How Do Living Arrangements and Intergenerational Support Matter for Psychological Health of Elderly Parents? Evidence from Myanmar, Vietnam and Thailand

Bussarawan Teerawichitchainan*
School of Social Sciences
Singapore Management University
Singapore

Wiraporn Pothisiri
College of Population Studies
Chulalongkorn University
Bangkok, Thailand

Giang Thanh Long
Institute of Public Policy and Management
National Economics University
Hanoi, Vietnam

*Corresponding author: Bussarawan Teerawichitchainan. School of Social Sciences, Singapore Management University, 90 Stamford Road, Singapore 178903. Tel: 65-6828-0664. Fax: 65-6828-0423. Email: bteerawichit@smu.edu.sg

Acknowledgment: We thank John Knodel and Stewart Tolnay for helpful comments on the earlier drafts. The study was supported by Singapore Management University through a research grant (C242/MSS13S003) from the Ministry of Education Academic Research Tier 1.

How Do Living Arrangements and Intergenerational Support Matter for Psychological Health of Elderly Parents? Evidence from Myanmar, Vietnam and Thailand

Abstract

Living arrangements and family support for older persons have become an increasingly important policy concern in developing and rapidly aging Asia. Formulating a sound elderly care policy for the region will benefit from empirically examining how living arrangements, particularly coresidence, and intergenerational exchanges of financial, instrumental, and emotional support are associated with old-age psychological health. This study analyzes data from nationally representative aging surveys in Myanmar, Vietnam, and Thailand for 2011-2012 to offer a comparative perspective from Southeast Asia where various forms of kinship systems coexist. Results suggest that the psychological impacts of living arrangements are multi-faceted. Coresidence improves the emotional health of Vietnamese and Thai elderly parents but with different implications. While living with a married son is strongly and positively associated with psychological wellbeing in Vietnam, it is living with a married daughter that benefits the mental health status of elderly Thais. Evidence points to the importance of understanding the dominant kinship system that shapes normative filial expectations and gender relations within the family. In these two countries, the positive association of coresidence holds regardless of the level of intergenerational support, suggesting that the cultural value of coresidence goes beyond practical functions. In Myanmar, coresidence is beneficial to psychological wellbeing only to the extent that it facilitates intergenerational exchanges between children and parents. Additionally, we find that it is only in Vietnam that living independently but in close proximity to children facilitates intergenerational support, which can in turn promote the psychological health of elderly parents. While our empirical findings add cultural nuances needed to comprehensively theorize the relationship between living arrangements and old-age

psychological health in developing settings, we recognize that causality is difficult to infer given the nature of the datasets and that our study speaks to the need for and value of comparative longitudinal data to address this important research topic.

Keywords: Living arrangements, coresidence, elderly, psychological wellbeing, intergenerational support, Southeast Asia

Research Highlights:

- Recent national aging surveys in Myanmar, Vietnam and Thailand are analyzed.
- The psychological impacts of living arrangements are multi-faceted.
- Coresidence has net differential benefits for Vietnamese and Thai elders' mental health.
- Coresidence functions mainly to facilitate intergenerational support in Myanmar.
- Various kinship systems are key to theorizing these relationships in Southeast Asia.

How Do Living Arrangements and Intergenerational Support Matter for Psychological Health of Elderly Parents? Evidence from Myanmar, Vietnam and Thailand

Introduction

How living arrangements are linked to mental health of older persons has gained considerable attention from researchers and policy makers (Palloni, 2002). The issue is particularly relevant for developing Asia where populations are aging rapidly and where economic development and accompanying social change have imposed challenges in maintaining traditional forms of living arrangements and intergenerational support for the elderly (i.e., exchanges of financial, instrumental, and emotional support between older persons and their family network) (Biddlecom, Chayovan, & Ofstedal, 2002). While there is considerable evidence that Asian elders living alone experience greater risks of depression than those in other household contexts (Chou, Ho, & Chi, 2006; Lim & Kua, 2011; Yeh & Lo, 2004), our understanding remains incomplete regarding the association between psychological wellbeing and intergenerational coresidence–the most common form of living arrangements among older adults in Asia.

Two research gaps are noteworthy. Few exceptions notwithstanding (e.g., Silverstein, Cong, & Li, 2006), existing research tends to overlook location of the nearest non-coresident child. In Asia, aging parents living independently often have at least one offspring living nearby (DaVanzo & Chan, 1994; Knodel, Prachuabmoh, & Chayovan 2013; Ofstedal, Knodel, & Chayovan, 1999). Arguably, the so-called network family arrangements can provide the benefits of coresidence without the cost of family conflicts or independence loss. Given that it is critical to differentiate the forms and functions of living arrangements, ignoring the proximity of non-coresident child in the analysis of elderly emotional wellbeing may yield biased findings (Hermalin, 1997). Moreover, there is a dearth of cultural diversity in previous research, which is based primarily on Confucian societies (e.g., China, Korea)

(Chan, Malhotra, Malhotra, & Ostbye, 2011; Chen & Short, 2008; Do & Malhotra, 2012). Prevalent in these societies are a patrilineal kinship system, which considers individuals to belong to their fathers' lineage, and a practice of patrilocality in which elderly parents coreside with a married son and his wife. Patrilocality is considered a manifestation of filial piety or the moral obligation of children to revere parents (Croll, 2006; Zhang, Gu, & Luo, 2014). Since filial piety is the most important cultural ideal in Confucian Asia (Slote & Devos, 1998), living with children, particularly sons, is likely to benefit old-age psychological wellbeing, independent of intergenerational support (Silverstein et al., 2006). A comparative analysis of older-aged populations that include diverse cultural orientations including both the patrilineal and the more flexible bilateral kinship systems can add cultural nuances needed to comprehensively theorize the relationship between coresidence and psychological wellbeing in developing Asia.

We analyze data from recent nationally representative surveys of older persons in Myanmar, Vietnam, and Thailand to investigate how intergenerational coresidence, gender of the coresident child, and location of the nearest non-coresident child are associated with mental health of older parents. We examine the extent to which transactional and interpersonal features of intergenerational support (including financial transfers, visits, and phone calls) may account for the relationships between living arrangements and older-aged psychological wellbeing. The mixture of commonalities and differences in cultural underpinnings, family systems, levels of economic development and degrees of population aging that characterize these three Southeast Asian countries render them particularly suitable for comparative analysis and help fill the pertinent research gaps.

Background

Despite pervasive beliefs in filial piety and preference for coresidence in developing Asia, there is no consensus about whether living with an adult child is beneficial to elders' emotional health. This lack of consensus is due partially to the diverse classification of family arrangements in previous research, which restricts comparability (Ren & Treiman, 2014). Nevertheless, three general patterns are observed. First, unlike solitary living, coresidence–especially multi-generational coresidence–is found to benefit elderly psychological health (Chen & Silverstein, 2000; Connelly, Iannotti, Maurer-Fazio, & Zhang, 2014; Do & Malhotra, 2012; Kooshiar et al., 2012; Silverstein et al., 2006). Other studies, however, find that coresidence undercuts emotional wellbeing of older parents particularly when a spouse is absent or when the elderly have weak social networks outside the household (Chan et al., 2011; Ren & Treiman, 2014). Lastly, few studies featuring the oldest old in China and the elderly in non-Confucian Asia demonstrate no significant differences in old-age psychological wellbeing by the presence of a coresident child (Chen & Short, 2008; Soottipong-Gray, Rukumnuaykit, Kittisuksathit, & Thongthai, 2008; Wang, Chen, & Han, 2014).

