

SECTION 3: CHARACTERISTICS OF THE IUNS STUDY COMMUNITIES



DEMOGRAPHY

B Hsu-Hage

Bridget H-H Hsu-Hage

*Monash University, Department of Medicine
Clayton Road, Clayton 3168, Victoria, Australia*

6.1 INTRODUCTION

A demographic profile of an elderly population is a primary concern for a “demography of ageing”. Ageing populations, as opposed to population ageing, is epidemiological in nature [1]. Declining mortality and increasing life expectancy are attributable to shifts from mortality deduction at younger ages to those occurring at later ages [2]. The aged population is subject to high levels of turnover and changes in the characteristics of the aged populations themselves.

Socio-economic development and public health measures have been used to estimate life expectancies in less developed countries. Particularly, urbanisation, industrialisation and education have been shown to influence mortality [3]. It has been suggested that the nutrition of elderly in Javanese households is contingent on their earnings or control of funds [4]. In Japan, determinants of health and longevity in the elderly include diet, delayed effects of World War II and greater dependence on filial piety in caring for the elderly [5]. The adequacy of nutritional intake in the elderly depends upon socio-economic factors, such as income, education level and whether or not they are living alone [6]. Gender and changes in marital status, income and health status are important factors associated with positive or negative changes in food habits in the elderly [7].

In this chapter, socio-demographic characteristics of the IUNS study communities will be compared descriptively, paying particular attention to:

- (i) rural background in childhood and in adulthood,
- (ii) percentage widowed,
- (iii) attainment of secondary education,
- (iv) past occupation,
- (v) current employment status, and

(vi) pension as the only source of income.

6.2 METHODS

Nine of the ten IUNS study communities which gathered socio-demographic data based upon individuals, are examined. Major demographic characteristics of the Aboriginal Australians study community are covered in Chapter 5 and will not be repeated here. The nine communities are:

- Anglo-Celtic Australians living in Melbourne, Australia (ACA),
- Greeks in Melbourne, Australia (GRK-M),
- Greeks in Spata, Greece (GRK-S),
- Swedes in Gothenburg, Sweden (SWE),
- Filipinos in Manila, the Philippines (FIL),
- Japanese in Okazaki, Japan (JPN-O),
- Chinese in Beijing (CBJ), China
- Chinese in rural Tianjin (CTJ-R), China, and
- Chinese in urban Tianjin (CTJ-U), China.

Descriptions of demographic information gathered from each of the study communities is summarised in Table 6.1. Where information is not available, an 'X' is noted. For example, information about 'rural background' is not available for CBJ, CTJ-R and CTJ-U. For all other communities, rural background 'as a child' and/ or 'as an adult' is available. A 3-scale description of marital status is used for GRK-M, GRK-S and SWE; a 4-scale for ACA, CTJ-R and CTJ-U; a 5-scale for FIL and CBJ. No information was collected for JPN-O.

6.2.1 Age

The IUNS study of 'food habits in later life' defined age of entry as 70 years and over and anticipated a random selection of 100 men and 100 women. In communities where life expectancy is less than 70 years at birth, an alternative age of entry could be used. Sampling from the upper age decile of the study population was recommended.

In order to demonstrate possible age differences in socio-demographic characteristics within the study community, two age groups are used throughout this book; those aged 70 to 79 years and those aged 80 years and over. Young elderly and old elderly are used to describe these two age groups. For CBJ and FIL, the "young elderly" are those aged less than 70 years and the "old elderly" are those aged 70 years and over.

Table 6.1. Description of demographic information collected from each study communities.

ACA		
1.	Rural background	As a child & as an adult
2.	Marital status	4-scale
3.	Education	Highest level of schooling
4.	Past occupational status	Australian Bureau of Statistics 11 categories
5.	Currently working	Yes/no
6.	Income	Australian dollars p.a. 6-scale
GRK-M		
1.	Rural background	As a child & as an adult
2.	Marital status	3-scale
3.	Education	Years (full-time)+ secondary school?
4.	Past occupational status	7 categories
5.	Currently working	Yes/no
6.	Income	Source of income
GRK-S		
1.	Rural background	As a child & as an adult
2.	Marital status	3-scale
3.	Education	Years (full-time)+ secondary school?
4.	Past occupational status	6 categories similar to GRK-M
5.	Currently working	Yes/no
6.	Income	Source of income
SWE		
1.	Rural background	As a child & as an adult
2.	Marital status	3-scale
3.	Education	Years (full-time)+ secondary school?
4.	Past occupational status	6 categories similar to GRK-M
5.	Currently working	Yes/no
6.	Income	Source of income
FIL		
1.	Rural background	As a child & as an adult
2.	Marital status	5-scale+ # yrs divorced
3.	Education	Years (full-time)
4.	Past occupational status	X
5.	Currently working	X
6.	Income	receiving support ? Type & source of support enough?
JPN-O		
1.	Rural background	As a child & as an adult
2.	Marital status	X
3.	Education	Years (full-time)+ secondary school?
4.	Past occupational status	11 categories similar to ACA
5.	Currently working	Yes/no
6.	Income	Source of income

CBJ		
1. Rural background		X
2. Marital status		5-scale
3. Education		Years (full-time)
4. Past occupational status		10 categories similar to ACA
5. Currently working		Yes/no+ employer
6. Income		Local currency (RMB) + compared with past - better/worse
CTJ-R		
1. Rural background		X
2. Marital status		4-scale
3. Education		Highest level of schooling
4. Past occupational status		6 categories + type of work
5. Currently working		Yes/no+ type of work & job description
6. Income		Local currency (RMB) + source of income
CTJ-U		
1. Rural background		X
2. Marital status		4-scale
3. Education		Highest level of schooling
4. Past occupational status		6 categories + type of work
5. Currently working		Yes/no+ type of work & job description
6. Income		Local currency (RMB) + source of income

X, information not available.

6.2.2 Rural vs urban background

Information on rural or urban background, both as a child and as an adult, was gathered from ACA, GRK-M, GRK-S, SWE, FIL and JPN-O, but not from the three Chinese communities. Due to population control, Chinese communities were considered stable with minimum rural-urban migration, at least for the older generation. Although the effects of urbanisation on food habits and health status can not be assessed in the current study, differences in food habits and health status for those who were brought up in a rural or urban setting as a child and/ or lived in a rural or urban setting as an adult are of interest to the study. Two rural communities, GRK-S and CTJ-R, were recruited and the percentage stating a rural background as a child or as an adult was reported. The way in which population shifts from rural to urban living will be described among the study communities.

6.2.3 Marital status

Information on marital status was obtained from all communities, except for JPN-O. A chapter dedicated to comparisons among the four Japanese communities will address differences in nutrient intake by living arrangements. Information relating to marital status and food intake is also covered in the Japanese study communities. A scale listing up to 5 options to describe

marital status was used in the IUNS study communities. These options include:

1. never married,
2. married or de facto,
3. divorced,
4. widowed and
5. separated.

A relatively small percentage of the IUNS study communities responded with options 1 or 3. We adopt the definition of widowhood by Lopata [8], that is, the status of a person whose spouse has died and who has not remarried. The percentage widowed was reported.

6.2.4 Education level

Information about formal education attainment is available from all study communities. The IUNS questionnaire asked for the number of years of full time education and whether or not the subject ever attended a secondary school. Both questions were adopted by GRK-M, GRK-S, SWE and JPN-O. ACA, CTJ-R and CTJ-U expressed education level in terms of the highest level of schooling. CBJ and FIL asked total years of full-time education. In order to compare the level of education attainment (descriptively) across all study communities, the percentage who undertook studies beyond secondary school, namely 12 years and over, was generated for ACA, FIL, CBJ, CTJ-R and CTJ-U. In these five communities, those who completed high school or university were grouped together and considered as having attended a secondary school.

6.2.5 Past occupation and current employment status

Information about past occupational status is available from all study communities, except for FIL. Likewise, information about current employment status is not available from FIL. Due to small cell sizes, past occupation is grouped in accordance with the type of work involved, namely:

1. non-manual type of work,
2. manual type of work or
3. domestic duties.

