic contexts. In other words, family wellbeing should be viewed in context.

Family Functions of Hong Kong Chinese Families

In traditional Chinese societies, the ultimate goals of a family were to preserve solidarity and harmony within the family, and to expand and continue the family. Solidarity and harmony were important for maintaining stable family relationships, while expansion and continuation were achieved through reproduction and longevity. The major functions of the family were multiple in nature: reproduction; economic productivity; the socialization of children to eventually take on adult roles; the social control of family members to ensure the maintenance of order within the family and of groups external to it; ancestor worship and religious activities; and the physical maintenance and care of family members (Lee, 1991; Wan & Law, 2015; Wen et al., 1989).

Due to the influence of industrialization, modernization, and globalization, Hong Kong families have undergone drastic changes. These have included the shrinking size of households and an increased number of nuclear families, unmarried people, divorced people, single-parent families, and one-person households (i.e., adult and elderly people); and a decrease in the birth rate. This implies that family functions in contemporary Hong Kong society have changed. For instance, reproduction is no longer a major function of the family, as shown by a declining trend in Hong Kong's fertility from 1981 to 2017 (Census and Statistics Department, 2018b).

Currently, the family functions of Hong Kong Chinese families are quite similar to those of families in developed countries such as the U.S.A. and New Zealand (Social Policy Evaluation and Research Unit, 2018; Zimmerman, 2013). They include (1) providing care, nurture, and support (e.g., protective care for vulnerable family members);

(2) managing resources (e.g., providing material and financial support beyond what family members can access as individuals); (3) providing socialization and guidance (e.g., parenting the next generation); and (4) providing a sense of identity and belonging (e.g., developing a sense of belonging and security among family members through expressions of love, affection, and happiness and by building social cohesion) (Shae & Wong, 2009; Wan & Law, 2015). These functions are performed by families with various types of structures at different stages of the family life cycle (Zimmerman, 2013).

Definition of Family

In this study, family is defined as "a socially recognized group (at least two people in a relationship, usually joined by blood, marriage or adoption) that extends mutual economic support, emotional connection, and care to its members". Such a relationship arises from commitment and obligation, without a pre-determined timeframe (Department of Social Work and Social Administration, The University of Hong Kong, 2018). This definition was chosen as it encompasses both structural and functional dimensions. The structural dimension covers a diverse range of family relationships (e.g., cohabiting couples, childless couples, and same-sex couples) that matches the changing conditions of the family in Hong Kong (Wong et al., 2019). The functional dimension emphasizes what family members should perform, which is relevant to the construct of family wellbeing (Wollny et al., 2010). This index was designed to measure family wellbeing regardless of family type from a functional perspective. Family was operationalized as a household consisting of at least two people (usually joined by blood, cohabitation/marriage, or adoption) who are living in the same place.

Domains of Family Wellbeing

In this study, family wellbeing is defined as "the status of family that can perform various functions to satisfy the diverse needs of individual members in the family through interaction with the environment". In other words, family wellbeing is a dynamic process between the family and the environment. The research team employed a rigorous and scientific process to identify the determinants of the status of family wellbeing in Hong Kong society (details are given in the research methodology section). In brief, five steps, i.e., Step 1 – a literature search; Step 2 – focus groups; Step 3 – an expert review; Step 4 – a pilot study, and Step 5 – a survey were conducted. While seven dimensions were identified via Steps 1 to 3, after Steps 4 and 5 were conducted the dimensions were refined to six dimensions, namely, family solidarity, family resources, family health, social involvement, social resources, and work-life balance. While the first three areas refer to the situation within a family, the last three refer to the family's relationships with larger systems, i.e., the community, society, and workplace.

Family Solidarity

Family solidarity refers to the degree of cohesiveness within a family. It has been operationalized as: (a) family atmosphere; (b) family time; (c) family responsibilities; and (d) care and support (Bengtson & Roberts, 1991).

Family atmosphere

Family atmosphere refers to the types and degree of positive sentiments held by family members (Bengtson & Roberts, 1991; Ma & Wan, 2015). Given the influence of Confucian values in Chinese society, the highest value is placed on harmony in interpersonal relationships. A harmonious family exhibits strong bonding and closeness between and among family members, and has been positively associated with family functioning (Hong Kong Family Welfare Society, 2017; Lam et al., 2012; Ma et al., 2009). It is equated with happiness and is a pre-requisite of a happy and healthy family (Lam et al., 2012). Family harmony brings every success to every endeavor (jia he wan shi xing) and is essential to the maintenance of a peaceful and organized family (Chuang, 2005). Harmonious family relationships are achieved when family members get along well, trust, respect, and are willing to engage in give-and-take with one another.

Family time

Family time refers to the frequency and patterns of interaction in different types of activities in which family members engage (Bengtson & Roberts, 1991). Hong Kong is a bustling city. A global ranking of cities in 2015 showed that Hong Kong employees worked an average of 50.1 h per week − the longest working hours among employees in 71 cities (China Daily Asia, 2016). Long working hours strain the frequency and types of shared interaction (e.g., recreation, special occasions) that family members can engage in and have been negatively associated with family functioning. Individuals who spent more time with family members perceived better family functioning than those who spent less time with their family (Ma et al., 2009). Moreover, a high frequency of engagement in family leisure activities was associated with the perception by family members of a higher level of family functioning and better mental health status (Lau et al., 2012).