Myriad mechanisms are posited to explain the link between living arrangements and old-age psychological wellbeing but with conflicting implications. At the macro level, alarmist views are common, predicting that modernization and economic development will have adverse impacts on older persons' mental health primarily through its detrimental effects on intergenerational support (Aboderin, 2004; Cowgill & Holmes, 1972). Since coresidence is often assumed to facilitate material, emotional, and instrumental support to elderly parents, a decline in coresidence as a result of fertility reduction and increased migration is anticipated to undermine family support for the elderly, thus jeopardizing their wellbeing. Nevertheless, the alarmist views are countervailed by a more optimistic argument

that technological change accompanying development can reduce barriers in intergenerational exchanges imposed by a decline in coresidence through improved transportation and communications systems (Hermalin, 2002). Another more benign view of modernization posits that development will increase income, allowing parents to accumulate greater wealth for retirement and for investment in their children's human capital (Biddlecom et al., 2002; Chan, 2005). Since fewer but better-educated children are likely to compensate for smaller numbers in relation to coresidence and intergenerational support, the wellbeing of older parents is not necessarily impacted adversely by a change in living arrangements (Hermalin, 2002; Knodel, Friedman, Truong, & Bui, 2000).

Complementing the macro-level perspectives, micro-level explanations focus on household dynamics. The family support hypothesis posits that coresidence is the main vehicle for direct social integration and support for older persons and can protect them from social isolation and depression (Li, Liang, Toler, & Gu, 2005; Okabayashi, Liang, Krause, Akiyama, & Sugisawa, 2004). Li and colleagues (2005), for instance, conceptualize and measure social support for the elderly as whether or not children listen to aging parents, show them consideration and respect, offer care when they are ill, help with their financial problems, and assist with their daily activities. In contrast, the family conflict hypothesis questions the notion that increased opportunities for interaction afforded by coresidence strengthen intergenerational relations. It argues that coresidence may heighten tension among family members thus undermining the advantages of social interaction and intergenerational support for older persons (Ko, 2012). Research thus far suggests that filial respect and support for aging parents remain a moral obligation in Asia (Croll, 2006). Despite extensive social change, family-centered sources and flows of elderly support remain largely intact (Biddlecom et al., 2002; Knodel, 2014). Emerging evidence nevertheless shows a decline in coresidence and a major disjuncture between the desire to adhere to filial norms and the

changing empirical reality (Knodel, Kespichayawattana, Wivatwanich, & Saengtienchai, 2013).

Research shows that the psychological benefits of intergenerational support depend on numerous factors, including how vulnerable older persons are (e.g., deteriorating health, widowhood) and how balanced intergenerational exchange is (Okabayashi et al., 2004; Ramos & Wilmoth, 2003; Silverstein & Bengston, 1994). Importantly, the benefits are also conditioned by culturally prescribed expectations, including parents' perceptions about children's respect and the degree to which parents adhere to cultural norms (Chen & Silverstein, 2000; Cheng & Chan, 2006; Philips, Oi, Yeh, & Cheng, 2008). In the contexts whereby Confucian norms are deeply embedded in the culture, the traditional filial expectations are gender-biased such that married sons are expected to coreside with and provide for aging parents. Thus, the impacts of coresidence and intergenerational support on emotional wellbeing may depend on the gender of the coresident child and relationship quality between aging parents and children as well as children-in-law (Cong & Silverstein, 2008; Do & Malhotra, 2012; Ren & Treiman, 2014). Existing theoretical perspectives on the forms and functions of living arrangements and their implications for the mental health of Asian elderly rely heavily on evidence from Confucian Asia and thus, may not be applicable to other settings. Little is empirically understood about other parts of developing Asia, including Southeast Asia, where a bilateral kinship system is widely practiced (Ofstedal et al., 1999).

Country settings

Myanmar, Vietnam, and Thailand provide a compelling setting to address our research objectives. First, very substantial population aging is taking place in Southeast Asia. Developing a sound elderly care policy will benefit from understanding the implications of

living arrangements for old-age psychological wellbeing. According to Table 1, all three countries have experienced major fertility declines from 6 children per woman during the 1960s to below-replacement level fertility recently. Concurrently, declining mortality has extended the life expectancy of older persons. Reflecting the earlier and faster pace of fertility decline in Thailand compared to Vietnam and Myanmar, the Thai population aged 60 and above is projected to increase most dramatically and will approach two-fifths of the total population by mid-century. Even in Myanmar, where population aging will be the slowest, its older population is projected to almost triple between 2010 and 2050. Together these demographic trends pose challenges at unprecedented levels for the continuation of family support in its past and present form, as adult children with fewer siblings face longer periods of responsibility for aging parents.

Second, the three countries have experienced different levels of economic development, thus allowing an examination of the roles of development in explaining differences in living arrangements, intergenerational support, and psychological wellbeing. As evidenced in per-capita GDP, Thailand is the most developed among the three nations and Myanmar the least developed, with Vietnam falling in-between. The proportion of the Thai population residing in urban areas is the highest at 36%–moderately above the levels in Vietnam and Myanmar. The percentage of the economically active population engaged in agriculture is highest in Myanmar and lowest in Thailand. Access to electricity is virtually universal in Vietnam and Thailand but just 49% in Myanmar. Almost all major roads in Thailand are paved compared to half of those in Vietnam and 12% in Myanmar. Over 80% of Vietnamese and Thai elders live in households with a phone, compared to only 10% in Myanmar.

Table 1. Demographic and socioeconomic indicators, Myanmar, Vietnam, and Thailand.

	Myanmar	Vietnam	Thailand
Total population, 2010 (in thousands)[e]	51,913	89,047	66,402
Total fertility rate, 1960-65[e]	6.1	6.4	6.1
Total fertility rate, 2005-10[e]	2.0	1.9	1.5
Life expectancy, 2005-10[e]	64	75	73
% aged 60+, 2010[e]	7.7	8.9	12.9
% aged 60+, 2050 (medium projection)[e]	22.3	30.6	37.5
GDP per capita (PPP), 2010[a]	1255 (est.)	3143	9215
% in urban areas, 2011[f]	30.8	31.7	36.1
% Economically active population in agriculture, 2012[c]	66.4	62.3	47.0
% Population with access to electricity, 2009[d]	49 (2010)	98 (2010)	99 (2009)
% of roads paved[b]	11.9 (2005)	47.6 (2007)	98.5 (2000)
% Older persons aged 60+ living in households with landline or mobile phone, 2011-12[g]	10	85	89

Sources:

[a] International Monetary Fund, World Economic Outlook Database, April 2013.

[b] United Nations Development Program (UNDP), 2013 Human Development Report. New York: United Nations.

[c] Food and Agriculture Organization of the United Nations (FAO) Statistics Division (accessed August 25, 2013).

[d] World Bank. World Development Indicators Data Bank (accessed August 8, 2013).

[e] United Nations, 2013. World Population Prospects: The 2012 Revision, New York: United Nations.

[f] Asian Development, Key Indicators for Asia and the Pacific 2012 (accessed August 8, 2013).

[g] The 2012 Myanmar Aging Survey, 2011 Vietnam Aging Survey, and 2011 Survey of Older Persons in Thailand.

Furthermore, Myanmar and Thailand differ from Vietnam regarding gender relations within the family, which are likely to condition patterns of living arrangements and intergenerational support for older parents. These variations in kinship systems permit an examination of cultural nuances in the psychological impacts of intergenerational coresidence. The patrilineal/patrilocal system that stresses the responsibility of married sons and their wives in supporting aging parents prevails not only in East Asia but also in Vietnam (Mason, 1992). In contrast, Myanmar and Thailand are characterized by a more flexible bilateral kinship system in which daughters play an equally or more important role than sons in elderly support and matrilocal residence is not uncommon (Keyes, 1995).

In sum, the three countries share certain social and cultural features common to the region but contrast sharply in their levels of economic development and differ in their recent demographic histories. They thus provide an appropriate combination of settings to explore the roles of development and demography on living arrangements, filial support, and old-age psychological wellbeing. The interpretation of results is informed by the critical role that differences in economic development and demographic trends play, in interaction with each other, in accounting for observed differences. It thus fills what has largely been a gap in previous comparative research and serves to make a case that these aspects of societal context deserve a prominent place within conceptual frameworks that guide comparative studies of elderly wellbeing.