The percentage whose past occupation involved manual work (men and women) and the percentage of women who report domestic duties as their past occupation was recorded.

6.2.6 Income

Information about the sources of income was obtained from GRK-M, GRK-S, SWE, JPN-O, CTJ-R and CTJ-U. A 6-scale division of income categories was used for ACA. Whether or not

the subject was receiving any support and the type of support were the key questions asked for FIL. For CBJ, a question asking whether or not the family's financial status had improved over the last 10 years was used. For communities where income from pensions was applicable, the percentage living on a pension(s) only was reported.

6.2.7 Statistics

This is a descriptive chapter about demographic characteristics of the IUNS elderly communities. It is not intended for cross-cultural tests of significance. Cross-cultural comparisons are descriptive and illustrated by figures, with each study population grouped by age (young vs old elderly) and gender. The percentage of each broader category of parameters of interest was taken directly or re-calculated based upon tables in the Appendix where descriptive statistics for all variables reported in this book are documented. For each of the main areas of interest, comparisons within the study community were possible. Differences in proportions were calculated to test whether or not:

1. gender differences and
2. age differences were statistically significant.

Differences between the old and the young elderly for men and women and differences between women and men for the young elderly and the old elderly were tabulated. In order to show the degree by which shifts from rural to urban living occurred within each study community, differences in rural living as a child and as an adult were tabulated by age group and gender. The test for differences in two proportions was performed and the significance level was set at 5%.

6.3 RESULTS

6.3.1 Subjects

A total of 1,725 elderly men and women were interviewed between 1988 and 1991 in nine communities. The number of subjects interviewed in each community ranged from 89 to 305, with the smallest sample from JPN-O and the largest sample from CBJ. In all communities, a higher percentage of women than men were interviewed. The women-to-men ratio varied from 1 for ACA to 2.8 for FIL. CBJ and CTJ-U achieved the target number of 100 men. SWE, FIL, CBJ and CTJ-U achieved the target number of 100 women. CTJ-U is the only study community which met the both age entry criteria and the target sample size for both men and women. Data collection is on-going with the ACA.

6.3.2 Age entry and composition

There were more young elderly than old elderly in all study communities for both men and women, except for FIL. FIL and CBJ lowered the age of entry (70 years old was adopted by the

IUNS Committee). The age of entry for FIL was 55 years for men and women and for CBJ it was 55 years for men and 50 years for women. There was no upper age limit in any of the study communities. The mean age and standard deviation are shown in Tables 6.2 and 6.3 and median age is shown in Figure 6.1. The mean age agrees with median age by age group and gender for all communities.

Table 6.2. Study subjects, age range, and description of information collected from IUNS study communities.

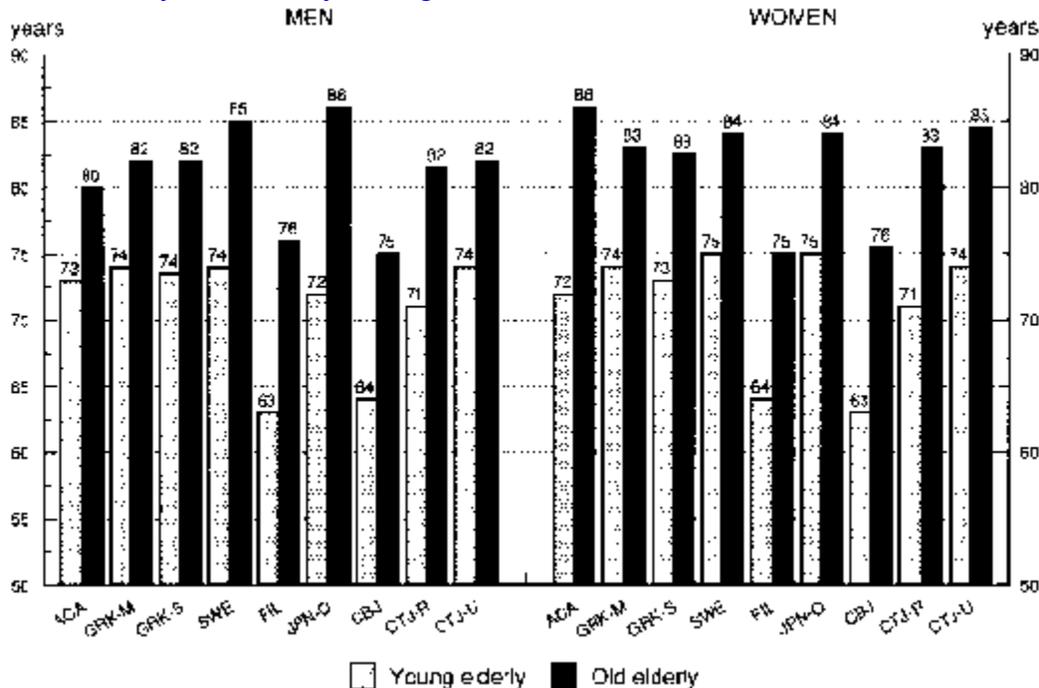
	ACA	GRK-M	GRK-S	SWE	FIL	JPN-O	CBJ	CTJ-R	CTJ-U
Subjects									
Total	99	189	104	217	281	89	305	181	260
Men	50	94	51	73	74	43	125	83	126
Young elderly	43	66	32	52	33	28	80	73	107
Old elderly	7	28	19	21	41	15	45	10	19
Women	49	95	53	144	207	46	180	98	134
Young elderly	42	59	31	80	109	33	124	79	102
Old elderly	7	36	22	64	98	13	56	19	32
Age range (yrs)									
Men	70-84	70-97	70-91	69-91	57-83	70-91	57-88	70-89	70-87
Young elderly	70-79	70-79	70-79	69-79	57-69	70-78	57-69	70-79	70-79
Old elderly	80-84	80-97	80-91	80-91	70-83	80-91	70-88	80-89	80-87
Women	70-94	70-104	70-94	69-96	58-91	70-87	53-95	70-94	70-96
Young elderly	70-79	70-79	70-78	69-79	58-69	70-79	53-69	70-79	70-79
Old elderly	80-94	80-104	80-94	80-96	70-91	80-87	70-95	80-94	80-96

Table 6.3. Mean age (years) and standard deviation, by study community and age group and gender.

	Men		Women	
	Young elderly (70 - 79 yrs)*	Old elderly (80+ yrs)#	Young elderly (70 - 79 yrs)*	Old elderly (80+ yrs)#
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
ACA	73.2 ± 2.65	70.9 ± 1.46	72.6 ± 2.77	87.0 ± 5.00
GRK-M	74.1 ± 3.12	83.9 ± 4.32	74.0 ± 2.89	85.0 ± 5.43
GRK-S	74.0 ± 2.85	83.3 ± 3.40	73.4 ± 2.58	83.7 ± 3.12
SWE	74.0 ± 3.26	84.4 ± 3.17	74.6 ± 2.98	84.3 ± 3.36
FIL	63.6 ± 2.78	75.6 ± 3.99	64.1 ± 3.16	76.4 ± 5.28
JPN-O	74.0 ± 3.00	85.0 ± 4.00	74.0 ± 3.00	83.0 ± 2.00
CBJ	63.8 ± 3.06	75.4 ± 4.73	62.4 ± 3.76	76.4 ± 5.62
CTJ-R	72.5 ± 2.92	82.5 ± 2.72	72.4 ± 2.99	83.8 ± 3.59
CTJ-U	74.1 ± 2.53	82.6 ± 2.43	74.0 ± 2.64	84.4 ± 3.64

*, < 70 yrs for CBJ and FIL; #, >= 70 yrs for CBJ and FIL

Figure 6.1. Median age, by age group (young elderly vs old elderly), study community, and gender.



6.3.3 Shift from rural to urban living

There are apparent differences among the study communities in the percentage of elderly who lived in a rural area both as children and as adults (Figures 6.2 & 6.3). In both Greek study communities subjects were predominantly from rural backgrounds as children.

Figure 6.2. Percentage who lived in a rural area as a child, by age group (young elderly vs old elderly), study community, and gender.