Family responsibilities

Family responsibilities refer to (a) the strength of the commitment by family members to perform their roles within the family and (b) the family obligation to raise the next generation (Bengtson & Roberts, 1991; Noor et al. 2014). The traditional gender ideology and a patriarchal familial structure derived from Confucian culture shaped clear male and female roles in a family. A man was predominately a breadwinner and a woman's place was in the home. Owing to the increase in educational opportunities for Hong Kong women in recent decades, the number of women participating in the labor market has increased, as seen in the similar percentages of dual-earner and single-earner families (38.0 versus 39.4%) in Hong Kong (Ting & Chiu, 2015; Wan & Law, 2015). Both men and women are struggling with the demands of family and work. For instance, mothers from the middle or upper classes might make sacrifices in their career to fulfil their familial responsibilities, particularly with regard to parenting (Lee, 2002). Fathers, who traditionally played the major role in the education and rearing (jiao-yang) of their children (Lin & Fu, 1990), are finding it difficult to fulfil such a role due to excessive work demands, with the result that they have come to play a peripheral role in parenting (Luepnitz, 1988). The duties of rearing and educating their offspring very often shift to mothers, with some mothers feeling overwhelmed by these familial obligations (Ma et al., 2012). Given the high demands of parenting and the tensions encountered by parents, the support received from extended family members has become significant in alleviating parental stress. Although most people still believe that "grandparents should be closely involved in deciding how their grandchildren are brought up" (Policy 21 Limited, 2012a), such support is only available if grandparents live close to family members or are in good health.

The socialization and nurturing of the next generation is at the core of familial obligations. In the Chinese culture, an optimal parenting style is regarded as one that achieves a balance between parental warmth and parental control (guan) (Chao, 1994). While parental warmth has been identified as a major element of parenting that is universal to all societies (Stewart & Bond, 2002), in Chinese families control (guan) has been perceived as an expression of love, care, and affection rather than of restrictions imposed by parents on children (Chao, 1994). Parenting practices with control (guan) were positively associated with adolescent wellbeing in Hong Kong (Stewart et al., 1998). While a similar level of warmth and control in parenting was identified in different types of families (such as dual and single-parent families), single parents faced a higher level of parenting stress and had a less satisfactory perception of family functioning (Ma et al., 2012).

Care and support

Care and support is defined as the degree to which resources are shared and exchanged among family members in times of need (Bengtson & Roberts, 1991; Ma & Wan, 2015). In the Chinese culture, the family is the major source of support when individuals are facing difficulties such as financial and emotional problems. Filial piety is one of the core familial beliefs in Chinese culture. Parents have an obligation to raise and educate their children; in return, their children should provide care to their elderly parents. In recent decades, the expression of filial piety has changed. Due to the recent worldwide economic turndown, smaller families, and an ageing population, the number of adult children able to provide financial support to their aged parents has decreased (Wong et al., 2019). Meanwhile, the number of aged parents who are giving financial and tangible support to their adult children has increased (Ma & Wan, 2015). Currently, the reciprocal giving of support, whether financial, emotional, informational, or tangible, frequently takes place between adult children and their parents in Hong Kong, regardless of their living arrangements (Ma & Wan, 2015). The level of different types of mutual care and help rendered between family members reflects the happiness of the family (Lam et al., 2012).

Family Resources

Family resources refer to the availability and optimal utilization of a family's income and psychological capital (Zubrick et al., 2000).

Family income

Income is an economic basis of a family. Originating from an agricultural society, Chinese people, particularly the older generation, believe that it is important to accumulate enough money to prepare for a rainy day and to be self-supporting. Hong Kong was ranked the world costliest city in 2019 (Mercer, 2019), and many Hong Kong people are finding it difficult to keep expenditures within the limits of their income. Poverty, particularly intergenerational poverty and poverty in old age, is a serious social problem in Hong Kong (Wong, 2013). Social deprivation, defined as a lack of the resources essential to support an acceptable minimum standard of living, is increasing in society (Saunders et al., 2014). Economic hardship has been identified as one of the risk factors of family functioning in Hong Kong (Ma et al., 2009) and has been found to have a negative interactive effect on family time and rhythms (Zubrick et al., 2000). Poor families, who are usually deprived of family time, had a poorer perception of their family functioning than did those from medium and high-income groups, who had more

financial resources to maximize the amount and quality of their family time (Ma et al., 2009).

Psychological capital

Psychological capital includes a sense of self-efficacy and a belief in the ability of family members to manage the demands and difficulties of daily life and their perceived level of stress (Zubrick et al., 2000). A sense of self-efficacy is defined as how well individuals believe that they can manage the difficulties encountered in daily life, such as searching for medical treatment for elderly people, getting home repair work done, and so on (Zubrick et al., 2000). Unlike family crises (e.g., divorce, unemployment), which people would tend to look for external support to deal with, many family members would handle the difficulties of daily life on their own. Stress will easily accumulate if family members do not properly handle the issues of daily life. Johnson (1998) regarded the individual's sense of self-efficacy in managing stress as being more important than the nature of the stress per se. A sense of self-efficacy was positively associated with perceived family functioning (Ma et al., 2009).

Hong Kong had a population density of 17,311 people per square mile (6659 people per square kilometer) as at the end of 2017, ranking it between second and third in the world for population density (World Population Review, 2021). In 2016, the median per capita floor area of a domestic household was about 161 square feet (The Government of the Hong Kong Special Administrative Region, 2018). Over 200,000 people live in subdivided flats (Census and Statistics Department, 2018a) and the unofficial data indicates that the average living area per person in private housing is 58.2 square feet, much lower than the 75 square feet in public rental housing (The Standard, 2019). Living density was found to be associated with stress and anxiety in individuals, with the impact of anxiety and stress gradually increasing as living density increased (Chan et al., 2021). A comfortable and spacious living environment enriches the mental health of individuals and has been found to be one of the predicators of positive family functioning in the perception of family members (Ma et al., 2009).