Data and Methods

Our data come from the 2012 Myanmar Aging Survey (MAS), 2011 Vietnam Aging Survey (VNAS), and 2011 Survey of Older Persons in Thailand (SOPT). Both MAS and VNAS are the first national-level surveys of older persons in those countries. The MAS was conducted under the sponsorship of HelpAge International. Its sample consists of 4,080 persons aged 60 and older nationwide except for Kachin state, which was omitted for security reasons. The multistage sampling strategy involved first selecting 60 townships and then 150 rural villages and 90 urban wards within them. The VNAS was sponsored by the Vietnam Women's Union. The sample consists of persons aged 50 and over, including 2,789 aged 60 and above residing in 200 communes in 12 provinces representative of Vietnam's six ecological regions. The SOPT was conducted by Thailand's National Statistical Office and was the fourth in a series of national surveys of older Thais. The sample consists of 62,840 persons aged 50 and over and 54% of whom were aged 60 and older. The designs of all surveys require that results be weighted to be nationally representative. Our results are thus

based on weighted data. For all three surveys, sampling weights were based on the survey design and included in the datasets provided by the organizations that conducted or sponsored the surveys. Further details about the survey methodology, including sampling strategy, for each of the surveys are available elsewhere (see Knodel, 2012; Myanmar Survey Research, 2012; NSO, 2012; Vietnam Women's Union, 2012).

Analytic samples

We make significant efforts to harmonize the three datasets. We limit the analysis to persons aged 60 and above with multiple children and at least one non-coresident child. This is because the three surveys contain information about the interpersonal relationship between the respondent and non-coresident offspring but no comparable information for his/her relationship with coresident children. Given our interest in addressing both transactional and interpersonal features of intergenerational support, we first narrow our analytic samples to elderly with at least one non-coresident child. By such restriction, all single-child families that live with their only child are excluded from the analysis and elderly in coresidence categories are those with two or more children. Since the likelihood of coresidence depends on number of offspring, elders with one child are considerably more likely to coreside than those with multiple children (Knodel, Kespichayawattana, Wivatwanich, & Saengtienchai, 2007, Table 5.7). To prevent biases, we further limit our analysis to elderly with multiple offspring. After additionally excluding cases with proxy or no responses to questions used in the analysis, 3,042 respondents remain in Myanmar's final analytic sample. The corresponding numbers of observation for Vietnam and Thailand are 2,310 and 16,015 respectively[1].

[1]The Myanmar and Vietnam surveys conducted a random selection of one elderly per sampled household for interview. However, the Thai survey attempted to obtain information about all elderly in sampled households (NSO, 2012). To fulfill our foremost goal in harmonizing the three datasets and to avoid clustering biases, we restrict the Thai sample by *randomly* selecting only one elderly per sampled household when multiple elderly

Our diagnostic analysis demonstrates that only a modest proportion of elderly aged 60 and older in each survey are omitted based on the sample restriction criteria described above. Approximately 86%, 92% and 85% of those in the Myanmar, Vietnam, and Thai samples have two or more children respectively. Well above 90% of these parents (93% Myanmar, 98% Vietnam, 96% Thailand) have at least one non-coresident child. Furthermore, in preliminary research, we do not find any statistically significant difference in living arrangements and socio-demographic characteristics between the full sample (i.e., all respondents aged 60 and over) and the final analytic sample of each survey. Nevertheless, we recognize that the sample restriction may limit the generalizability of our findings, particularly to single-child families. Furthermore, we are mindful that the large sample size for the Thai survey can enhance statistical significance in multivariate results. That is, the same substantive difference in all three countries is more likely to be statistically significant for Thailand, simply because of its larger sample size, all else equal.

Variable measurement

Living arrangement is defined as a mutually exclusive categorical variable indicating whether the respondent practices patrilocality, other forms of coresidence, network family arrangement, or isolated living arrangement. The first category includes respondents who live with at least one married son. We treat a small number of cases in which the respondent lives with a married son *and* married/unmarried daughter(s) as patrilocal residence. The second category—other coresidence—incorporates respondents who do not coreside with a married son but live with a married/unmarried daughter(s) and/or unmarried son(s). Network family arrangement refers to respondents who do not coreside with a child but have the nearest child

individuals are present. This makes the Thai sample more similar to the samples for Vietnam and Myanmar than before the modification was made.

living in the same village/ward. The last category includes respondents whose children all live beyond village/ward.

Intergenerational support: We examine two key features of intergenerational support: financial transfers and social contacts. We recognize challenges in harmonizing these variables across the three surveys. First, while information in the Myanmar and Vietnam surveys allows us to examine various forms of support between the respondent and *each* child, the Thai survey aggregates such transfers and contacts across all coresident children versus non-coresident children so information for specific children is unavailable. Second, the three surveys did not use identical scales of possible responses. We utilize the following strategies to circumvent the challenges.

Financial transfers: First, we incorporate a dichotomous variable indicating whether elders provided financial assistance to any children during the 12 months prior to survey. Preliminary analysis reveals that among the minority who did, the amount of money provided to children was relatively small. Second, we measure financial transfers from children to parents by summing the total amount that the elders received from all children to represent financial support received. We are mindful that within-household monetary transfers as well as remittances can be ambiguous and difficult to interpret (Hermalin, 2000). In the case of remittances, an absence of information pinpointing whether the transfers are specifically for the recipient (e.g., older parents) or mainly for the household as a whole makes it challenging to assess the implications of such transfers. We also recognize alternative approaches to measuring intergenerational financial transfers. For example, Silverstein and colleagues (2006) take the maximum value of financial contributions across all children and incorporate the within-family standard deviation of money received as a measure of dispersion among children in order to determine whether smaller financial contributions from children negatively impacts old-age psychological wellbeing. Our preliminary analysis based on the

Myanmar and Vietnam samples follows this approach and shows similar results to the approach presented in this study. Due to data restrictions, we are unable to conduct this approach based on the Thai survey.

Social contacts: To address interpersonal relationships between elders and children, we consider the frequency of visits and phone calls the respondent received from non-coresident children. For Vietnam and Myanmar, we take the maximum values of visits and phone calls across all non-coresident children to represent the magnitude of social contacts. By contrast, Thai respondents were probed about contacts from non-coresident children without specifying whether they were from any particular child.

To further improve comparability of the intergenerational support measures, we convert the value of monetary transfers and frequency of visits and phone calls from children into percentiles relative to the sample of all persons aged 60 and older. Higher percentiles reflect greater magnitude of financial transfers, visits, and phone calls received from children.

The psychological wellbeing index is constructed based on aggregated answers to questions related to the psychological health of the respondent that are common across the three surveys. This includes whether respondents felt sad/unhappy, depressed, lonely, or experienced loss of appetite prior to survey. For all three surveys, possible responses ranged from 1 (not at all), 2 (some of the time) and 3 (often/always). To make it easier for interpretation, we do reverse coding for the negative feelings. Higher index scores thus indicate better psychological wellbeing. To improve compatibility, we convert the index scores into percentiles relative to the sample of all adults aged 60 and over in each survey to provide a metric common across countries. We recognize a potential, yet minor, limitation stemming from the fact that there are differences in the time span that psychological health was assessed in each survey (one week for Vietnam and one month for Myanmar and Thailand). Nevertheless, based on Cronbach's alphas, the reliability coefficients for the four

components of the psychological wellbeing index indicate acceptable internal validity, ranging from .60 (Myanmar) to .63 (Vietnam) and .67 (Thailand).

Socio-demographic characteristics incorporated in the analysis are gender, age, current marital status, number of children, educational attainment, pension, work status, urban/rural location of residence[2], household wealth, and functional limitation. Age and number of children are incorporated as continuous variables. Current marital status is measured as a dichotomous variable indicating whether the respondent is married at the time of survey, as opposed to being widowed and to a much lesser extent, being separated/divorced or never-married. Educational attainment is incorporated as a categorical variable indicating whether the respondent has no education, some primary, completed primary, or beyond primary education. A household wealth index is constructed based on the respondent's ownership of household assets and housing quality[3]. The index is derived from multiplying a normalized score for each household possession by its weight, which is determined using factor scores derived from the first principal component in a principal component analysis (Filmer & Pritchett, 2001). The functional limitation index is constructed by aggregating respondents' replies to questions regarding their functional ability, including walking 200-300 meters, lifting 5 kilograms, crouching/squatting, walking up/down stairs, and using fingers to grasp things. The household wealth and functional limitation indices are converted into percentiles relative to the full sample in each setting. Higher wealth percentiles indicate higher economic status, whereas higher percentiles of functional limitation indicate more functional health problems.