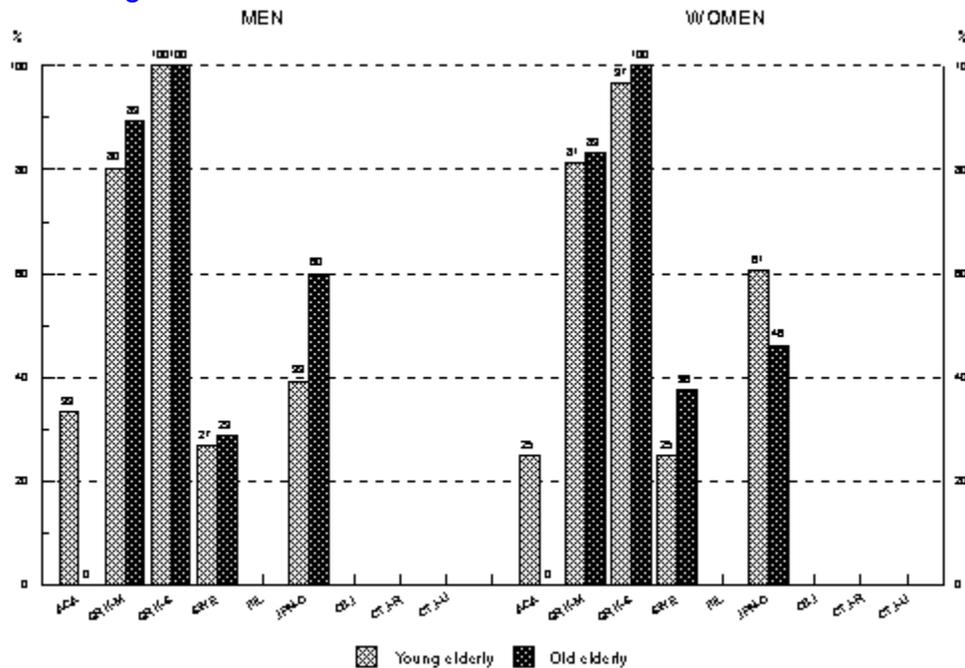
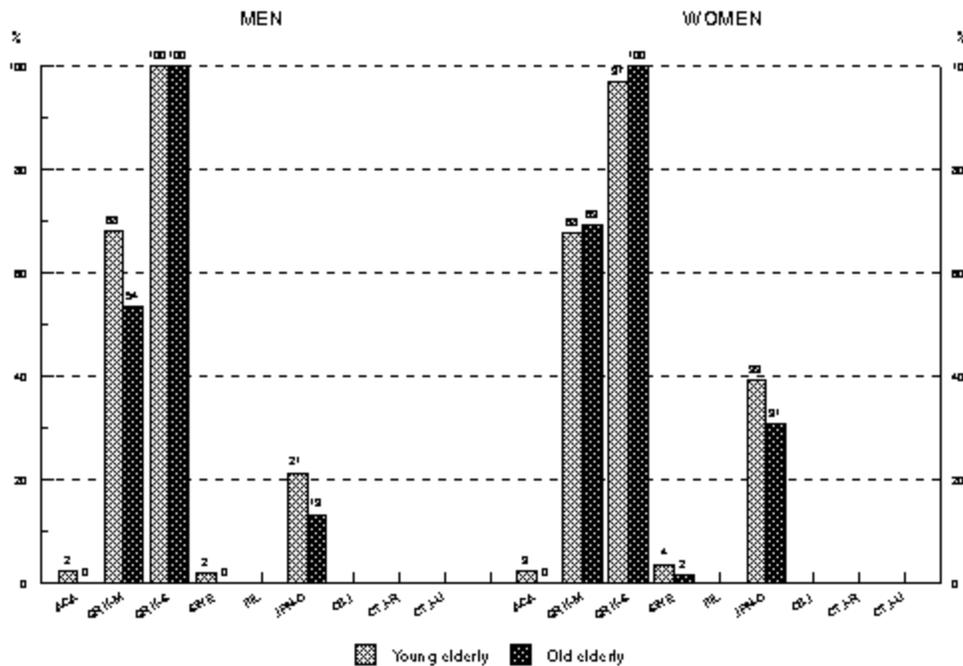


Figure 6.3. Percentage who lived in a rural area as an adult, by age group (young elderly vs old elderly), study community, and gender.



Additionally, there exists an apparent shift of population from rural living from childhood to urban living in adulthood, particularly in ACA (males only), GRK-M and SWE. Virtually all subjects of GRK-S lived in a rural setting throughout their lives. Among the ACA young elderly, 30% of men and 25% of women reported living in a rural area as a child, compared with 2% of men and 3% of women reporting this background as an adult. For the SWE, the percentage who lived in a rural background as a child vs a rural background as an adult were 39% vs 2% for the young male elderly, 29% vs 0% for the old male elderly, 25% vs 4% for the young female elderly, and 38% vs 2% for the old female elderly. Differences in the percentage of subjects who lived in a rural setting as a child and as an adult were not statistically significant, by age group and gender (Table 6.4).

Table 6.4. Differences in the percentage who lived in a rural background as a child and as an adult.

	Men		Women	
	Young elderly (70 - 79 yrs) % difference	Old elderly (80+ yrs) % difference	Young elderly (70 - 79 yrs) % difference	Old elderly (80+ yrs) % difference
ACA	-31%	na	-23%	na
GRK-M	-12%	-36%	-14%	-14%
GRK-S	0%	0%	0%	5%
SWE	-25%	-29%	-21%	-36%
JPN-O	-18%	-47%	-22%	-15%

na, not applicable (no subjects reported rural background)

6.3.4 Widowhood

The percentage of men widowed ranged from 6% (GRK-M and GRK-S) to 30% (CTJ-R) for the young elderly and from 21% (GRK-S) to 43% (ACA) for the old elderly (Figure 6.4). Forty percent of rural and 42% of urban Tianjin Chinese men were widowed. In women, the percentage widowed ranged from 23% (CBI) to 55% (GRK-S) for the young elderly and from 53% (FIL) to 84% (CTJ-U) for the old elderly. Eighty three percent of GRK-M female old elderly were widowed.

Figure 6.4. Percentage widowed, by age group (young elderly vs old elderly), study community, and gender.

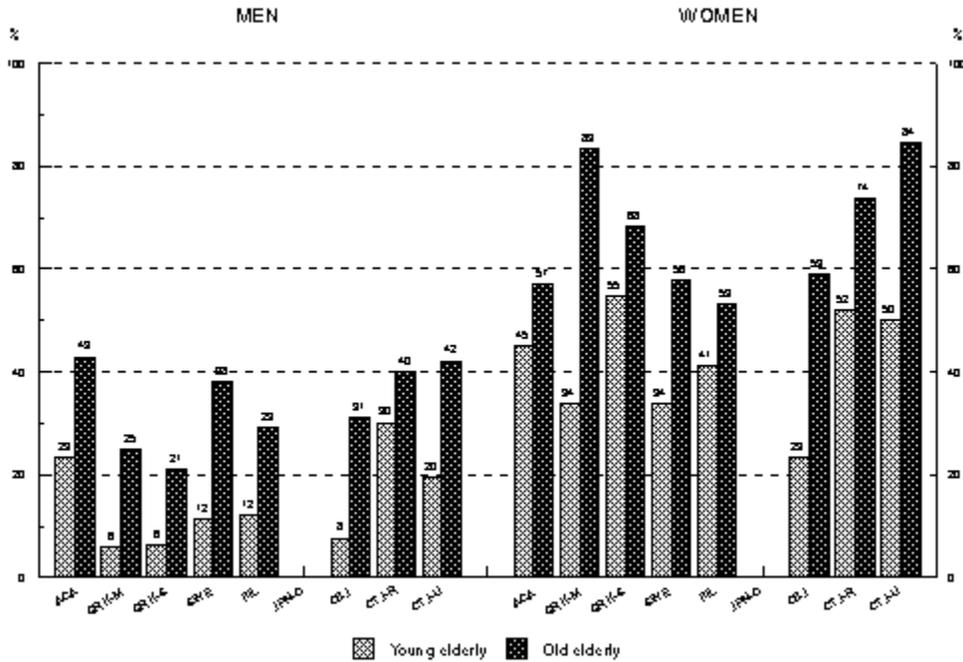


Table 6.5 shows differences in the percentage widowed between the old and young elderly, by gender and between women and men, by age group. Differences in the prevalence of widowhood exceed 10% in all study communities. A higher percentage of old elderly were widowed compared to their younger counterparts. This was consistent for men and women. Significant differences in the percentage widowed between the old elderly and the young elderly were found in GRK-M (19% for men and 49% for women), SWE (27% for men and 24% for women), CBJ (23% for men and 36% for women), and CTJ-U (23% for men and 34% for women).