Apart from this, the safety level of a living environment has been found to have a direct effect on the levels of stress experienced by family members. One environmental safety threat is the occurrence of a family crisis such as domestic violence or child abuse. These crises have been correlated with risk factors such as poor family function, frequent family conflicts, and relationship distress (Chan, 2012). Newly reported cases of child abuse in Hong Kong have increased from 892 in 2016 to 1064 in 2018 (Social Welfare Department, n.d.-a, n.d.-b), suggesting that the number of

families living in unsafe environments has increased. A safe home environment that protects family members from harm and danger is important for the wellbeing of individuals and is one of the positive indicators of family functioning (Hong Kong Family Welfare Society, 2017; Noor et al., 2014).

Family Health

According to the World Health Organization (n.d.), health refers to a state of complete physical, mental, and social wellbeing and not merely to the absence of disease or infirmity. Generally speaking, Hong Kong people enjoy good health, as seen by an increase in life expectancy of eight years for both men and women in 2018 compared with 30 years ago (Census and Statistics Department, 2019b). However, there is increasing concern over the mental health status of the general public in Hong Kong. The demand for mental health services from the government has been on the rise, with the number of patients with mental illnesses under the government's care increasing from about 187,000 in 2011–12 to over 220,000 in 2015–16 (Food and Health Bureau, 2017). The onset of physical and mental illnesses has a detrimental effect on the afflicted person (Ma, 2005) as well as on the mental health of his/her caregiver (Wong et al., 2003). For instance, people with mental illness shoulder a heavy burden arising from social stigma, and experience frustration, anxiety, low self-esteem, and help-lessness (Tsang et al., 2003). By contrast, people with good physical and mental health have better perceived general family functioning (Ma & Wong, 2007; Ma et al., 2009), and such health is a strong predicator of overall satisfaction with family wellbeing (Ma, 2005; Noor et al., 2014).

Social Involvement

Social involvement refers to the positive connection of a family with the wider environment (Social Policy Evaluation and Research Unit, 2018). It can be expressed by the involvement of individuals in their community and by the contributions that they make to the community. These include, but are not limited to, involvement in civic affairs, the paying of taxes, voluntary participation in community organizations by working in or donating to them, and the upholding of social justice (Policy 21 Limited, 2012b). Compared to other places around the world, the participation rate of Hong Kong people in community activities such as donating to charities and doing voluntary work is above average (South China Morning Post, 2018. The Hong Kong Jockey Club Centre for Suicide Research and Prevention, 2018). Moreover, such social involvement has happened regardless of the socio-economic status of individuals. The frequency of the occurrence of altruistic behaviors such as the extension of informal help (e.g., helping friends/

classmates to look after needy people/pets), the making of non-monetary donations (e.g., offering food or used clothing to people in need), and volunteering was even higher among people who were living in poverty and economically active than among their counterparts (The Hong Kong Jockey Club Centre for Suicide Research and Prevention, 2018). Such a phenomenon echoes the notion of "let those with money contribute money, let those with strength contribute strength," a belief shared by Chinese people. Social involvement helps to improve one's wellbeing and keep one's family healthy, as such involvement can foster a feeling of belonging or a sense of interpersonal relatedness (Mak et al., 2009; Noor et al., 2014). In particular, newcomer women, who came from Mainland China and had lived in Hong Kong for less than 7 years, may have a weak kinship network in Hong Kong, can build social and support networks through community participation (Wu & Chow, 2013).

Social Resources

Social resources refer to the availability and accessibility of formal services for families as offered by the government and/or social services units, and of informal support from friends, colleagues, and neighbors through social networks. In Hong Kong, those living in poverty (Wong, 2013), those with mental illnesses (Chung & Wong, 2004), and those in the state of single parenthood (Lau, 2003) are widely stigmatized in society. Hence, such people may hesitate to seek help outside of their family. Non-labelling and accessible social resources can facilitate their utilization of such resources. They represent important sources of support for families going through life transitions such as childbirth (Lau & Wong, 2008), migration (Wu & Chow, 2013), and family crises (e.g., mental illness in the family) (Ma et al., 2004). Overall, a positive association was found between the availability and utilization of social resources and perceived family functioning (Ma et al., 2009).

Work-life Balance

Work-life balance means the extent to which an individual is equally engaged in and equally satisfied with his or her work role and family role (Greenhaus et al., 2003). Work involvement can enhance personal growth and have a positive impact on family wellbeing in the long run (Lau et al., 2012). However, work demands can have an adverse effect when they conflict with family life. In a recent local survey, over one-third of the respondents, particularly respondents at work (aged 35–54) and female respondents at work who were divorced or separated, thought that it would be very or quite difficult for them to achieve a balance between work and family (Policy 21 Limited, 2019). Work-family conflict has a detrimental effect on the

psychological wellbeing of women (Lau et al., 2014), the father-child relationship (Lau, 2010), and perceived family functioning (Lau et al., 2012; 2014).

Research Methodology

Procedures

Our research team developed the index from March to August 2019 using the following steps (Fig. 1).