[2]All three surveys used the official country-specific definition of rural and urban location. Our study follows the definition provided by each survey.

[3]For example, household assets include TV, electric fan, refrigerator, store-bought furniture, rice cooker, washing machine, phone, motorcycle, and car/truck. Housing quality, for instance, includes a floor constructed using modern materials (e.g., finished wood, cement/tile) and an access to safe water sources.

Analytic approach

First, we employ descriptive statistics to describe patterns of living arrangements, intergenerational support, and socio-demographic characteristics of elderly parents in the three countries. Then, we utilize ordinary least square (OLS) regressions to investigate how living arrangements and intergenerational support matter for the psychological wellbeing of older parents. Our diagnostic analysis demonstrates that the use of OLS to model the wellbeing index is appropriate across all three settings since histograms show normal distribution of the index before and after being converted into percentiles and analysis of residuals show that the residuals appear to behave randomly.

More specifically, we address whether receiving support from, and maintaining interpersonal relationships with, grown children fully account for any observed relationship between intergenerational coresidence or location of the nearest non-coresident child and the psychological health of elderly parents. Moreover, we examine whether providing support to adult children is associated with old-age emotional wellbeing. If the key function of living arrangements is to express cultural values that indicate the status of Asian elders, we would expect older parents with coresident children (particularly married sons for Vietnam and married daughters for Thailand and Myanmar)–independent of intergenerational support—to report better psychological wellbeing than those who do not live with children (Silverstein et al., 2006). However, if living arrangements function primarily as a vehicle for transactional and interpersonal features of intergenerational support, we would expect no significant differences between the mental health status of elders living with children and those in other household arrangements, when intergenerational support is controlled.

Following the family conflict hypothesis, we anticipate that network family arrangements could potentially benefit the emotional health of older persons, provided socio-demographic characteristics and intergenerational support are constant. Given the differing

kinship systems, levels of economic development, and demographic trends found in Southeast Asia, we nevertheless anticipate the functions of coresidence with, and proximity to, children as well as gender of the coresident child and their psychological impacts to vary across the three settings.

Results

Sample description

Mean values and standard deviations for all variables are presented in Table 2. The universe of analysis is the final analytic sample (i.e., elderly with multiple children and at least one non-coresident child) of each dataset. Results show that the mean percentiles of the psychological wellbeing index across all three countries are close to 50, suggesting that average older persons in our analytic samples score similarly to average persons aged 60 and over with respect to psychological wellbeing. Importantly, the average psychological wellbeing scores demonstrate sufficient variation, thus allowing us to differentiate the constructs of interest[4].

We find an overwhelming majority of elderly in the study samples either coresiding with or living in close proximity to their children. Coresidence rates are highest in least-developed Myanmar (82%) and lowest in most-developed Thailand (56%) with Vietnam falling in-between (67%). Together, older parents in the two coresidence categories and network family arrangements account for 96% of elderly in the Myanmar sample. The corresponding figures for Vietnam and Thailand are 90% and 81% respectively. Also noteworthy is that patrilocal residence is much more common in Vietnam than in Myanmar and Thailand and that isolated family arrangements are much less prevalent in Myanmar than Vietnam, which is in turn less common than in Thailand.

[4]Diagnostic analysis shows that the average psychological wellbeing score for Myanmar is 64% of the possible maximum score. The corresponding figures are 60% for Vietnam and 84% for Thailand.

Regarding intergenerational support, it is more typical for elderly parents in Southeast Asia to receive money from grown children than to provide money to children. In Myanmar, while 22% of the sample report providing money to children, over 90% receive some monetary support from children. A similar pattern is observed in Vietnam and Thailand but the extent of intergenerational monetary exchanges is less prevalent. The mean percentiles of total amount of money received from children range from 50.67 in Vietnam, 55.45 in Thailand, to 56.06 in Myanmar, suggesting that average Thai and Myanmar elders in the analytic samples receive modestly greater amounts of money from children than their counterparts in the full samples. This is understandable provided that our samples consist of only elderly with multiple offspring. The differences in mean value of monetary transfer from children between Vietnamese elders in the analytic sample and full sample are minuscule, nevertheless.

In addition to financial transfers, we consider social contacts between parents and non-coresident children as an interpersonal aspect of intergenerational support. The mean percentiles for visit and phone call frequency are close to 50 in all countries. A diagnostic analysis suggests that in Myanmar and Vietnam adult children living nearby tend to visit their parents on a weekly basis; however, this is less evident in Thailand. Regular phone calls from non-coresident children are typical in Thailand and Vietnam but less common in Myanmar where phone access remains rare.

Table 2. Description of analytic variables, Older persons aged 60 and older with multiple children and at least one non-coresident child in Myanmar, Vietnam and Thailand.

Variable	Myanmar		Vietnam		Thailand	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Dependent variable						
Psychological wellbeing index (percentile)	49.70	28.05	50.55	28.13	50.02	27.70
Living arrangements[a]						
Patrilocal residence	0.20	0.40	0.41	0.49	0.14	0.35
Other coresidence	0.62	0.49	0.26	0.44	0.42	0.49
Network family arrangement	0.14	0.35	0.23	0.42	0.24	0.43
Isolated family arrangement	0.04	0.20	0.10	0.31	0.19	0.35
Intergenerational support						
Provided money to children	0.22	0.42	0.16	0.36	0.16	0.37
Total value of money received from children (percentile)	56.06	26.91	50.67	28.45	55.45	26.97
Frequency of visits from non-coresident children (percentile)	50.49	25.68	50.73	24.33	50.76	27.91
Frequency of phone calls from non-coresident child (percentile)	50.50	24.97	51.64	27.61	50.47	27.71
Socio-demographic characteristics						
Female	0.53	0.50	0.55	0.50	0.53	0.50
Age	70.20	7.52	70.58	8.08	69.51	7.14
Currently married	0.59	0.49	0.75	0.43	0.58	0.49
Number of children	5.03	2.05	5.10	2.07	4.09	1.87
Education						
No education	0.22	0.41	0.17	0.37	0.12	0.32
Some primary	0.46	0.50	0.32	0.47	0.06	0.23
Primary completion	0.15	0.36	0.18	0.39	0.74	0.44
Beyond primary	0.17	0.38	0.33	0.47	0.09	0.28
Have pension	0.08	0.27	0.20	0.40	0.07	0.25
Worked last year	0.31	0.46	0.40	0.49	0.43	0.49
Urban	0.29	0.46	0.31	0.46	0.29	0.45
Household wealth index (percentile)	49.63	28.63	51.01	28.27	47.14	28.18
Functional limitation index (percentile)	48.23	25.86	47.76	27.09	49.36	23.44
Unweighted number	3042		2310		16015	

Sources: The 2012 Myanmar Aging Survey, 2011 Vietnam Aging Survey, and 2011 Survey of Older Persons in Thailand.

[a]Patrilocal residence refers to respondents who live with at least one married son. We also treat a few cases in which the respondent lives with both married son and married/unmarried daughter as patrilocal residence. Other coresidence incorporates respondents who do not coreside with a married son but live with married/unmarried daughter(s) and/or unmarried son(s). Network family arrangement refers to respondents who do not coreside with a child but have the nearest child living in the same village/ward. Isolated family arrangement includes respondents whose children all live beyond village/ward.