Furthermore, a higher percentage of women were widowed compared to their male counterparts. This is true for both the young elderly and the old elderly. For the young elderly, differences between women and men were significant for all study communities. There were no differences in the percentage widowed between women and men among the old elderly of ACA and SWE. In both age groups, the two male Greek communities had the lowest percentage widowed. Tianjin Chinese men, rural and urban, were among the highest percentage widowed in the old elderly communities. Although CBJ and FIL had a lower age of entry and mean age for the young elderly and the old elderly, the percentage widowed in these two communities were similar to other communities, particularly the males.

Table 6.5. Differences in percentage widowed.

Difference between old and young elderly	Difference between women and men
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	Men	Women	Young elderly	Old elderly
ACA	20%	12%	22% *	14%
GRK-M	19% *	49% *	28% *	58% *
GRK-S	15%	13%	49% *	47% *
SWE	27% *	24% *	22% *	20%
FIL	17%	12%	29% *	24% *
CBJ	23% *	36% *	16% *	28% *
CTJ-R	10%	22%	22% *	34% *
CTJ-U	23% *	34% *	30% *	42% *

*, p<0.05.

6.3.5 Secondary education attainment

The percentage who attended secondary school (high school) was particularly high among the JPN-O (greater than 70% for men and 45% for women). More than 30% of Anglo-Celtic Australians (excluding older women) have completed some high school. Few Greeks (less than 5% for GRK-M and GRK-S) undertook secondary education. A higher percentage of urban Tianjin Chinese (greater than 15% for men and 10% for women) have completed some high school compared to their rural counterparts (less than 1% for men and women).

Figure 6.5. Percentage who undertook secondary education, by age group (young elderly vs old elderly), study community, and gender.

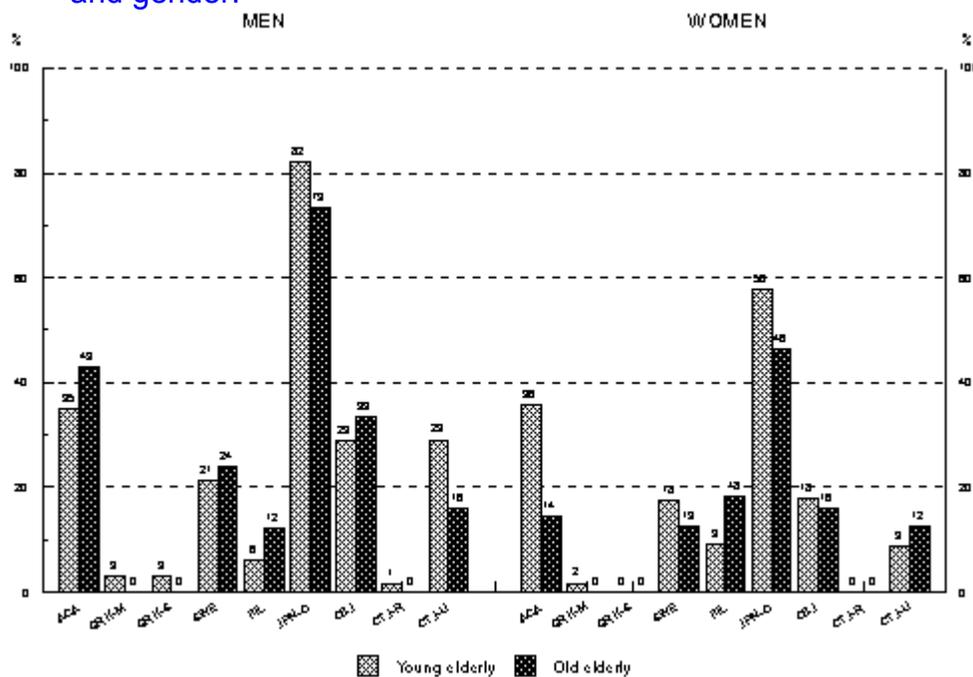


Table 6.6. Differences in percentage attained secondary education.

	Difference between old and young elderly		Difference between women and men	
	Men	Women	Young elderly	Old elderly
ACA	8%	-21%	1%	-29%
GRK-M	-3%	-2%	-1%	na
GRK-S	-3%	na	-3%	na
SWE	3%	-5%	-3%	-11%
FIL	6%	9%	3%	6%
JPN-O	-9%	-11%	-25% *	-27%
CBJ	5%	-2%	-11%	-17% *
CTJ-R	-1%	na	-1%	na
CTJ-U	-13%	4%	-20% *	-3% *

na, not applicable (no subjects reported secondary education attainment in both groups);

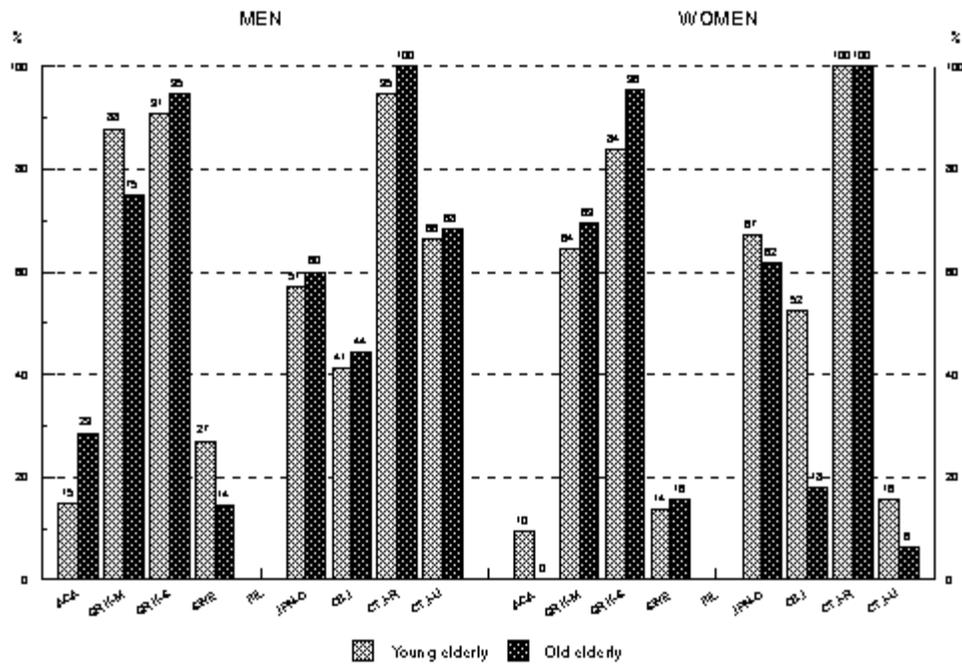
*, $p < 0.05$.

Within the study community, differences in the percentages who attained a secondary education between the old and the young elderly were not statistically different, for men and women. Women, in general, were less formally educated than their male counterparts in all study communities, except for FIL. Significant differences were found in the JPN-O (-25%) and CTJ-U (-20%) young elderly and CBJ (-17%) and CTJ-U (-20%) old elderly.