Step 1: Literature review – development of the initial framework of the index

A literature search on the definition of family wellbeing and on the domains and indicators used in both overseas and Hong Kong studies was conducted by the research team, which was composed of academics from the fields of social work and sociology. In the process of reviewing the studies on family wellbeing conducted overseas and in Hong Kong, we drew up a preliminary index with seven domains, 26 indicators, and 32 questions for subsequent refinement. These seven domains covered the areas of family relationship, family health and safety, family responsibilities, family resources, family and information and communications technology (ICT), work-life balance, and social involvement.

Step 2: Focus group and in-depth interviews to refine the scale

Focus group discussions with service users who were current users of different types of social service of a charitable non-governmental social welfare organisation, were held to collect their views on the index. Convenience sampling was employed to identify the informants. Nine informants who were service users and who had a diverse range of characteristics in terms of family roles, responsibilities, and experiences, were identified and recruited by a local social welfare agency to ensure a diversity of views on the study topic (Table 1). Based on the feedback from the informants, we modified the original index, dropped one indicator, added one new indicator, and revised five questions. This version of the index was used for the expert review.

Step 3: Expert review – further refinement of the index

The purpose of the expert review was to seek the views of family and family-related professionals on the meaning of family wellbeing, the domains and indicators of the index, and the wording and sequence of the questions for the index. A convenience sampling method was used to select the informants. They were identified through the networks of the

Fig. 1 The Process of Developing the Scale
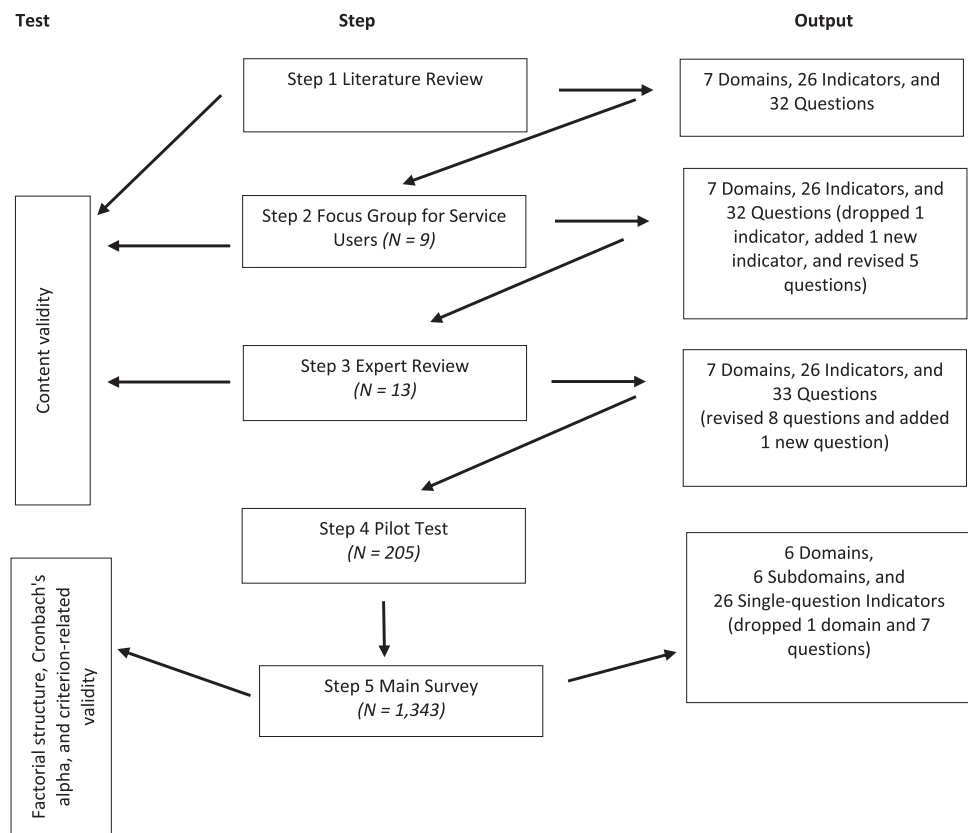
Table 1 Profile of the service user informants (N = 9)

Informant	Gender	Age	Family structure	Family condition	N
A	F	Elderly	Intergenerational family	In-law relationship problem	1
B	F	Elderly	Elderly couple	Spouse with chronic illness	1
C	M	Middle-aged	Intact family	New arrival from mainland China, with a child with special education needs	1
D	F	Middle-aged	Single-parent family	Living in poverty	1
E	M	Adolescent	Blended family	Student with special education needs	1
F	F	Middle-aged	Intact family	Child with special education needs	1
G	F	Elderly	Intergenerational family	Caregiver of spouse with chronic illness	1
H	F	Middle-aged	Intact family	One parent with mental health issues	1
I	F	Elderly	Intergenerational family	No special issues	1

research team. A total of 13 participants were recruited to further refine the index after receiving the comments of the service users (Table 2). Eight individual interviews and one focus group interview were conducted by the members of our research team. All interviews were audiotaped for analysis. The index was further revised and finalized into seven domains, 26 indicators, and 33 questions.

