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Research Article

A Research Study about the Association between Filial Piety and Perceived Hopelessness among Chinese Older Adults in Greater Chicago Area

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Abstract:
This paper aims to examine the association between filial piety (FP) and the perceived hopelessness among Chinese aging population in the U.S. Data were drawn from the Population Study of Chinese Elderly in Chicago, known as the *PINE* Study. Both the expectation and actual receipt of six domains of FP were measured. The perceived hopelessness was assessed by the modified 7-item Beck Hopelessness Scale. Logistic regression and linear regression models were used for data analysis. Findings showed that 45.03% study participants reported experiencing hopelessness. Also, higher receipt of FP was shown to be a protective factor against hopelessness (presence of hopelessness: OR 0.84, 0.79-0.90, $p<0.001$, severity of hopelessness: Estimate (SE) -0.77(0.09), $p<0.001$). Higher expectation of FP also mitigated the severity of hopelessness (Estimate (SE) -0.38(0.02), $p<0.001$). Regarding individual domains of FP, obedience was consistently associated with lower presence and severity of hopelessness in all regression models. All FP receipt domains were significantly associated with decreased odds of the presence and severity of hopelessness. In FP expectation, only the domains of care, greeting, made happy, and obedience were associated with lower severity of hopelessness.
In summary, results of this study identified and illuminated: 1) the high burden of hopelessness endured by Chinese older adults, 2) receiving filial piety as a protective factor to promote hope within U.S. Chinese aging population, and 3) relevant research findings to provide reference for practice improvement.

Keywords: Chinese Older Adults; Filial Piety; Hopelessness; Intergenerational Relationships; Psychiatric Health

Abbreviations: FP: Filial Piety; PINE Study: Population Study of Chinese Elderly in Chicago

Introduction: Hopelessness is emblematic by persistent negative expectations of future, dismissive beliefs that no success can be attained or no goals are worth of pursuing [1-3]. Previous studies indicated that although older adults are emotionally resilient in general [4], many still face challenges unique to aging, which might exacerbate hopelessness [5-7]. Retaining high hope is arduous given the enduring burden from managing chronic illnesses, witnessing decline in physical and cognitive functions, and experiencing multiple losses that people are more likely to encounter at an older age. It is critical to identify hopelessness and prevent adverse health outcomes among aging populations.

With a population of more than four millions, the Chinese American population is still steady rising in the U.S. in recent years [8]. With 15% of the total population aged 60 and over, a majority of them are not native-born in the U.S. (80%) and one third of them immigrated to U.S. after the age of 60 [8-11]. Believing in predetermined fate, many Chinese older adults perceive low control of their future and diminished hope to initiate life improving changes [10]. Chinese older adults might be more vulnerable to hopelessness due to cultural differences in perceiving old age and lower levels of acculturation into the U.S. mainstream culture [9].

In Chinese society [12] the traditional filial piety (FP) value intends to bound children to obey their parents and regulates the relationship between generations. The belief and practice of FP impacts how older parents interact with their adult children, and therefore, may lead older adults to explore and interpret the meaning of life and future differently [13-15]. Previous studies suggested that disagreements and conflicts surfaced during the FP delivery and receipt process may induce negative health impact on Chinese older adults [13-15]. In terms of research, there is a lack of documentation that further explore the association between FP and hopelessness among U.S. Chinese older adults.

In this study, we intend to examine the association between different aspects of FP and hopelessness among Chinese older immigrants. To gain a better knowledge of the landscape of current cultural belief and practice of filial piety is a fundamental step that could enrich our perspective on how filial piety is perceived and enacted among Chinese families in the immigration context.

Methods:

Population and settings: The Population Study of Chinese Elderly in Chicago (PINE) is an epidemiological study to examine the key determinants of health and well-being of the U.S. Chinese aging population (age 60 and over).The PINE study is fueled by a synergistic community-academic collaboration between Rush Institute for Healthy Aging, Northwestern University, and many community-based social service agencies and organizations throughout the greater Chicago area [16-18].