6.3.6 Past occupation

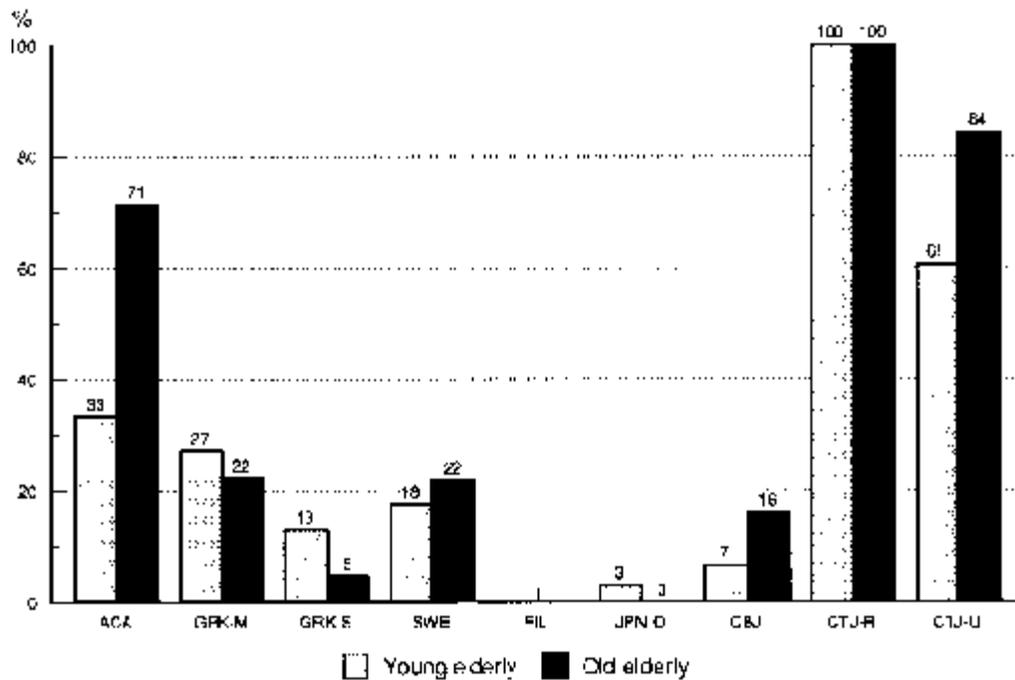
A high percentage (more than 70%) of GRK-M, GRK-S and CTJ-R reported being manual workers in the past. By contrast, a much lower percentage (less than 30%) of ACA and SWE reported their past occupation as manual workers.

Figure 6.6. Percentage who worked as a manual worker in the past, by age group (young elderly vs old elderly), study community, and gender.



A high percentage of females from JPN-O, GRK-M and the two rural communities (GRK-S and CTJ-R) reported their past occupation as being a manual worker. A much lower percentage (less than 20%) of ACA, SWE, CBJ (old elderly only) and CTJ-U women reported their past occupation as being a manual worker. By contrast, a high percentage of ACA old elderly (71.4%) and CTJ-U (60.8% for the young elderly and 84.4% for the old elderly) females reported domestic duties as a past occupation. A high percentage of Tianjin women reported their past occupation as being both a manual worker and a house wife.

Figure 6.7. Percentage of women who stayed at home for domestic duties, by age group (young elderly vs old elderly) and study community.

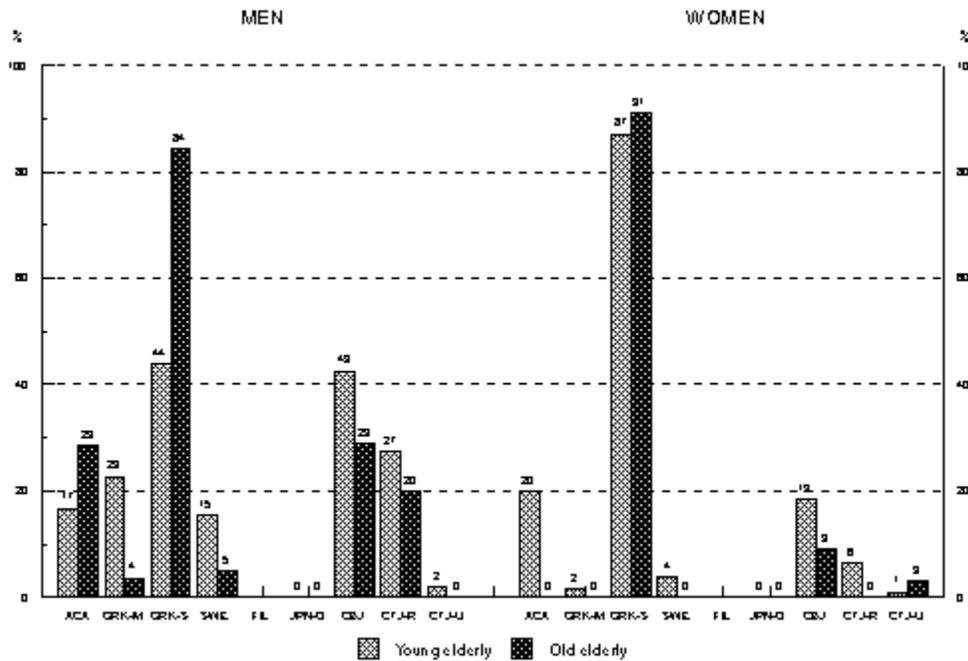


More young CBJ elderly women reported their past occupation as being a manual worker compared to their older counterparts. The difference was 35%. Less women than men reported their past occupation as being a manual worker; differences between women and men were significant for GRK-M (-24%), CTJ-R (-6%), and CTJ-U (-51%) young elderly, and ACA (-51%), CBJ (-27%), and CTJ-U (-62%) old elderly.

6.3.7 Current employment status

There is strikingly high percentage of Greek females (87% for the young elderly and 91% for the old elderly) and older men (84%) in Spata, Greece, who reported that they were currently working (Figure 6.8). In all the other study communities, less than 45% of men and 20% of women continued to work.

Figure 6.8. Percentage currently working, by age group (young elderly vs old elderly), study community, and gender.



Within all study communities, generally, more men continued to work than their female counterparts and more young elderly continued to work compared to the old elderly (Table 6.7). A significantly higher percentage of old elderly GRK-S males continued working, compared with of GRK-M males. The differences were 40% for the GRK-S and 19% for the GRK-M (Tables 6.7, 6.8).

Table 6.7. Differences in percentage who reported past occupation as being a manual worker.

	Difference between old and young elderly		Difference between women and men	
	Men	Women	Young elderly	Old elderly
ACA	14%	-10%	-5%	-29% *
GRK-M	-13%	5%	-24% *	-6%
GRK-S	4%	12%	-7%	1%
SWE	-13%	2%	-13%	1%
JPN-O	3%	-5%	10%	2%
CBJ	3%	-35% *	11%	-27% *
CTJ-R	5%	0%	6% *	0%
CTJ-U	2%	-10%	-51% *	-62% *

*, p<0.05.

Gender differences were more pronounced among the young elderly; significant differences

between women and men were found in ACA (-29% for the old elderly), GRK-M (-21% for the young elderly), GRK-S (+43% for the young elderly), SWE (-12% for the young elderly and -5% for the old elderly), CBJ (-24% for the young elderly and -20% for the old elderly) and CTJ-R (-21% for the young elderly and -20% for the old elderly).

Table 6.8. Differences in the percentage reported currently working.