Step 4: Pilot study

To revise the questionnaire for the main survey, a pilot study (N = 205) was carried out independently from March to April 2019 by a research center in the university. Taking into consideration such factors as response rate, degree of repetitiveness, and feasibility, a cross-sectional random-digit-dialing telephone survey with a dual-frame (i.e., landline and mobile) sampling design was adopted to collect data. The survey targeted people aged 18 or above, who were Hong Kong residents, living with at least one family member, and who spoke either Cantonese or Mandarin — the two most common dialects in Hong Kong. Those responding to telephone surveys are more representative of the general population than those who agree to participate in online surveys. This is particularly the case

Table 2 Profile of the professional informants (N = 13)

Informant	Gender	Professional	N
J to O	5 F & 1 M	Social workers (NGO, ranged from frontline to managerial level)	6
P	F	Social worker (government)	1
Q	F	Government official	1
R	M	Family lawyer	1
S	M	Psychiatrist	1
T	M	Clinical psychologist	1
U	F	Academic	1
V	M	Academic	1

with regard to the participation of elderly people. Statistics show that only 57.2% of people aged 65 or above use a smartphone, while only 56.3% of people in that demographic use the Internet (Census and Statistics Department, 2019a). The survey results were first weighted based on the number of landline and mobile phone of the respondents, and then weighted based on up-to-date figures on the age-sex distribution of the population, provided by the Census and Statistics Department of the Hong Kong government. Reliability tests and several rounds of exploratory factor analysis were conducted. As a result, four questions were removed from the index. The index with seven domains, 26 indicators, and 29 questions was used for the analysis in the next step.

Step 5: Main survey – exploratory factor analysis and confirmatory factor analysis

A main survey with the same methodology as in the pilot survey was conducted from July and August 2019 by the same research center in the university. The aim was to develop the factorial structure and test the psychometric properties of the scale. An exploratory factor analysis was used to examine the factorial structure of the index, and the following steps were adapted from those suggested by Williams et al. (2010).

The first step was to check for factorability. Twenty-nine questions derived from the pilot study were examined. A correlation matrix showed that all questions were correlated by a value of at least 0.3 with at least one question, suggesting that the index had reasonable factorability. The result of the Kaiser-Meyer-Olkin (KMO) Test was 0.924. The Bartlett's Test of Sphericity was significant (Chi-Square (406) = 18603.609, $p < 0.001$), indicating that it was suitable to conduct a factor analysis. The communalities were all above 0.4, further confirming that each question shared some common variance with other questions. Therefore, it was deemed to be suitable to conduct a factor analysis with all of the questions.

The second step was the extraction and rotation of factors. For this study, we adopted principle components analysis and the varimax rotation, the most commonly used methods in factor analysis. To determine the number of factors in our analysis, we chose the Cumulative Percentage of Variance >60% and Eigenvalue >1 Rule (Hair et al., 2010). Two questions pertaining to the domain of family and information and communication technology were dropped because one question had a negative factor loading and another became a standalone item after the removal of the first question. The third question "My family life will be better in three years than it is now" was dropped because the factor loading failed to reach 0.5 and because this item was theoretically not coherent with the other items in the domain of family health and safety. As a result, 26 questions were left. One thousand three hundred and forty-three respondents (N = 1343) (of which 676 were reached by landline and 667 by mobile phone) provided valid responses, and these were used to rerun the exploratory factor analysis (Table 3). The data showed that all items with the exception of "The family's current standard of living is commensurate with the efforts put in by its members" had a factor loading of over 0.5. This item was retained in the domain of family resources because it was theoretically supported. The results showed a six-factor solution with a cumulative percentage of variance of 64.936% explained by the items and having an eigenvalue of >1 (Table 4).

The last step was that of interpretation. In response to the results of the factor analysis, the research team reorganized the items into six domains and then renamed the domains. This was an inductive process that has a theoretical foundation (Pett et al., 2003). The confirmed family wellbeing index consisted of six domains (family solidarity, family resources, family health, social involvement, social resources, and work-life balance), six subdomains (i.e., four subdomains of family solidarity and two subdomains of family resources), and 26 single-question indicators in total.

The internal consistency of the overall index and each domain was examined using Cronbach's alpha (Table 5). The alpha value was high for the overall index (0.904 of 26 questions) as well as for the domains of family solidarity (0.943 for 13 questions), family health (0.814 for 2 questions), and family resources (0.785 for 5 questions). While the domain of social involvement had a moderate alpha value (0.655 for 2 questions), the domain of social resources (0.523 for 2 questions) and that of work-life balance (0.571 for 2 questions) were only slightly above 0.5 (Nunnally, 1978).

We conducted a criterion-related test to examine the validity of the index. Two independent questions (Q24 - Overall, my family is happy and Q25 - My family life will be better in three years than it is now) that indicated the subjective appraisal of the respondents' family wellbeing

Table 3 Demographic characteristics of the respondents ($N = 1343$)

Item	Frequency	Percentage
Age		
Low (18–29)	319	23.8%
Middle (30–49)	513	38.2%
High (≥50)	511	38.0%
Family structure		
Living with spouse only	95	7.1%
Parents living with unmarried child(ren)	881	65.6%
Household of three generations	129	9.6%
Single-parent family	71	5.3%
Others	136	10.1%
Refused to answer	32	2.4%
Family monthly income		
Low (<USD2572)	131	9.8%
Middle (USD2572–5144)	446	33.2%
High (>USD5144)	583	43.4%
Refused to answer	183	13.6%
Education level		
Secondary or below	715	53.3%
College or above	623	46.4%
Refused to answer	5	0.4%
Economic activity status		
Economically active	912	67.9%
Economically inactive	424	31.6%
Refused to answer	7	0.5%

status at two different time points were used as external referents. Three sets of regression analyses were conducted, with the overall index as the independent variable and with Q24, Q25, and the combined variable of the two items as the dependent variables. The results revealed that the overall index had a significant predictive effect on the gauging items. The same three sets of regression analyses were conducted with the six domains of the index as the independent variables. The predictive effects of the six domains on the dependent variables were likewise all verified as significant (Table 6). All statistical analyses were conducted using SPSS (version 24).