Regarding socio-demographic characteristics, there are greater proportions of females than males across all three settings, consistent with lower mortality for females in these countries. The average age of older persons in the samples is 70-71 years. Nearly three-fifths of elders in Myanmar and Thailand were married at the time of survey, whereas such proportions are higher in Vietnam (75%). Average Thai elders have four children; their counterparts in Myanmar and Vietnam have a larger family size of about 5 children. Fewer Thai elders have no education compared to the proportions in Vietnam (17%) and Myanmar (22%). Note, however, that while 9% of Thai elders have more than primary schooling, the percentage of Vietnamese elderly with similar educational attainment is over three times larger (33%). Pensions are rather uncommon in all three settings. Below 10% of elders in Thailand and Myanmar have pensions compared to 20% in Vietnam, probably reflecting the country's socialist legacies. In all three countries, less than half of elderly parents worked during the year prior to survey but the proportions are higher in Thailand and Vietnam than in Myanmar. Furthermore, about 30% of older persons in each setting reside in urban areas. Mean percentiles for household wealth and functional limitation indices suggest that average elders in the analytic samples of Myanmar and Vietnam are roughly similar to those in the full samples regarding economic status; yet, they perform slightly better regarding functional health.

Multivariate analyses

In Table 3, we use OLS regression models to examine how coresidence with, and proximity to, children as well as gender of the coresident child are associated with the psychological wellbeing of aging parents and to address the extent to which the relationships are accounted for by intergenerational support. We report three additive models for each country. The first model considers old-age psychological wellbeing as a function of living

arrangements only; the second model adds socio-demographic characteristics; and the last model incorporates four aspects of intergenerational support. To make it easier to identify patterns, unstandardized coefficients significant at least at the .05 level are bolded and their cells shaded. Positive coefficients indicate greater psychological wellbeing associated with a particular category, while negative coefficients suggest the contrary.

We find varied associations between living arrangements and psychological wellbeing among older parents in the three settings. First, intergenerational coresidence appears to improve the emotional health of Vietnamese and Thai elders but with different implications. In Vietnam, patrilocal residence is strongly and positively associated with old-age psychological wellbeing. The coefficients for patrilocality for Vietnam remain statistically significant and change only moderately in size after intergenerational support is controlled. Other characteristics being equal, Vietnamese elders living with a married son demonstrate significantly better mental health than those in other living arrangements. While the mean psychological wellbeing index is 50.55 for Vietnam, with a standard deviation of 28.13, results suggest that the wellbeing score of those in patrilocality improves by 4.174 (Model 6), or roughly 15% of a standard deviation.

While patrilocal residence does not demonstrate net psychological impacts among Thai elderly, other coresidence, which primarily refers to living with a married daughter, is positively related to their psychological health (Models 7-9). The coefficients for this covariate remain positive and become slightly larger after socio-demographic characteristics and intergenerational support are introduced. It is interesting to note that in saturated models for Vietnam and Thailand (Models 6 and 9) the size of coefficient for patrilocality in Vietnam (4.174) is almost twice as large as that for other coresidence in Thailand (2.458), suggesting that living with a son improves the mental state of Vietnamese elders to a greater extent than what living with a daughter does for their Thai counterparts.

Table 3. Unstandardized coefficients and standard errors from ordinary least square regression models predicting psychological wellbeing among older persons with multiple children and at least one non-coresident child in Myanmar, Vietnam and Thailand.

Independent variables	**Myanmar**[a,b]			**Vietnam**[a,b]			**Thailand**[a,b]		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Living arrangements (Isolated family arrangement=ref)									
Patrilocal residence	5.323	**5.578**	3.457	2.424	**5.456**	**4.174**	0.487	1.331	1.425
	(2.768)	(2.622)	(2.660)	(2.025)	(1.795)	(1.849)	(0.752)	(0.754)	(0.776)
Other coresidence	4.286	4.712	2.429	-1.774	1.200	0.614	**1.299**	**2.217**	**2.458**
	(2.610)	(2.475)	(2.514)	(2.135)	(1.870)	(1.916)	(0.595)	(0.602)	(0.622)
Network family arrangement	-3.246	0.135	-2.425	-3.189	**4.465**	3.333	**-2.515**	1.220	0.620
	(2.872)	(2.718)	(2.781)	(2.186)	(1.943)	(2.022)	(0.663)	(0.655)	(0.692)
Total value of money received from children			**0.178**			**0.069**			**0.027**
			(0.020)			(0.019)			(0.008)
Provided money to children (not providing=ref)			-0.639			0.726			**-2.729**
			(1.204)			(1.448)			(0.604)
Maximum frequency of visits			**0.070**			**0.049**			**0.030**
			(0.020)			(0.022)			(0.008)
Maximum frequency of phone contacts			0.011			-0.003			**0.029**
			(0.020)			(0.020)			(0.008)
Female (male=ref)		**-5.708**	**-5.694**		**-5.418**	**-5.678**		**-2.579**	**-2.780**
		(1.133)	(1.117)		(1.189)	(1.193)		(0.488)	(0.488)
Age		**0.245**	**0.23**		0.038	0.036		-0.035	-0.043
		(0.074)	(0.073)		(0.082)	(0.083)		(0.034)	(0.035)
Currrently married (not married=ref)		**3.008**	**3.231**		**7.279**	**7.105**		**1.698**	**1.706**
		(1.117)	(1.102)		(1.371)	(1.372)		(0.496)	(0.496)
Number of children		-0.115	**-1.180**		-1.135	-0.466		-0.137	-0.176
		(0.235)	(0.258)		(0.267)	(0.279)		(0.125)	(0.125)
Education (no education=ref)									
Some primary		-0.815	-1.021		**3.622**	**3.777**		-0.511	-0.631
		(1.303)	(1.285)		(1.535)	(1.536)		(1.076)	(1.074)
Primary completion		-0.775	-0.893		2.050	2.273		0.088	-0.050
		(1.643)	(1.625)		(1.815)	(1.816)		(0.683)	(0.685)
Beyond primary		0.502	0.750		**4.995**	**4.858**		**3.854**	**3.931**
		(1.825)	(1.805)		(1.887)	(1.889)		(1.068)	(1.071)
Have pension (no pension=ref)		2.457	3.041		2.075	2.890		0.861	1.547
		(1.921)	(1.910)		(1.527)	(1.550)		(0.956)	(0.965)
Worked last year (did not work=ref)		1.594	**3.194**		-2.136	-1.281		**4.391**	**5.064**
		(1.154)	1.183		(1.231)	(1.251)		(0.499)	(0.519)
Urban residence (rural=ref)		**-3.245**	**-2.514**		0.674	0.522		0.349	0.352
		(1.188)	(1.184)		(1.225)	(1.227)		(0.452)	(0.451)
Household wealth index		**0.226**	**0.199**		**0.256**	**0.242**		**0.150**	**0.137**
		(0.019)	(0.019)		(0.024)	(0.024)		(0.009)	(0.009)
Functional limitation index		**-0.273**	**-0.269**		**-0.319**	**-0.313**		**-0.145**	**-0.144**
		(0.021)	(0.020)		(0.021)	(0.021)		(0.010)	(0.010)
Constant	**46.421**	**32.911**	**28.079**	**50.756**	**42.181**	**38.783**	**50.408**	**49.552**	**46.697**
	(2.529)	(6.216)	(6.245)	(1.806)	(6.827)	(7.105)	(0.488)	(2.621)	(2.687)
Adjusted R^2	0.009	0.154	0.178	0.006	0.269	0.273	0.002	0.079	0.082

Total unweighted number = 3042 (Myanmar), 2310 (Vietnam), 16015 (Thailand)

Sources: The 2012 Myanmar Aging Survey, 2011 Vietnam Aging Survey, and 2011 Survey of Older Persons in Thailand.

Notes:

[a]Standard errors are reported in parentheses.

[b]Coefficients significant at the .05 level or beyond are shown in bold face and their cells are shaded.

It is only in the Vietnam context that we find independent, yet tentative, positive psychological effects of network family arrangements (Model 5). Results show that the coefficients for network family arrangement are consistently smaller than those of patrilocality and become insignificant after intergenerational support is controlled (Model 6). This suggests the persistent importance of patrilocal residence in the psychological wellbeing of Vietnamese elderly parents and the role that network family arrangements play in facilitating intergenerational support in this context. In the Myanmar and Thai settings, this form of family arrangements does not have a significant positive association with old-age psychological wellbeing, either before or after socio-demographic attributes and intergenerational support are controlled.