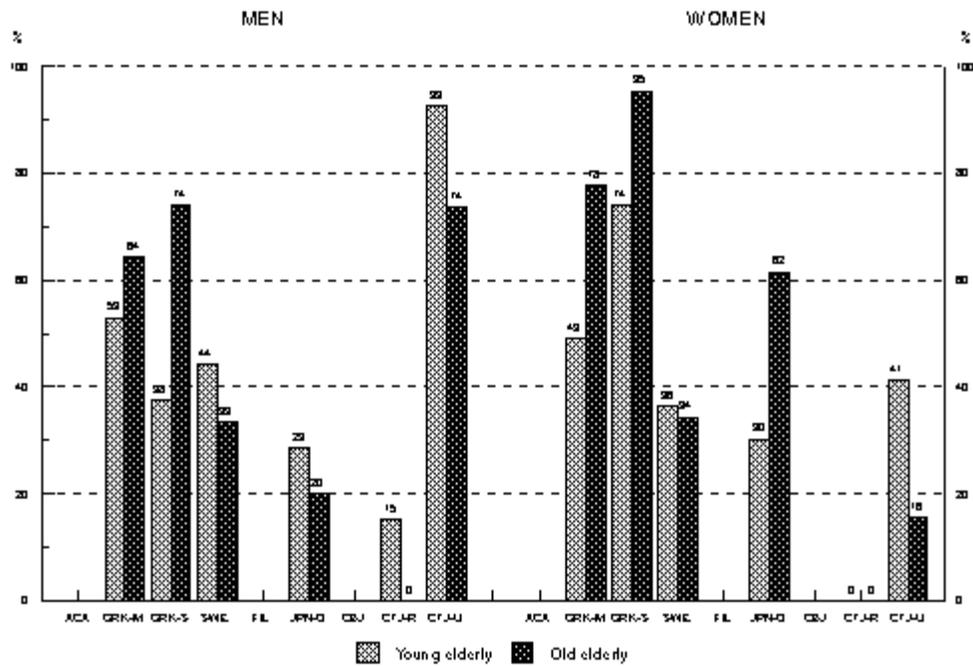
	Difference between old and young elderly		Difference between women and men	
	Men	Women	Young elderly	Old elderly
ACA	12%	-20%	3%	-29% *
GRK-M	-19% *	-2%	-21% *	-4%
GRK-S	40% *	4%	43% *	7%
SWE	-11%	-4%	-12% *	-5% *
JPN-O	na	na	na	na
CBJ	-14%	-10%	-24% *	-20% *
CTJ-R	-7%	-6%	-21% *	-20% *
CTJ-U	-2%	2%	-1%	3%

na, not applicable (no subjects reported currently working in both groups); *, p<0.05.

6.3.8 Pension as the only source of income

In the two Greek study communities, a higher percentage of old elderly lived on pension(s) alone compared to their younger counterparts. On the other hand, more young elderly from CTJ-U lived on pension(s) alone compared to their older counterparts. Additionally, a high percentage of the CTJ rural community derived income from sources other than the pension(s); most of them living on relief funds. More than 50% of JPN-O young female elderly and SWE elderly lived on a pension as well as income from other sources.

Figure 6.9. Percentage who lived on a pension(s) income alone, by age group (young elderly vs old elderly), study community, and gender.



Significant differences in the percentage of elderly receiving pension(s) as their only source of income are shown in Table 6.9. There is no trend with regard to age or gender differences among the study communities. Within the Tianjin Chinese communities, more young elderly lived on a pension compared to their older counterparts (differences being -19% for men and -26% for women). Similarly, more men received a pension as their only source of income compared to women (differences being 51% for the young elderly and 58% for the old elderly). All were statistically significant. The reverse trend was observed among the Melbourne Greeks; more women than men, and more old elderly than young elderly lived on a pension income only.

Table 6.9 Differences in the percentage who received pension(s) as their only source of income.

	Difference between old and young elderly		Difference between women and men	
	Men	Women	Young elderly	Old elderly
GRK-M	11%	29% *	-4%	13%
GRK-S	37% *	21% *	37% *	21%
SWE	-11%	2%	-8%	1%
JPN-O	-9%	31%	2%	42% *
CTJ-R	-15%	na	-15% *	na
CTJ-U	-19% *	-26% *	-51% *	-58% *

na, not applicable (no subjects reported pension(s) income in both groups); *, p<0.05.

6.4 DISCUSSION

6.4.1 Limitations in result interpretation

The IUNS study of "food habits in later life" is a cross-cultural study. The research strategy is of primary research. New data were collected from more than 13 research sites. The field work commenced in 1988. Although the study is on-going, the field work concluded in 1991 for the research sites considered in this book. The research design is cross-ethnic and cross-national in nature.

A major strength of this study's cross-cultural research is its population selection drawing from rural, urban, developed and developing areas, and thus the demographic transition of ageing populations can be better appreciated. The greatest challenge in cross-cultural comparisons relates to:

1. sampling,
2. comparability of measurements and
3. generalisability of the units used [9].

In relation to sampling, the birth cohort of the study populations consisted of those born prior to 1918, except for FIL and CBJ which enrolled subjects younger than 70 years of age. CBJ lowered age at entry for women to 53, to be compatible with the lower age of retirement in that study community. The lower age at entry for the CBJ and FIL may result in potential differences in a cross-cultural comparison. However, it is less likely that comparisons made within the study community (gender differences or differences between the old and the young elderly) will be affected.

The study covers elderly populations in different parts of the world. Global events and regional

transition occurred, economically and/ or politically, during the period after 1918 and may be of great importance to the current demographic profile of these populations. Along with underlying cross-cultural variations, these factors need to be considered in the interpretation of findings.

To ensure that information was cross-culturally robust and analytically compatible, IUNS data were collected on 1,628 men and women aged 70 years and over. These men and women were in their 20s when World War II broke out. Virtually every participant of the Chinese study communities underwent a major national cultural transformation in their adulthood. In communities where industrialisation was not evident or population movement had been restricted, it was questionable that enquiries about rural or urban living as a child and as an adult were of great value. Two of the Chinese populations (CBJ and CTJ-U) were sampled from urban areas; one of which (CTJ-U) had a rural counterpart (CTJ-R). It is perhaps because of a greater emphasis on current than past urban status, that investigators of the three Chinese communities omitted questions in relation to rural or urban background. Nevertheless, it is important to document rural versus urban background, with respect to dietary exposure as a child or young adult, as it may have had a profound impact on health status in later life.

Information about marital status was not obtained from the Japanese centre. If widowhood is a way of describing a living arrangement, namely 'live alone', then the way in which living arrangements may affect food habits in later life in the Japanese populations is better appreciated in Chapter 29. Education attainment may be described in terms of years of full-time formal education or the highest level of schooling. Years of full-time education may be used to categorise the highest education level completed, provided that the yearly increment matches the usual advancement of schooling. For example, seven years full-time education implies primary school plus one year of high school. In some countries, soldiers returning from World War II were given training opportunities in the form of further education or secondary education. 'Secondary education' in GRK-M, GRK-S, SWE and JPN-O may have a different meaning to the direct measure of years of full-time education in the ACA, FIL, CBJ, CTJ-R, and CTJ-U. The low level of education reported in most study communities highlighted the importance of having an interviewer administered questionnaire.

Generally, there is no problem in getting comparable occupational categories across the study sites. To classify a farmer (GRK-S and CTJ-R) as a 'manual worker' is one way of describing this type of job. It has to be recognised, however, that a manual worker is not necessarily a farmer. Interpretation of results in relation to past occupation must acknowledge the type of community (rural vs urban) studied. Furthermore, the centres that had a high prevalence of farmers, past and/ or present, such as Spata and rural Tianjin, had important implications for the interpretation of body composition, blood lipids, exercise levels and even health status and disability. The percentage of elderly currently working also requires further clarification as to whether or not the study population is in a position to remain working. In some communities, retirement implies stopping work as well as a lack of working opportunities. On the other hand, in a self-sufficient rural community, continuing to work may result from necessity.

Furthermore, there are reasons why some individuals would, but cannot, continue to work. One possible explanation would be physical disability associated with ageing. Some individuals may have never worked. To this sub-group, questions asking whether or not they are 'currently working' or will 'continue to work' would be thoughtless and irrelevant. Individuals who can, but do not continue to work, raises another consideration as to why there are sub-group differences within a study population. In spite of the similarity in the measurement unit, there may be a problem in the generalisability of the unit used.

Differences in the currency unit among the study communities make it less meaningful to compare income per se. In societies where income can not be directly measured or is traditionally implicit, income per se also provides an inadequate measure of financial status. Thus, income per se is less useful as an independent indicator of economic status and/ or financial independence of the elderly. For example, elderly which have access only to a pension or welfare as a main source of income may be more nutritionally disadvantaged than elderly who have access to other sources. On the other hand, the source of income may be used on non-food items. The ways in which sources of income may be described also depends on the degree of economic development within the community in question. It is probably reasonable to consider income derived from a pension in study communities drawn from developed countries. Even then, differences in pension systems among countries may contribute to differences in reporting.