A confirmatory factor analysis was conducted to examine the model. The fit indices included a Chi-square divided by the degree of freedom (Chi-square/df), the standardized root-mean-square residual (SRMR), the root-mean-square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the goodness-of-fit index (GFI). These were used to evaluate the model's goodness of fit (Table 7). The results of the SRMR, RMSEA, CFI, TLI, and GFI met the recommended values suggested by different authors (e.g., Hair et al., 2010; Hu & Bentler, 1998; Schumacker & Lomax, 2016). Although the

model chi-square was significant, the chi-square value is easily influenced by a large sample size (Latif, 2018) and is usually ignored if other measures indicate a good fit (Garson, 2015). Therefore, it was concluded that the six-factor index fits the data well. All of these fit indices were conducted using AMOS.

The Average Variance Extracted (AVE) statistic was calculated to assess the convergent validity of the model. The value of each domain was over 0.5, with the exception of social resources (0.402). Hence, convergent validity was established for most domains (Fornell & Larcker, 1981). For discriminant validity, the results show that the AVE of all domains was greater than the squared correlation between each pair of constructs. Therefore, discriminant validity was established (Fornell & Larcker, 1981) (Fig. 2).

In comparison to the multi-dimensional model, a null model was also tested. The null model failed to pass the test of goodness of fit: Chi-square/df = 17.495, RMSEA = 0.111, SRMR = 0.0797, TLI = 0.708, CFI = 0.731 and GFI = 0.743. Hence, the multi-dimensional model outperformed the null model, indicating that the current index is a multi-dimensional construct.

Operationalization of the Index

The finalized index contained 26 questions, of which 24 were presented as positive statements. The respondents were asked to rate their reactions on an 11-point Likert scale (e.g., 0 = strongly disagree to 10 = strongly agree). The overall index score ranged from 0 to 10, with a higher score indicating better family wellbeing. It was calculated by summing up the separate domain scores multiplied by their respective weightings. As there were two questions on warmth and discipline in the domain of family responsibilities (question 14 and question 15) and in the domain of work-life balance (question 20 and question 21) that were not applicable to childless families and family members who were not involved in the labor market respectively, the weightings of the other questions were adjusted when the overall index score of these respondents was calculated. Details of the calculation of the overall index scores and each domain score, as well as of the family wellbeing status of Hong Kong families can be found in our report (Wong et al., 2020).

Discussion

This is the first study in a Chinese context to develop a socially relevant and culturally specific index of family wellbeing. The initial conceptualization of the index was developed step-by-step through multiple means, including a

Table 4 Factor analysis of the family wellbeing index

Domain (Subdomain)	(Indicator) Question	1	2	3	4	5	6
Family solidarity							
(Family time)	(Quantity) Family members have sufficient time together家人有足夠的相處時間 (Q7)	0.564					
	(Quality) Family members enjoy their time together家人享受一齊相處的時間 (Q8)	0.631					
(Family atmosphere)	(Trust) Family members can trust each other家人可以互相信賴 (Q9)	0.798					
	(Give and Take) Family members can engage in give and take with one other 家人可以彼此遷就 (Q10)	0.797					
	(Appreciation) Family members can appreciate the contributions that each makes to the family 家人感激各人為家庭所付出的 (Q11)	0.827					
	(Harmony) Family members usually get along well with each other家人經常相處融洽 (Q12)	0.833					
(Family responsibilities)	(Role Fulfillment) Family members can each bring their strengths and abilities into full play家人可以發揮各自的長處和能力 (Q13)	0.774					
	(Warmth) Family members give the children sufficient love and care 家人對子女有足夠的關懷和照顧 (Q14)	0.777					
	(Discipline) Family members explain what is right and wrong to the children家人對子女有獎罰分明的管教 (Q15)	0.720					
(Care and support)	(Financial Support) Family members are willing to offer financial support to each other when required家人在有需要時, 願意幫忙解決財政困難 (Q16)	0.760					
	(Manual Labor Support) Family members are willing to offer help in managing household chores when required家人在需要時, 願意幫忙處理家庭事務 (Q17)	0.761					
	(Information Sharing) Family members are willing to share information on important matters when required家人在有需要時, 願意就重要事情, 提供意見 (Q18)	0.759					
	(Emotional Support) Family members are willing to listen to each other when required家人在有需要時, 願意聆聽心事 (Q19)	0.709					
Family resources							
(Family income)	(Economic Situation) The family had sufficient money to manage household expenses in the past one year 在過去一年, 家庭收入足夠應付日常的開支 (Q3)		0.830				
	(Living Standard) The family's current standard of living is commensurate with the efforts put in by its members目前的生活水平, 比較家人所付出的努力, 是相當公平 (Q23)		0.437				
(Psychological capital)	(Living Environment) The family has a comfortable home 家人有舒適的居住環境 (Q4)		0.769				
	(Life Skill) Family members have the ability to cope with the problems of daily life 家人有能力解決生活難題 (Q5)		0.720				
	(Family Safety) Family members feel safe while at home家人在家中感到安全 (Q2)		0.566				
Family health	(Physical Health Condition) Overall, family members had good physical health in the past one year 整體而言, 在過去一年, 家人身體狀況是健康 (Q30)			0.857			
	(Mental Health Condition) Overall, family members had good mental health in the past one year整體而言, 在過去一年, 家人精神狀況是健康 (Q31)			0.842			
Social involvement	(Social Participation) Family members frequently participate in social or religious activities 家人經常參加社會或宗教團體的活動 (Q26)				0.866		