The PINE study is strictly guided by community-based participatory research (CBPR) approach [16]. Over twenty community partner agencies served as recruitment sites. With full consideration of cultural and linguistic appropriation, eligible participants were approached through social, community, and family services in Chicago city and suburban areas. Out of 3,542 eligible participants, 3,158 agreed to participate in the study, yielding a response rate of 89.2%.

Based on U.S. national and regional census data from Chicago, the PINE study sample is validated with good representativeness of Chinese aging population in the greater Chicago area with respect to key demographic attributes, including age, sex, income, education, number of children, and country of origin [18]. The study was approved by the institutional review board of the Rush University Medical Center.

Measurements:

Socio-demographics: Basic demographic information collected included age, sex, education, annual personal income, marital status, number of household members, number of children alive, years in the U.S., and years in the community. Specific groups are showed in Table 1.

Medical conditions: Participants were asked if they had been told by a doctor, nurse or therapist that they had (1) heart diseases, (2) stroke or brain hemorrhage, (3) cancer, (4) high cholesterol, (5) high blood sugar or diabetes, (6) high blood pressure, (7) a broken or fractured hip, (8) thyroid disease or (9) osteoarthritis or problems with joints. All medical conditions and total number of medical conditions are shown in Table 1.

Filial Piety (FP): The assessment included six domains of FP based on the conceptual model proposed by Gallois and colleagues (1996) [19]. On a five-point scale (lower points mean less), participants were asked how much care, respect, greeting, made happy, obedience, and financial support were expected from their children, and then asked to evaluate their actual receipt of the six domains of FP with the same scale. Both FP expectation and receipt scores are calculated on a continuous base and the aggregate score ranges from six to thirty. Hence, a higher score of FP indicates a greater level of expectation or receipt of FP.

Hopelessness: We used 7-item Beck Hopelessness Scale (BHS-7) to assess hopelessness. Based on a 6-point Like rt scale (1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree), participants were asked how much they agree or disagree with following statements, including 1) In the future, I expect to succeed in what concerns me the most, 2) I have great faith in the future, 3) I can look forward to more good times than bad times, 4) My future seems dark, 5) All I can see ahead of me is unpleasantness rather than pleasantness, 6) I don't expect to get what I really want, 7) It is very unlikely that I will get any real satisfaction in the future. The first three positively phrased questions were reversely coded. The presence of hopelessness was defined as having any BHS-7 questions scored equal or greater than four. The aggregate score of the BHS-7 ranges from 7-42, with higher scores reflecting greater severity of hopelessness. The Cronbach's alpha coefficient of

reliability for the Beck Hopelessness Scale -7 was estimated to be 0.82 on Chinese aging population [20]. The content validity was ensured by a bilingual research team, and subsequently examined by bilingual and bicultural community leaders from the Community Advisory Board.

Data Analysis: Outcomes in the study were hopelessness in both binary and continuous formats. Independent variables included FP expectation, FP receipt, and six domains of FP expectation and receipt. Descriptive statistics were used to summarize the means of hopelessness by socio-demographics and medical conditions. We examined the associations between FP expectation and receipt and hopelessness, respectively. We also analyzed the relationship between FP and both of the presence and severity of hopelessness. To control for confounding factors, we utilized logistic regression models for the association analysis between FP and the hopelessness presence, and linear regression models for the association between FP and the severity of hopelessness. In the models, we controlled for age, sex, education, income, marital status, number of household members, number of children alive, years in the U.S, years in the community, and the number of medical conditions. Odds ratio (OR) and significance levels (p-value) were reported given 95% confidence interval (95%CI) for FP and hopelessness presence and severity models. All statistical analyses were conducted using SAS, Version 9.2 (SAS Institute Inc., Cary, NC).