Finally, interpretation of results must take into account statistical validity. Throughout this chapter, demographic information is presented as the percentage of subjects having a particular characteristic. For example, the percentage widowed was presented instead of all categories of marital status. Gender differences or differences between the old and the young elderly within the study communities may be performed using a test of differences in two proportions. This test requires no assumptions about the underlying distribution means generally required for a test of differences in two populations. However, the small number of subjects in some study communities, may restrict result interpretations, particularly where gender and age group break-downs are given.

6.4.2 Cross-cultural differences

Geographically, the IUNS study communities are located on three continents. They are of Caucasian (ACA, GRK-M, GRK-S, and SWE) and Asian (FIL, JPN-O, CBJ, CTJ-R, and CTJ-U) cultures. Each consists of two or more distinctive ethnic backgrounds. Apart from being culturally and ethnically diverse, the study populations may be intrinsically different in the current demographic profile.

The lower age of entry into the FIL and CBJ study communities can not explain the apparent differences in any of the demographic characteristics reported. Having lived predominantly in a rural community as a child and as an adult (GRK-M and GRK-S), (CTJ-R and GRK-S), seemed

to be negatively associated with the secondary education attainment among the study communities. SWE and ACA communities are highly urbanised; more than 80% of the populations studied reported having lived in urban areas as adult. However, the two communities were dissimilar with respect to other demographic characteristics. Additionally, there was little resemblance in demographic characteristics among the Asian communities.

The lack of apparent similarity in demographic profile among all study communities may be accounted for by cultural differences between Caucasian and Asian backgrounds. Within each of the two cultures, differences in current demographic profiles may be attributable to national or ethnic differences, or rural vs urban living. Although the sample size is generally small, resemblances in demographic profile of the two rural communities (GRK-S and CTJ-R) and in the two urban communities (ACA and SWE) are noted. The effect of urbanisation on food habits and well-being of the elderly is worthy of further investigation.

6.4.3 Differences between the old and the young

Demographic differences between the old and the young elderly exist, but are less pronounced compared to differences between women and men (see below). It is probably expected that more old than young elderly were widowed, irrespective of gender. Gender differences for the old and young elderly exist and are discussed below. A smaller proportion of old elderly continued to work, except for the rural community of Greeks in Spata, Greece. There is no clear pattern that fewer old elderly attained secondary education or lived on pension(s) only. Being a manual worker is not a key characteristic that differentiates the old and the young in terms of past occupation.

Describing differences between the old elderly and the young elderly is a way of reporting ageing populations. If widowhood is considered 'loss of spouse', a high percentage widowed implies the occurrence of high mortality or a lower life expectancy in the opposite gender. Our finding thus confirms increasing mortality and declining life expectancy in the old elderly. Similarly, if elderly remaining in work is a marker for physical ability, the low percentage of elderly currently working suggests a high prevalence of disability. This consideration in part explains the consistent trend that fewer old elderly remain working compared to their younger counterparts (refer to disability and ageing).

The significantly higher percentage of older elderly compared with young elderly who remained working among the GRK-S males offers a complementary explanation to working and physical fitness in the elderly populations. Because Spata, Greece is a rural community, the Greeks in Spata, had a life-time opportunity to work. The old GRK-S elderly had the highest percentage of those who remained working of all the study communities, even exceeding their younger counterparts. Additionally, the percentage widowed was the lowest in the old GRK-S elderly. If sampling bias is not a matter of concern, then it is indicative that to continue working may have aided the survival of the GRK-S elderly males into old age.

6.4.4 Gender differences

Although it was intended that 100 men and 100 women would be sampled from each study community, the greater women-to-men ratio in virtually all study communities reflected possible gender disparities in the aged populations. It is easier to find female elderly than male elderly of a similar age, especially for the old elderly.

The most consistent difference between women and men was the percentage widowed. More widows than widowers in the young and the old, in all study communities, were reported. Women were also less educated compared to men, and women were more likely to continue working. The apparent gender differences in the percentages reporting their past occupation as being a manual worker may be explained by the domestic duties category being a predominantly female occupation. A greater proportion of old women compared to men lived on a pension income alone. In rural or urban Tianjin, more women than men depended on a pension income.

Contemporary elderly women generally out-live their male counterparts. Elderly women are socio-economically disadvantaged compared to their male counterparts [10]. The changing status of women in relation to marriage, education, fertility, employment status and occupational attachment may alter the socio-economic status of elderly females. Whether or not the favourable life expectancy of women over men will continue in the context of women's changing status remains to be observed. The greater percentage of widows in both the young and the old, in all study communities, also suggests potential health advantages in women compared to their male counterparts.

Since 1940, there has been a drop in mortality rates for older women [11]. It is suggested that this decline in mortality in older women may have contributed to the increased life expectancy in contemporary elderly women born prior to 1940. If there are lower bounds to the mortality rate and if the upper limits to the male life-span equals that of women, we would expect to see a similar life expectancy between men and women. Our observation thus implies that contemporary elderly women may have reached these limits sooner than elderly men, as suggested by Verbrugge [11].

6.5 ADDITIONAL INFORMATION

6.5.1 Aboriginal Australians (A Kouris-Blazos)

See Appendix - for the age and gender distribution of study sample. Elderly subjects had received no formal education, except for education in the Christian faith-- as Junjuwa was, previously, a Christian mission. The subjects were not fluent in English and preferred to speak the language of their tribe. At the time of the study, pension cheques and wages were paid every 2 weeks. A certain amount of money would be spent on food to last a few days and left over

money was sometimes taken by relatives to buy alcohol, or was used to buy consumer goods (i.e. videos, cassettes etc.) for the grandchildren.

Junjuwa residents pay \$20.00 a week for rent, water, electricity, maintenance and fuel of community vehicles. A few elderly receive a fostering child allowance (\$23.00/ month). About 70% of the elderly are involved in making Aboriginal artefacts e.g. coulamans (vessels used to carry bush foods), paintings, spears, shields etc., which are sold under contract to art galleries and for tourist purposes. An extra \$50-100 a week could be earned. Figures compiled by the local research nutritionist reveals the shortfall between potential income and the outlay people must make to support their families. The following table shows the income and expenses of one family in the Fitzroy Crossing area the family composition is 1 woman, 2 dependent children, and 1 independent child whom occasionally contributes to family income.

Income:	\$291.00 per fortnight	(supporting parents benefit)
	\$ 11.40 per fortnight	(child endowment)
	\$302.40	
Outlay:	\$200.00	(food)
	\$ 20.00	(school lunches)
	\$ 28.00	(rent, power)
	\$ 25.00	(take away foods, soft drinks)
	\$273.00	

About \$30.00 a fortnight is available to cover items such as clothing and going to the movies. Pensioners will often assist their children make ends meet by giving them money, but rarely is money given to the elderly by the family. Unlike the family mentioned above, some people in the region drink large quantities of alcohol. This often results in fluctuating amounts to spend on resources, namely food, and necessitates various people becoming reliant on other family members i.e. grandparents, for financial help.

The younger Aboriginals work, spend most of their money on consumer goods (i.e. videos, clothes), and give little money to the family for basic needs. It is important to be aware of the way Aborigines in the region distribute income. Many, especially women and elderly, share their income and resources with particular kin, no matter how small the income and resource may be. This often means that particular periods are more 'lean' than others.

Table 6.10 Gender distribution in study communities

Community	Male		Female		Total	
	N	%	N	%	N	%
1	73	41.2	104	58.8	177	58.0
2	51	40.0	77	60.0	128	42.0
Total	124	40.7	181	59.3	305	100.0

P > 0.05

6.5.2 Chinese in Tianjin, China

6.5.2.1 Age Distribution

The age range was from 55 to 95 years overall. It was 60 to 88 for males, with a mean age of 68 years, and was 55 to 95 for females, with a mean age of 67 years. There was no significant age difference either between the two study communities or between genders. The subjects were further stratified into 3 age groups (aged 65 and less, aged 65-74, and aged 75 and over) in order to examine age effect on related variables such as nutrient intake. Overall, 45% of the participants were younger than 65 (136), 38.4% (117) were aged between 65 to 75, and 17% (52)

were older than 75 years. There was no statistically significant difference found in age distribution either between gender or between communities (Table 6.11).