Table 4 (continued)

Domain (Subdomain)	(Indicator) Question	1	2	3	4	5	6
	(Contribution to Society) Family members frequently participate in volunteer work or make charitable donations家人經常參與義工服務或慈善捐款 (Q27)				0.817		
Social resources	(Accessibility of Informal Help) Family members can easily seek help from friends, relatives, or neighbors when encountering difficulties that they cannot solve on their own 當家庭遇到自己無法解決的困難時, 容易找到親戚、朋友或鄰居幫忙 (Q28)					0.851	
	(Accessibility of Formal Help) Family members can readily access services from government departments or community units when encountering difficulties that they cannot solve on their own當家庭遇到自己無法解決的困難時, 容易找到政府部門或社福機構幫忙 (Q29)					0.635	
Work-life balance	(Work Interferes with Home) Family members have come home from work too tired to do the chores that needed to be done* 工作令家人疲累到做不到應做的家庭事務 (Q20)						0.828
	(Home Interferes with Work) Family troubles or problems make it difficult for family members to concentrate on their work* 家庭煩惱或問題, 令家人難以專心工作 (Q21)						0.781

*Reversed item

Table 5 Results of the reliability test

Dimension	No. of questions	Cronbach's alpha
Overall	26	0.904
Family solidarity	13	0.943
Family resources	5	0.785
Family health	2	0.814
Social involvement	2	0.655
Social resources	2	0.523
Work-life balance	2	0.571

Table 7 Model fit indices of the second-order model

Fit indices	Value	Recommended values
Chi-square/df	$1518.817/279 = 5.661$	≤5
P	0.000	Insignificant
SRMR	0.047	≤0.050[a]
RMSEA	0.059	≤0.060[b]
CFI	0.929	≥0.900[c]
TLI	0.917	0.900 to 0.950[a]
GFI	0.918	0.900 to 0.950[a]

[a]Schumacker and Lomax (2016)
[b]Hu and Bentler (1998)
[c]Hair et al. (2010)

Table 6 Regression results of the overall index and the six domains of the criteria

	Q24[a]	Q25[b]	Q24 and Q25 combined[c]
Overall index as independent variable			
F	478.234***	386.518***	585.433***
df	1	1	1
Adjusted R^2	0.254	0.224	0.295
The six domains as independent variables			
F	146.762***	94.581***	169.359***
df	6	6	6
Adjusted R^2	0.386	0.297	0.420

[a]Q24 Overall, my family is happy. (整體而言, 我的家庭是幸福的。)
[b]Q25 My family life will be better in three years than it is now. (三年後我的家庭生活狀況將會比現在好。)
[c]Q24 and Q25 combined: the mean of Q24 and Q25
$p < 0.05$; ***$p < 0.001$

review of international and local literature on family well-being, and focus group interviews with service users and family studies experts. After a pilot test involving 205 respondents, the main survey was conducted with 1343 respondents. The factor analysis showed that the index was multi-dimensional in structure. The alpha values of the overall scale and the subscales concerning the situations of the families were high, while the subscales with regard to the relationship of these families with the larger environments were acceptable. The scale has a significant correlation with the subjective appraisal of the respondents' family wellbeing status. Overall, the family wellbeing index is a reliable and valid instrument.

This is the second self-constructed family wellbeing index in Asia, after the Malaysian index. Compared with the seven domains used for the index in Malaysia (Noor et al., 2014),

the domain of family and religion/spirituality was not shown to be a determinant of family wellbeing in this study. The influence of religion/spirituality is far less important for Hong Kong people than for the population in Malaysia. This may be because Hong Kong society is a secular society where only 43% of Hong Kong people have some religious practices and around 80% of residents claim that they have no religion (World Population Review, 2021). While some people, particularly those from the older generation, are still affiliated with Chinese folk organizations or practice the rituals, most young people do not carry out any rituals during traditional/religious festivals such as Lunar New Year and the Ching Ming Festival.

Regarding the implications for future directions of research, first, this study could be replicated at different points in time to further refine the measurement tool. Family and communication technology, which was an additional domain developed in Malaysia in 2016 and which was a significant predicator of satisfaction with family relationships in a Malaysian study, did not fit into our proposed model. ICTs are popular worldwide and in Hong Kong. Empirical studies have shown that the utilization of ICTs is associated with family harmony, family happiness, family health, and family wellbeing (Wang et al., 2015). It remains unclear why ICTs failed to fit into our model. Given that the topic of ICTs and family wellbeing has been widely discussed and studied in recent decades, this dimension of our model should be further investigated. Second, this study could be conducted periodically to track changes in the wellbeing of Hong Kong families. Periodically conducting cross-sectional random sampling tests of the wellbeing of Hong Kong families would shed light on trends in the wellbeing of Hong Kong families. The results could serve as a useful database for understanding family wellbeing over time, assessing the possible effects of social policies on families, and projecting future social developments. Third, repeated assessments of the family wellbeing of a cohort over time can be carried out to track changes experienced by individuals and to outline factors contributing to changes in family wellbeing, as longitudinal studies have the advantage of making it possible to identify causal relationships between variables (Farrington, 1991).