Results: Of the 3,158 Chinese older adults interviewed, mean age is 72.8 years (SD±8.3, range 59-105) and 57.95% were female. Table 1 presents socio-demographics of study participants by severity of the hopelessness. Hopelessness scale ranges from 7-42. We found that hopelessness was differed by age ($p<0.001$), marital status ($p<0.001$), number of children alive ($p<0.001$), years in the U.S ($p<0.001$), years in the community ($p<0.01$), and number of medical conditions ($p<0.001$).

	N of observations	Mean (SD)	p-value
Age			
60-64	681	14.83 (5.80)	
65-69	641	14.77 (5.71)	
70-74	608	15.00 (5.73)	
75-79	552	15.80 (5.74)	
80 and over	675	16.23 (5.72)	**<0.0001+**
Sex			
Male	1320	15.52 (5.79)	
Female	1830	15.52 (5.74)	0.98
Education level			
0-6 years	1374	15.61 (5.84)	
7-12 years	1102	15.33 (5.67)	
More than 13 years	662	15.61 (5.72)	0.44
Annual income			
$0 - $4,999	1040	15.73 (6.07)	
$5,000 - $9,999	1616	15.51 (5.57)	
More than $10, 000	465	14.96 (5.61)	0.08
Marital status			
Married	2236	15.20 (5.65)	
Separated	56	17.00 (5.39)	
Divorced	74	16.12 (5.41)	
Widowed	769	16.25 (5.99)	
Never married	16	18.63 (6.62)	**<0.0001+**
Household members			
0	678	15.94 (5.73)	
1	1317	15.56 (5.75)	
2-3	24-Apr	15.48 (5.90)	
4+	681	15.07 (5.68)	0.06

	N of observations	Mean (SD)	p-value
Children alive			
0	128	18.34 (6.18)	
1-2	1271	15.35 (5.70)	
3+	1750	15.42 (5.69)	**<0.0001+**
Years in the U.S.			
0-10	844	15.15 (5.76)	
11-20	964	15.23 (5.64)	
21-30	766	15.66 (5.73)	
More than 30 years	568	16.43 (5.90)	**<0.0001+**
Years in the community			
0-10	1811	15.34 (5.85)	
11-20	738	15.66 (5.62)	
21-30	388	15.27 (5.48)	
More than 30 years	210	16.90 (5.73)	**0.002#**
Age			
# of Medical conditions			
0	497	14.88 (5.66)	
1	729	15.22 (5.68)	
2	776	15.56 (5.69)	
3	616	15.55 (5.68)	
4+	539	16.44 (6.03)	**<0.0002+**
Medical conditions			
Heart Disease		16.22 (5.96)	
No Heart Disease		15.40 (5.71)	**<0.01#**
Stroke		16.72 (6.69)	
No Stroke		15.45 (5.69)	**<0.05***
Cancer		17.38 (6.09)	
No Cancer		15.42 (5.72)	**<0.001+**
High Cholesterol		15.50 (5.72)	
No High Cholesterol		15.50 (5.78)	**0.92**
Diabetes		15.79 (5.94)	
No Diabetes		15.43 (5.69)	**0.25**
Hypertension		15.58 (5.72)	
No Hypertension		15.43 (5.80)	**0.47**
Hip Fracture		16.63 (5.96)	
No Hip Fracture		15.44 (5.73)	**<0.05***
Thyroid Disease		16.31 (5.92)	
No Thyroid Disease		15.44 (5.73)	**<0.05***
Osteoarthritis/Joints Problem		16.08 (5.84)	
No Osteoarthritis/Joints Problem		15.16 (5.67)	**<0.001+**

*p < 0.05, #p < 0.01, +p < 0.001

Table 1: Social demographics by hopelessness (range 7-42)

The associations between FP expectation and the presence and severity of hopelessness are demonstrated in Table 2. Results showed that the expectation of FP was not associated with the occurrence of hopeless feelings; but greater FP expectation was significantly associated with lower severity of hopelessness after confounding factors adjusted. In the fully adjusted model, every one point higher in FP expectation score was associated with 0.06 score lower in hopelessness severity score

(Estimate: -0.06, SE: 0.02, p<0.001). Table 3 presents that some domains of FP expectation were associated with decreased risks of the severity of hopelessness. In the final model (Model E), every one-point increase in FP expectation domains, including care, greeting, made happy, and obedience was associated with 0.16-0.38 point decrease of hopelessness score. Every one point higher in expectation of FP obedience was associated with 8% decrease in the odds of the presence of hopelessness (OR:0.92, 95% CI:0.87. 0.97).