For Myanmar, only patrilocal residence shows significant, yet short-lived, positive association with old-age psychological health (Model 2). Once intergenerational support is controlled, its coefficient becomes smaller and loses statistical significance (Model 3), suggesting that living with a son functions primarily as a vehicle for support exchanges between aging parents and grown children.

In addition to living arrangements, results consistently show the significance of financial transfers from children to older parents in improving their psychological wellbeing in all three countries (Models 3, 6, 9). On the contrary, for Thai elders, providing money to grown children has net negative implications for their psychological health. The coefficients for parental monetary support to children show mixed results in the Myanmar and Vietnam settings but neither is statistically significant. Similar to monetary support received from children, physical visits from non-coresident children are significantly associated with improved mental health status among elderly parents across all settings. The psychological effects of phone calls on older persons appear less consistent. While phone contacts

significantly boost the emotional health of aging parents in Thailand, this is not found in the contexts of Myanmar and Vietnam.

Finally, the results further indicate that the psychological wellbeing of aging parents in all three settings is significantly determined by gender, marital status, household wealth, and functional limitations. Other characteristics being equal, elders who are married and those who are economically better-off experience better psychological wellbeing. Meanwhile, elderly women and those with functional health problems tend to report worse mental health status. The size of these coefficients, especially gender and marital status, is relatively large. In Vietnam, other characteristics equal, being married at the time of survey (i.e., having a spouse) improves the psychological health of older parents to a greater magnitude, compared to living with a son (Model 6). Furthermore, we find that aging significantly increases the wellbeing of older persons in Myanmar. Being relatively better educated, particularly having beyond primary education, is beneficial to old-age emotional health in the Thai and Vietnamese contexts. Economic activity appears to be associated with improved psychological health among elders in Myanmar and Thailand. Only in Myanmar does urban residence appear to be negatively related to the mental health of older parents. Interestingly, given socio-demographic characteristics and aspects of intergenerational support are controlled, older parents with larger numbers of children show worse psychological wellbeing. The coefficients for family size are negative for all the three settings but statistically significant only among older parents in Myanmar[5].

[5]It is interesting to note about the persistent negative effects of family size in Myanmar. More children could be associated with heightened family conflicts near the time of death of older-aged parents due to disagreements over inheritance or covering increased costs related to care. Another explanation could be that a larger number of children being a proxy for a larger number of grandchildren and the increased likelihood of the grandparent being a caretaker which could produce greater fatigue at older ages.

Study limitations

We are mindful of our study's limitations. First, we acknowledge that differences across the three surveys used in our study pose numerous challenges for harmonization of variables. Typical in comparative research, these challenges include complexity and subjectivity of language, and difficulty in achieving complete equivalence of concepts and measures that come in different linguistic and cultural contexts (Angel, 2013; Hermalin, 2002). While considerable efforts are made in this study to minimize problems of comparability, we acknowledge that they cannot be entirely discounted.

The second limitation is that the study is cross-sectional in design. Given the nature of the datasets, we are thus restricted in addressing causality between living arrangements and psychological wellbeing. For instance, the decision to coreside with children may be correlated with the physical and mental health status of older persons. Elders with depressive symptoms may be more likely to be in certain forms of living arrangements. Without knowing baseline mental health status, it is very difficult with a cross-sectional design to disentangle whether coresidence is the cause or consequence of elderly parents' psychological wellbeing. Moreover, risk of endogeneity is also possible between living arrangements, psychological wellbeing, and intergenerational support. For instance, financial support and communications from children may be caused by elders' mental health status and coresidence. This can further limit the causal interpretations of interest (i.e., whether intergenerational support explains observed association between coresidence and wellbeing).

Apart from the above-mentioned limitations, we are aware that older persons with coresident children may differ from those not living with a child in various unmeasured characteristics (e.g., the relationship quality between older parents and children, bequest possibility and expectation). The psychological effects of living arrangements may be the product of these earlier, yet unobserved, processes that led to coresidence.

While endogeneity is commonly found in previous research and a potential source of bias in our analysis, the extent of the issue is likely modest in our comparative study. A related analysis by the authors utilizes a triangular simultaneous equation discrete-response model to map the causal relationship between living arrangements and psychological wellbeing in Vietnam. More specifically, the analysis exploits differences in labor market opportunities in neighboring regions in Vietnam (i.e., regional wage differentials) as exogenous variation in living arrangements. Consistent with our main findings (Table 3), those results show that coresidence significantly improves the psychological wellbeing of older Vietnamese and is responsible for regional variations in old-age psychological wellbeing. While this analytical approach is promising, it could not be implemented consistently across all three settings due to the lack of reliable supplementary data (e.g., labor force statistics), particularly for the case of Myanmar which, until 2010, was one of the world's most secluded countries with minimal access to official data (Spoorenberg, 2013).

In sum, given the nature of the datasets, causality is difficult to infer and analyzing potential mediators in that relationship may require further assumptions regarding the temporal sequence of events, the functional form, and the absence of heterogeneity of effects between the factors of interest. For these reasons we encourage caution in drawing causal inferences from the relationships reported in Table 3.

Discussion

Based on recent nationally representative aging surveys from Myanmar, Vietnam, and Thailand, our study expands the literature in at least two important ways. First, comparative evidence from Southeast Asia adds much-needed nuances in the theoretical perspective on how intergenerational coresidence is linked to elders' psychological health. Particularly noteworthy are empirical findings from Myanmar where very little is known about the

wellbeing of its rapidly growing older-aged population. Second, by considering location of the nearest non-coresident child, we investigate whether network family arrangement is a viable substitute for coresidence and the implications of this form of living arrangement for mental health at older ages.

How is intergenerational coresidence associated with the psychological wellbeing of elderly parents in developing Asia? Do the observed relationships hold after intergenerational support is taken into account? What can we say about the functions of coresidence? How do these associations vary across the three settings? Results indicate that in both the Vietnam and Thailand contexts, coresidence has a net beneficial influence on the mental health of older parents. Evidence points out that it is important to pay attention to the gender of coresident child. In Vietnam, where Confucian norms are embedded and a patrilineal/patrilocal kinship system prevails, living with a married son matters for parents' mental health, whereas in Thailand where a bilateral kinship system is dominant it is other coresidence (mainly living with a married daughter) that improves psychological wellbeing. These findings suggest the importance of understanding the dominant kinship system that shapes normative filial expectations and gender relations within the family, when addressing how living arrangements and intergenerational support matters for old-age psychological wellbeing. This is a significant point that has not yet been made in other studies on developing Asia. In the contexts of Vietnam and Thailand, the positive association of living with son/daughter holds, even when socio-demographic characteristics and intergenerational support are controlled. Coresidence therefore holds a function beyond being just the vehicle for intergenerational support for the elderly, as the family support hypothesis may suggest.

Previous research indicates that Vietnamese parents prefer living with a married son, especially the eldest one. Sons traditionally hold a higher value than daughters do because they can continue the family line and inherit the parental estate (Barbieri, 2009). Our results

suggest that, consistent with the East Asian settings, patrilocal residence likely fulfills the cultural ideals and brings a greater sense of purpose for elders since they hold a culturally-sanctioned role within the family (Silverstein et al., 2006). Likewise, while past studies suggest that the living arrangements of the elderly in Thailand are largely characterized by flexibility and pragmatism, there is a tendency for elderly Thais, particularly those in the North and the Northeast, to favor daughters for coresidence (Keyes, 1995). In this context, daughters are typically perceived to be emotionally closer to parents, to be more dependable, and to be more skilled in providing personal care for elderly parents (Knodel, Chayovan, & Siriboon, 1992). Such perceptions are likely to positively impact the mental health of older parents in Thailand. Living with children other than son (for Vietnam) or daughter (for Thailand) does not provide similar psychological benefits, perhaps because such arrangements might be a response to the greater need of the parent or the child than by cultural preferences. This gender bias seems more pronounced in Vietnam than Thailand.