Applications

This study has several applications for social policy and social service. First, this index offered a framework for policy makers, governmental officials, advocacy groups, and service providers to understand the needs of families in general and vulnerable groups in particular from the perspective of family wellbeing. The framework encompassed the situation within families and the relationships between family and the larger environment, implying that effective family policies and services should be provided from a holistic and a systemic approach. Second, this index provides domain-specific characteristics of Hong Kong families, which would be useful for designing policies and services to strengthen the resilience of families and identify specific domains of family life for the betterment of Hong Kong families. Third, this index can help to differentiate families with different levels of family wellbeing, which would enable policy makers and social service providers to identify the target population for the provision of support. Fourth, human service professionals (e.g., social workers, clinical psychologists) can make use of this index to conduct assessments of the needs of their service users.

Limitations

The study has several limitations. First, a convenience sampling method was adopted to select informants for individual and focus group interviews. As the informants in the focus groups were service users of the social welfare agency, their views might not have been representative of those of families in general. Second, the views of some important family members such as non-residential parents in divorced families, grandparents living apart from their adult children, and other family members (e.g., teenagers, elderly people, and disabled family members living in residential care homes) may not have been included in the survey data due to the household-based design. Third, some people might not have been reachable either by landline or mobile phone, which might have affected the representativeness of the sample. Fourth, there were a limited number of domains, and most domains contained a limited number of questions. We deliberately kept the length of the index short to ensure an acceptable response rate for a telephone survey. Previous studies have shown that there are a wide range of indicators that can be used to measure family wellbeing, such as individual characteristics (e.g., self-understanding), relationship characteristics and processes (e.g., sibling relationships), and family functioning (e.g., family strengths, elderly care), but these were not included in this study (Wollny et al., 2010). Exploring the possibility of adding some new domains that are culturally and socially relevant to our society for household surveys should be considered in future studies. Fifth, the internal consistency of the three domains on a family's relationships with the larger environment was relatively low. The inclusion of three subscales should be reconsidered. Sixth, the validity test in the current study could be strengthened by comparing the current model with the model used in another family wellbeing study in Hong Kong. Seventh, the study did not include an in-depth

Fig. 2 Results of the Confirmatory Factor Analysis for the Proposed Model
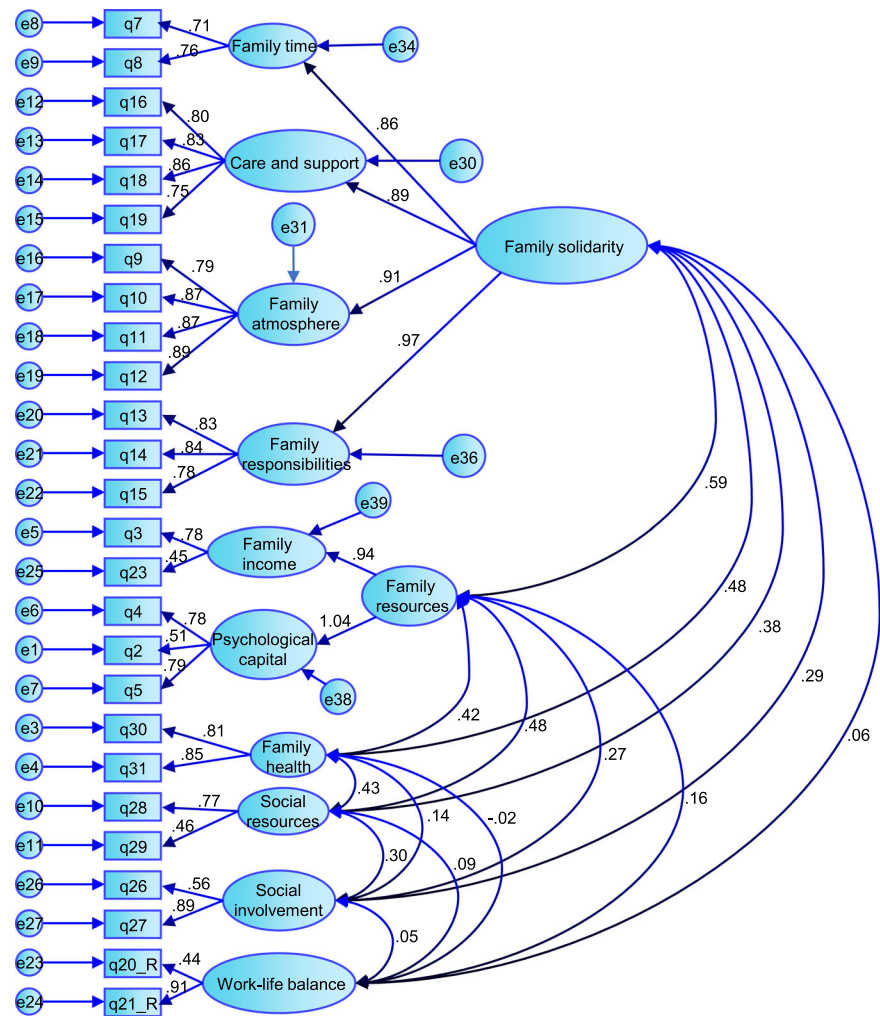
analysis and discussion of the impact on family wellbeing of group differences such as gender, socio-economic status, and family structures. A further investigation of these variables in future studies should be considered.

Conclusion

To conclude, the study was a pioneer work and contributed to the field of Chinese wellbeing. We developed this scale through six scientific steps. The result showed that the construct of family wellbeing for Hong Kong families included six domains (family solidarity, family resources, family health, social involvement, social resources, and work-life balance). Given that it was the first family wellbeing scale to be developed in Hong Kong, there is a great deal of room for improvement (to be discussed in the limitations section). Despite this, this tool was valuable for knowledge development, policy formulation, and for the development of social services for different stakeholders to ensure the betterment of families in our society.

Compliance with Ethical Standards

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