	Presence of Hopelessness	**Severity of Hopelessness**
	OR(95%CI)	Estimate (SE)
Age	1.00(0.99,1.01)	0.06(0.02)+
Female	0.95(0.81,1.11)	-0.25(0.23)
Years of Education	1.00(0.98,1.02)	-0.03(0.02)
Income	0.95(0.88,1.02)	-0.27(0.10)#
Married	1.05(0.98,1.12)	-0.66(0.27)*
Number of Household Members	1.03(0.99,1.08)	0.04(0.06)
Number of Children Alive	0.97(0.92,1.03)	-0.19(0.08)*
Years in the U.S.	1.01(1.01,1.02)#	0.02(0.01)
Years in the Community	0.99(0.98,1.00)	-0.003(0.01)
Number of Medical Conditions	1.09(1.03,1.15)#	0.22(0.07)#
Filial Piety Expectation	0.99(0.98,1.01)	-0.06(0.02)+

*p < 0.05, #p < 0.01, +p < 0.001

Table 2: Association between Filial Piety Expectation and Hopelessness in Chinese Older Adults

	Presence of Hopelessness	**Severity of Hopelessness**
	OR(95%CI)	Estimate (SE)
Filial Expectation-Care	0.97(0.92,1.03)	-0.16(0.07)*
Filial Expectation-Respect	1.04(0.98,1.11)	-0.02(0.09)
Filial Expectation-Greeting	0.95(0.89,1.00)	-0.31(0.08)+
Filial Expectation- Made Happy	0.96(0.91,1.02)	-0.38(0.08)+
Filial Expectation-Obedience	0.92(0.87,0.97)#	-0.37(0.08)+
Filial Expectation-Financial support	1.00(0.94,1.07)	-0.04(0.09)

*p < 0.05, #p < 0.01, +p < 0.001

** Only fully adjusted models were included, adjusted by age, sex, education, income, marital status, number of household members, number of children alive, years in the U.S, years in the community, and number of medical conditions.

Table 3: Association between Domains of Filial Piety Expectation and Hopelessness in Chinese Older Adults**

In Table 4 and Table 5**,** the associations between FP receipt, including overall receipt and specific domains, and hopelessness were significant. In Table 4, each one-point increase in FP receipt was associated with 8% decrease in the odds of experiencing hopelessness (OR: 0.92, 95% CI: 0.91, 0.94, p<0.001) and 0.38 point decrease in the severity of hopelessness (Estimate: -0.38, SE:0.02, p<0.001). In Table 5, the actual receipt of any domain of FP was associated with significant decrease in both the presence and severity of hopelessness. For instance, every one-point increase in FP receipt of greeting was associated with 29% decreased odds in reporting hopeless feelings. Every one-point increase in the filial receipt of made happy domain, the hopelessness score dropped by 1.64 point. In addition to Table 5, Figure 1 is a visualization of the plot of odds ratios and 95% CI of all domains of FP. It shows that more emotional-focused domains of FP, such as respect, greeting, made happy, and obedience had higher ORs as compared to instrumental domains of FP, including FP care and financial support.