Can network family arrangement substitute coresidence? How is proximity to children associated with elderly parents' psychological wellbeing, especially after intergenerational support is controlled? It is only in Vietnam that we observe positive, albeit temporary, psychological influences of network family arrangements. Diagnostic analysis (not shown) indicates that older Vietnamese in this form of arrangement tend to live close to a son rather than a daughter and that having a son nearby is significantly associated with positive mental health. Our findings lend partial support to the family conflict hypothesis, as network family arrangement seems a viable substitute for coresidence and may help avoid family conflicts. Nevertheless, results suggest that the main function of network family arrangement is to facilitate intergenerational support. Its net psychological benefits disappear when intergenerational support is controlled. Evidence suggests that older persons in network family arrangements tend to get more visits from non-coresident children because they may

benefit from close proximity to children who could play an active role in parental care and that visits from children in turn promote the mental health of the elderly.

How can we make sense of the findings from Myanmar? What are the functions of living arrangements in this lesser-known setting? Are there other factors more important in determining the old-age psychological wellbeing in Myanmar? Unlike Vietnam and Thailand, our findings indicate that patrilocality has important, yet short-lived, effects on old-age psychological wellbeing in Myanmar. Living arrangement is characterized primarily by intergenerational exchanges. That is, coresidence—particularly patrilocality—is the main vehicle for intergenerational support and in turn improves psychological wellbeing. It is important to note that a great majority of elderly parents in Myanmar live with or near a child and there are only 4% whose children all live beyond the village/ward. Nevertheless, it is unlikely that such inadequate variation in this variable alone accounts for the observed absence of any significant associations between living arrangements and psychological wellbeing, once all other variables are controlled. The coefficient for patrilocal residence in Myanmar is close to statistical significance in Model 1 of Table 3, at 1.92 times its standard error, and attains statistical significance in Model 2 of Table 3. But, once intergenerational support is controlled in Model 3 of Table 3, the coefficient for patrilocal residence falls far short of statistical significance. In other words, it is intergenerational support that drives the coefficient for patrilocal residence to non-significance, not the socio-demographic controls introduced in Model 2. If it were truly a lack of variation on the variable that accounts for its non-significance in Model 3, then we would not expect the coefficient for patrilocality to be nearly significant in Model 1 and significant in Model 2.

Which aspect (transactional or interpersonal features) of intergenerational support more strongly influences mental health for the elderly? We find that monetary support received from children plays a pivotal role in promoting the psychological wellbeing of older

parents, independent of types of living arrangements and socio-demographic characteristics. Since preliminary analysis shows that coresidence facilitates the flow of intergenerational monetary support particularly in Myanmar and Thailand, the positive psychological effects of coresidence observed are to some extent explained by these transfers. For example, although statistically insignificant, the observed positive psychological consequences of patrilocal and other residence in Myanmar are reduced substantially and those of network family arrangement shift from positive to negative, once financial transfers and other intergenerational relations are accounted for (Table 3, Model 3). It is important to note that financial transfers are the kind of support that is not restricted by the presence or proximate location of children. Thus, monetary support received from children–a form of support that is usually enhanced by children's migration—has a positive effect on psychological outcomes and may to some degree offset the disadvantage of living apart from children.

From a traditional viewpoint, being supported financially by one's children brought "face" to older parents, as it increases their social status, and this is an added benefit of relying on familial support. In contrast, if parents need to provide for grown children, it has detrimental results for their psychological wellbeing, with the negative influence being most pronounced among aging parents in Thailand. We are aware that what drives financial support from children are contradictory situations regarding psychological wellbeing. The receipt of monetary support from children and the amount received, on the one hand, demonstrates higher filial piety. But, on the other hand, it might be driven by the need on the part of elderly parents. These two factors may be countervailing and affecting the relationship between financial transfers and psychological wellbeing.

Furthermore, it is important to recognize that forms of intergenerational support that play a role in elevating or maintaining psychological health among older adults will depend on their baseline physical and mental health status. That is, forms of support that impact

psychological health among the healthy elderly could be very different from those that have the greatest impact on improving the psychological wellbeing of individuals with mental illness. For example, financial support from children may be sufficient and preferable among the healthy elderly. However, as health begins to deteriorate, coresidence, visits, and communications may become more crucial.

What does the future hold for living arrangements, intergenerational support, and their implications for the psychological wellbeing of older persons in Southeast Asia? While coresidence remains the most prevalent form of old-age living arrangements in the region, our findings suggests that it appears to decline with the region's increased economic development. Even if a decline in coresidence is inevitable, it is unlikely to have adverse impacts on the overall wellbeing of the elderly in the region. This is because living arrangements are a part of many aspects of elderly support. For instance, in Myanmar and Thailand that share cultural influences from the bilateral kinship system yet experience vastly different levels of economic development, living arrangement is characterized largely by intergenerational exchanges and on its own (with an exception of living with a daughter for Thailand), may not be a sufficient indicator of old-age psychological wellbeing. An exception may be Vietnam, where the mental health benefits of patrilocal residence are found. Given the country's restricted two-child policy and persistently strong son preference, the psychological wellbeing of Vietnamese elders who do not have sons may be at risk (Knodel et al., 2000).

Future generations of older adults in rapidly aging Asia will be different from the current generations with respect to their education, wealth accumulation, and health status that will likely facilitate elderly independent living. Continuous structural and technological change as well as changes in prevalence of disease profiles (including mental illnesses) means that future elders and their families will live in a different environment. Past research

shows individuals' and families' ingenuity in how they respond to changing circumstances in order to develop alternative strategies for elderly support in keeping with firmly rooted values of elderly care by immediate family (Barbieri, 2009; Chan, 2005; Croll, 2006)[6]. While reliance on family support may weaken and non-familial institutions for elderly support may gain importance in the future, families will likely continue to play an important role. Policies should focus on allowing families to provide support for older parents including accommodating their preference for living arrangements and should be sensitive to cultural differences, particularly son preference, that can play a major role in affecting types and quality of support and in turn, old-age psychological wellbeing.

References

Aboderin, Isabella. (2004). Modernisation and aging theory revisited: Current explanations of recent developing world and historical Western shifts in material family support for older people. *Ageing and Society*, 24,29-50.

Angel, R.J. (2013). After Babel: Language and the fundamental challenges of comparative aging research. *Journal of Cross Cultural Gerontology,* 28(3),223-238.

Barbieri, M. (2009). Doi Moi and older adults: Intergenerational support under the constraints of reform. In M. Barbieri & D. Belanger (Eds.), *Reconfiguring families in contemporary Vietnam* (pp.133-165). Stanford, CA: Stanford University Press.

Biddlecom, A., Chayovan, N., & Ofstedal, M.B. (2002). Intergenerational support and transfers. In A.I. Hermalin (Ed.), *The well-being of the elderly in Asia: A four-country comparative study* (pp.185-229). Ann Arbor, MI: University of Michigan Press.

Chan, A. (2005). Aging in Southeast and East Asia: Issues and policy directions. *Journal of Cross-cultural Gerontology*, 20,269-284.

Chan, A., Malhotra, C., Malhotra, R., & Ostbye, T. (2011). Living arrangements, social networks and depressive symptoms among older men and women in Singapore. *International Journal of Geriatric Psychiatry*, 26,630-639.

[6]For example, one strategy that Asian parents employ to improve the odds of filial returns including intergenerational coresidence is to continue intensive investments into children's adulthood and into the wellbeing of grandchildren. Any intensification of spending on younger generations is rationalized not only as a sign of parental devotion but also as the strategic nurturing of long-term gratitude and indebtedness to parents, which has been openly described as a long-range form of self-interest, given the likely dependence upon adult children for continuing support (Croll, 2006).

Chen, F., & Short, S. (2008). Household context and subjective wellbeing among the oldest old in China. *Journal of Family Issues*, 29,1379-1403.

Chen, X., & Silverstein, M. (2000). Intergenerational social support and the psychological wellbeing of older parents in China. *Research on Aging*, 22,43-65.

Cheng, S.T. & Chan, A.C.M. (2006). Filial piety and psychological wellbeing in well older Chinese. *Journal of Gerontology: Psychological Sciences*, 61B(5),P262-P269.

Chou, K.L., Ho, H.Y., & Chi, I. (2006). Living alone and depression in Chinese older adults. *Aging & Mental Health*, 10(6),583-591.

Cong, Z., & Silverstein, M. (2008). Intergenerational and depression among elders in rural China: Do daughters-in-law matter? *Journal of Marriage and Family*, 70, 599-612.

Connelly, R., Iannotti, M., Maurer-Fazio, M., & Zhang, D. (2014). Coresidency, ethnicity, and happiness of China's rural elders. IZA Discussion Paper No. 8194 (May 2014).

Cowgill, D.O., & Holmes, L.D. (Eds.) (1972). *Aging and Modernization.* New York: Appleton-Century-Crofts.

Croll, E. (2006). The intergenerational contract in the changing Asian family. *Oxford Development Studies*, 34(4),473-491.

DaVanzo, J., & Chan, A. (1994). Living arrangements of older Malaysians –Who coresides with their adult children? *Demograph*y, 31(1),95-113.

Do, Y.K., & Malhotra, C. (2012). The effect of coresidence with an adult child on depressive symptoms among older widowed women in South Korea: An instrumental variables estimation. *Journal of Gerontology: Social Sciences*, 67(3),384-391.

Filmer, D., & Pritchett, L. (2001). Estimating wealth effects without expenditure data—or tears: An application to educational enrollments in states of India. *Demography*, 38(1),115-132.

Hermalin, A.I. (1997). Drawing policy lessons for Asia from research on aging. *Asia-Pacific Population Journal*, 12(4),89-102.

Hermalin, A.I. (2000). *Challenges to comparative research on intergenerational transfers.* Report No.00-56. Population Studies Center, University of Michigan.

Hermalin, A.I. (2002). Theoretical perspectives, measurement issues, and related research. In A.I. Hermalin (Ed.), *The well-being of the elderly in Asia: A four-country comparative study* (pp.101-141). Ann Arbor, MI: University of Michigan Press.

Keyes, C.F. (1995*). The Golden Peninsula: Culture and Adaption in Mainland Southeast* Asia. Honolulu: University of Hawaii Press.

Knodel, J., Chayovan, N., & Siriboon, S. (1992). The familial support system of Thai elderly: An overview. *Asia-Pacific Population Journal*,7,105-126.

Knodel, J., Friedman, J., Truong, S.A., & Bui, T.C. (2000). Intergenerational exchanges in Vietnam: Family size, sex composition, and the location of children. *Population Studies*, 54,89-104.

Knodel, J., Kespichayawattana, J., Wivatwanich, S., & Saengtienchai, C. (2007). Migration and inter-generational solidarity: Evidence from rural Thailand. In UNFPA Country Technical Services Team for East and Southeast Asia, Papers in Population Aging Series, Number 2. Bangkok: UNFPA.

Knodel, J. (2012). *The situation of older persons in Myanmar*. Yangon: HelpAge International.

Knodel, J., Kespichayawattana, J., Wivatwanich, S., & Saengtienchai, C. (2013). The future of family support for Thai elderly: Views of the populace. *Journal of Population and Social Studies*, 21(2),110-132.

Knodel, J., Prachuabmoh, V., & Chayovan, N. (2013). *The changing well-being of Thai elderly: An update from the 2011 Survey of Older Persons in Thailand*. Chiang Mai: HelpAge International East Asia and Pacific Regional Office.

Knodel, J. (2014). Is intergenerational solidarity really on the decline? Cautionary evidence from Thailand. *Asian Population Studies,*10(2),176-194.

Ko, L.S.F. (2012). Solidarity, ambivalence and multigenerational coresidence in Hong Kong. In S.Arber & V.Timonen (Eds.), *Contemporary Grandparenting: Changing Family Relationships in Global Contexts* (pp.91-112). Bristol: The Policy Press.

Kooshiar, H., Yahaya, N., Hamid, T.A., Samah, A.A., & Sedaghat, J. (2012). Living arrangement and life satisfaction in older Malaysian: The mediating role of social support function. *PLOS One*, 7(8),1-6.

Li, L., Liang, J., Toler, A., & Gu, S. (2005). Widowhood and depressive symptoms among older Chinese: Do gender and source of support make a difference? *Social Science & Medicine*, 60,637-647.

Lim, L.L., & Kua, E.H. (2011). Living alone, loneliness, and psychological well-being of older persons in Singapore. *Current Gerontology and Geriatrics Research*, doi:10.1155/2011/673181.

Mason, K.O. (1992). Family change and support of the elderly in Asia: What do we know? *Asia-Pacific Population Journal*, 7(3),13-32.

Myanmar Survey Research (2012). *Survey on aging in multiple regions 2012: Technical report*. Retrieved from https://umich.box.com/s/g5vwniltsrszfic18jth.

National Statistical Office (NSO). (2012). *Survey of older persons in Thailand 2011*. Bangkok: National Statistical Office (in Thai).

Ofstedal, M., Knodel, K., & Chayovan. (1999). Intergenerational support and gender: A comparison of four Asian countries. *Southeast Asian Journal of Social Science*, 27(2), 21-42.

Okabayashi, H., Liang, J., Krause, N., Akiyama, H., & Sugisawa, H. (2004). Mental health among older adults in Japan: do sources of social support and negative interaction make a difference? *Social Science & Medicine*, 59,2259-2270.

Palloni, A. (2002). Living arrangements of older persons. *Population Bulletin of the United Nations Special Issue*, 42/43,54-110.

Philips, D., Oi, L.S., Yeh, A.G.O, & Cheng, K.H.C. (2008). Informal social support and older persons' psychological wellbeing in Hong Kong. *Journal of Cross-cultural Gerontology*, 23, 39-55.

Ramos, M., & Wilmoth, J. (2003). Social relationships and depressive symptoms among older adults in southern Brazil. *Journal of Gerontology: Social Sciences*, 58B,S253-S261.

Ren, Q., & Treiman, D. (2014). Living arrangements of the elderly in China and consequences for their emotional wellbeing. California Center for Population Research On-line Working Paper Series PWP-CCPR-2013-014.

Silverstein, S., & Bengtson, V.L. (1994). Does intergenerational social support influence the psychological wellbeing of older parents? The contingencies of declining health and widowhood. *Social Science & Medicine,* 38(7),943-958.

Silverstein, M., Cong, Z., & Li, S. (2006). Intergenerational transfers and living arrangements of older people in rural China: Consequences for psychological well-being. *Journals of Gerontology: Social Sciences*, 61B,S256-S266.

Slote, W.H., & DeVos, G.A. (Eds) (1998). *Confucianism and the Family.* Albany, NY: The State University of New York.

Soottipong-Gray, R., Rukumnuaykit, P., Kittisuksathit, S., & Thongthai, V. (2008). Inner happiness among Thai elderly. *Journal of Cross-cultural Gerontology*, 23,211-224.

Spoorenberg, T. (2013). Demographic changes in Myanmar since 1983: An examination of official data. *Population and Development Review*, 39(2),309-324.

Vietnam Women's Union. (2012). *Vietnam Aging Survey (VNAS): Key findings.* Hanoi: Vietnam Women's Union.

Wang, J., Chen, T. & Han, B. (2014). Does coresidence with adult children associate with better psychological wellbeing among the oldest old in China? *Aging & Mental Health*, 18(2),232-239.

Yeh, S.J., and Lo, S.K. (2004). Living alone, social support, and feeling lonely among the elderly. *Social Behavior and Personality,* 32,129-138.

Zhang, Z., Gu, D., & Lou, Y. (2014). Coresidence with elderly parents in contemporary China: The role of filial piety, reciprocity, socioeconomic resources, and parental needs. *Journal of Cross-Cultural Gerontology,* 29,259-276.