	Presence of Hopelessness	**Severity of Hopelessness**
	OR(95%CI)	Estimate (SE)
Age	1.01(1.00,1.02)	0.08(0.01)+
Female	1.02(0.87,1.21)	0.13(0.22)
Years of Education	1.00(0.98,1.02)	-0.03(0.02)
Income	0.93(0.87,1.00)*	-0.35(0.09)+
Married	1.05(0.98,1.12)	-0.55(0.25)*
Number of Household Members	1.05(1.01,1.10)	0.12(0.06)*
Number of Children Alive	0.99(0.93,1.05)	-0.11(0.08)
Years in the U.S.	1.01(1.00,1.02)*	0.01(0.01)
Years in the Community	0.99(0.98,1.00)*	-0.01(0.01)
Number of Medical Conditions	1.10(1.04,1.15)+	0.23(0.07)#
Filial Piety Receipt	0.92(0.91,0.94)+	-0.38(0.02)+

*p < 0.05, #p < 0.01, +p < 0.001

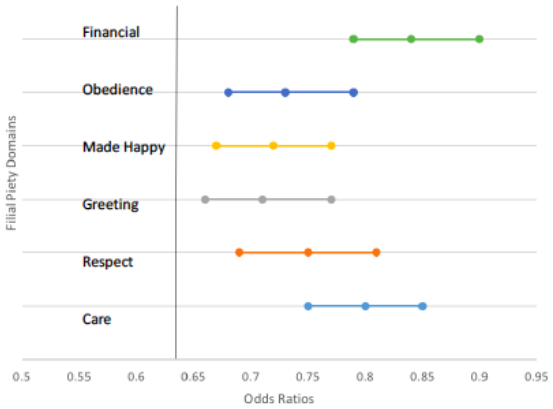
Table 4: Association between Filial Piety Receipt and Hopelessness in Chinese Older Adults

	Presence of Hopelessness	**Severity of Hopelessness**
	OR(95%CI)	Estimate (SE)
Filial Receipt-Care	0.80(0.75,0.85)+	-1.14(0.09)+
Filial Receipt-Respect	0.75(0.69,0.81)+	-1.55(0.11)+
Filial Receipt-Greeting	0.71(0.66,0.77)+	-1.50(0.10)+
Filial Receipt-Made Happy	0.72(0.67,0.77)+	-1.64(0.09)+
Filial Receipt-Obedience	0.73(0.68,0.79)+	-1.54(0.09)+
Filial Receipt-Financial support	0.84(0.79,0.90)+	-0.77(0.09)+

*p < 0.05, #p < 0.01, +p < 0.001

** Only fully adjusted models were included, adjusted by age, sex, education, income, marital status, number of household members, number of children alive, years in the U.S, years in the community, and number of medical conditions.

Table 5: Association between Domains of Filial Piety Receipt and Hopelessness in Chinese Older Adults**



Actual Receipt of Filial Piety by Domains and the Presence of Hopelessness

Figure 1: Odds Ratios (95%CI) Plot

Discussion: To our knowledge, this is the first population-based study that reports the association between FP and hopelessness in community-dwelling Chinese older adults. The study findings demonstrated that higher FP receipt was associated with lower risk of having any or severe sentiment of hopelessness among the study population. The findings also suggested that greater levels of FP expectation were associated with decreased severity of hopelessness. The associations between different domains of FP and hopelessness vary. However, feeling obeyed by adult children was consistently significantly associated with decreased risk of hopelessness across all models.

The feeling of hopeless was prevalent among our study participants; however, it is unknown how this compares with other aging populations due to the lack of comparative data. Hopelessness had a higher presence among Chinese older adults who have been living in the U.S. or their community for a longer time, which echoes findings from previous studies that Chinese older adult were less acculturated into the U.S. life and were prone to higher risks of health disparities [9,20]. Also, older adults with higher score in hopelessness were likely to be older, not married, had less children, and living with more medical comorbidities.

After controlling for the confounding factors, our study suggested that older adults who received higher FP had lower risks of experiencing hopeless feelings. This revealed that receiving FP may be a protective factor for Chinese older adults from hopelessness. On the FP expectation level, no significant association was observed between FP expectation and the presence of hopelessness. It might be explained by the fact that many Chinese parents would adjust and lower their expectation for FP in order to avoid situations of disappointment when their needs cannot be fully satisfied.

Findings also indicated that both higher levels of expectation and actual FP receipt were associated with decreased severity of hopelessness experienced by many older adults. The potential explanations for the former might be that holding a high expectation for FP from the adult children indirectly mirrors the belief that the older adults themselves deserve care and are still somehow influential in the family. Therefore, expectation for FP helps older adults improve their view of current and future life, for instance, hopes of meaningful relationship to look forward to. To explain the latter finding, high FP receipt indicates a more engaged relationship and frequent interactions between adult children and their parents. The practical behavior of providing support directly shows adult children's care and intimacy to their parents, from which the older adults maintain positive hope to continue the aspiration for future.

In practice, greater FP could play an important role in promoting hope among Chinese older adults. First, the actual receipt of FP is not only significant in promoting hope but also in preventing hopeless thoughts from occurring at the first place. Our findings reinforced the statement from empirical studies that FP still plays a central role in helping older Chinese maintain morale and hopes for life [13-15,21].

Our findings also help clarify the questions about how do specific types of FP differ in association with the presence and severity of hopelessness. After controlling for confounding variables, we found that higher obedience was associated with decreased risks of reporting any or more severe hopelessness across all models. One way to interpret the finding is that obedience to parents implies a strong retainment of parents' standing in the family. In the discussion of the actual FP receipt, the results demonstrated that receiving any type of filial piety was significantly associated with lower odds of reporting any hopelessness or more severe degree of hopelessness.

Implications: The findings of this study carries multilayer implications on a number of social, cultural, and clinical aspects. First, from the viewpoint of public service agencies, our findings provide a potential pathway to better understand how intergenerational relationships relate to older adults' health and well-being. This study encourages and empowers the community to concentrate efforts to better serve the older adults with the greatest needs and at higher risks of being distressed by hopelessness. Second, our results demonstrate that FP, a traditional moral facet in the Chinese culture, is still working in protecting older adults from losing hope for life. It is an important message for the entire Chinese American community to keep building, maintaining, and reinforcing the value of FP in order to ensure more satisfying health outcomes for aging parents. Third, our study sheds light on ways to fill the practice gap in clinical settings [22]. The study findings could be applied to practical work, for instance, approaching the Chinese older psychiatric patients with greater cultural sensitivity by considering their relationship with adult children; knowing Chinese older adults' perspective of FP may raise red flags about psychological distress or recognize causes or problems at an early stage.

Limitations: The findings of this study are presented with limitations. First, the method used in this study is cross-sectional, which does not capture the development of independent and dependent variables overtime. Future longitudinal research should be conducted to improve understanding of how FP and hopelessness change and how the association between them changes over time. Second, due to the differences in demographic characteristics and other aspects of Chinese aging population, the findings from this study might not be representative of other Chinese older adult groups. Third, given the complexity of FP as a cultural concept, it may be difficult to capture all aspects of FP; therefore,qualitative research is necessary to further study the relationship between FP and hopelessness among Chinese aging population.

Future work: This study provides insights on future study directions. Since older adults might be more coherent or rigid to the cultural beliefs that they grew up with, it is essential to take cultural differences into consideration when we study psychological health among older population. Hence, we will need further study on the significance of cultural aspects in relation with the occurrence and severity of hopelessness among Chinese older adults. Another research direction is to focus on studying how the discrepancy between FP expectation and actual receipt relates to the well-being of older adults. Future efforts should also be spent on looking into adult children's perspective of FP and what hinders them from providing sufficient care and support to their aging parents.

Conclusion: Findings from this study urge necessary discussions that have been missing at clinical practices, social services, and cultural initiatives to include the cultural aspects of intergenerational relationship to recognize the experience of psychological distress among Chinese older adults. Especially within certain cultures like Chinese, the expectation and actual FP receipt may be indicative of patients' psychological conditions, such as hopelessness. More research is yet to come to generate a comprehensive understanding of how FP influences U.S. Chinese population's health and well-being.

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