	<65		65-74		>75	
	N	%	N	%	N	%
Community 1	84	47.5	68	48.4	25	14.1
Community 2	52	40.6	49	38.3	27	21.1
Male	48	38.7	53	42.7	23	18.6
Female	88	48.6	64	35.4	29	16.0
Total	136	44.6	117	38.4	52	17.0

P > 0.05

6.5.2.2 Education Level by Community and Gender

As one of the criteria for selecting the study communities and subjects, education level of the study subjects appeared to be significantly different between the two communities, as well as between genders (Table 6.12). The average year of education for all study participants was 5.9; 8.3 for males and 4.9 for females (P < 0.05). The education level for subjects of Community 1 was 3.9 years and it was 8.5 years for the subjects of Community 2 (P < 0.05). The gender difference of education level also appeared within each community (Figure 6.5). Males had more years of education than females in both communities (P < 0.05).

Group	N	Mean (Years)	SD (Years)	P-Value
Community 1	177	3.9	4.2	0.0001
Community 2	128	8.5	5.8	
Males	123	8.3	7.4	0.0001
Females	182	4.9	4.5	

6.5.2.3 Occupation

With respect to occupational group, the highest proportion of subjects of both genders were "factory workers," accounting for 42% of the male and female subjects, as shown in Table 6.13. More males were classified as professional (19%) and administrative (27%) personnel than females (15% and 8% respectively). This might be related to the education level differences between genders, as males had higher levels of education. The occupational structure of the male group was significantly different from the female group ($P = 0.00$).

Occupation was also one of the criteria for selecting the study communities. Almost half of the total subjects (47%) in Community 2 were professional or administrative workers such as professors, teachers, engineers, doctors, and government officers. This is compared to only 20% in Community 1. By contrast, about 58% of the subjects in Community 1 were factory workers and only 20% were in Community 2. This difference was statistically significant ($P < 0.01$).

Table 6.13 Occupation distribution by gender.

Occupation	Male		Female		Total	
	N	%	N	%	N	%
Professional	23	18.6	27	14.9	50	16.4
Administrative	33	26.6	14	7.7	47	15.4
Clerical Worker	7	5.6	2	1.1	9	3.0
Driver etc.	1	0.8	0	0.0	1	0.3
Factory worker	52	41.9	76	42.0	128	42.0
Service etc.	3	2.4	3	1.7	6	2.0
Arm Member	4	3.2	1	0.6	5	1.6
Housewife	1	0.8	58	32.0	59	19.3

6.5.2.4 Income

The average reported total income from all sources (wages and others including from spouses, children, relatives and social welfare) was 185 Chinese Yuan/ per person/ per month. Men had higher average monthly incomes than women for overall subjects ($P < 0.001$), and for the subjects in Community 1 ($P < 0.05$). However, this gender difference was not statistically significant for the subjects in Community 2 ($P > 0.05$). Moreover, the average income of the subjects in Community 2 was significantly higher than the subjects in Community 1 ($P < 0.001$), (Table 6.14).

Table 6.14 Average income by genders and communities

Group	N	Mean (Yuan/month)	SD	P-Value
Males	123	197.3	7.4	0.0001
Females	182	176.1	4.5	
Community 1	177	168.7	4.2	0.0001
Community 2	128	206.9	5.8	
Total	305	184.7	72.6	

Since most of the participants were already retired at the time of this study, their pension was the major source of their income, although some had a second job. The average percentage of income from different sources for this population were ranked as:

- pension (40%),
- spouses income (35%),
- supported by their children (15%),
- salary (8%),
- social welfare (1%)
- and relatives (1%).

The percentage of income sources in male subjects was significantly different to that of females ($P < 0.01$) (Figure 6.9). Pensions contributed to 55% of total income in males but only 29% in females. Because many women were not employed by state-run institutions for their whole lives, they did not receive pensions after their retirement. Spouse's income consisted of 22% of women's income but made up only 6% of men's. As more males started a second job after retirement than women did, salaries contributed 14% of men's income but it only accounted for 3% of women's income.

6.5.3 Philippines (P de Guzman)

In the Philippines, different census figures show that there is an increasing number of elderly. The elderly have become a statistically significant segment of the population. Hence, any data gathered regarding the elderly, such as: types of communities, living conditions, economic status, literacy level, migration patterns, and any other relevant information concerning this group would be very helpful for future policy and support program planning.

On the whole, it was most common to find the elderly respondents to be 50-74 years old for all groups covered. The large majority of them (not including those who never married) were either still married or widowed. Generally, most were originally from Luzon (76.1%), with only 21.5% of them born in the Visayas. Rural to urban migration is not as popular with the elderly as it is with the younger generation. The type of residence community was mostly urban for both

childhood and retirement age.

As for those from San Juan, 40.8% of the elderly were found to live with their children in their own homes. This supports the fact that elderly Filipinos rely upon the traditional kinship based system for their daily sustenance, mostly expecting financial and health care support from their children and grandchildren. Nevertheless, a considerably large percentage (23.3%) of the elderly were still able to help support themselves with their present work, as well as with their spouses' work (15.0%), even at this old an age. With only six years of basic schooling for most of the elderly, the kind of work is usually related to and categorised under trade/ labourer and household duties both in the past and in the present. This suggests that they belong to the low income group, who thus do not earn enough to be able to support themselves and live alone (unlike their elderly counterparts who receive assistance from institutions).

The senior citizens are among the most economically deprived in our country. The source of income of many older Filipinos comes from:

- pensions/ retirement benefits,
- children,
- inheritance,
- savings, wages/ salaries/ self-employment,
- income generating activities (such as rent),
- and/ or public assistance.

Unfortunately for some, assistance from children is frequently conditional and undependable, forcing them to rely on other relatives/ friends support, instead. When asked, a significant number of the respondents refused to reveal their approximate income/ year. Nevertheless, the majority are satisfied and believe they have just enough. However, for those elderly that are not institutionalised 40% confessed to having insufficient funds and/ or support to enable them to live the rest of their lives in the most ideal way.

Time has come to recognise that the elderly should not be viewed as a liability but as a "valued/ productive asset" of the society. With their acquired lifetime knowledge, skills and expertise it would be wise for the government to make use of this group productively through appropriate policies and programs. Future policy and program development should not only come up with more projects for the elderly but also design them in a way that it will encourage the aged group to actively participate and contribute in various community development and livelihood activities. This would, as a result, uplift their overall self-image and self-worth in society. Existing senior citizen's groups could be further strengthened and made civic-oriented, hence enabling the aged population to engage in solving community problems. They could be given responsibilities such as attendants to day-care centres, feeding programs, mother classes, etc., which will help them feel needed and productive. Furthermore, their knowledge, skills and expertise in the different handicrafts (e.g. woodcraft, needle delicacy making, grading and

poultry-livestock raising) can be used to serve as income generating activities for themselves and the community.

6.6 SUMMARY

- The purpose of this chapter is to compare the following socio-demographic characteristics of 9 IUNS study communities: exposure to rural/ urban environments, widowhood, education, past and current employment and sources of income.
- To demonstrate possible age differences in socio-demographic characteristics, two age groups are used: young elderly aged 70-79 and old elderly aged 80+ (except CBJ and FIL where age of entry was 50/ 55).
- A total of 1,725 men and women were interviewed between 1988-1991 in nine communities (ACA, GRK-M, GRK-S, SWE, FIL, JPN-O, CBJ, CTJ-U, CTJ-R). A higher percentage of women than men were studied and there were more young than old elderly.
- All GRK-S and CTJ-U lived in a rural setting throughout their life and about 80% of GRK-M lived in a rural setting as children. Between 20-40% ACA and SWE lived in rural environments as children and moved to urban living as adults.
- In both age groups, GRK-M and GRK-S men had the lowest percentage widowed. CTJ-R and CTJ-U men, were among the highest percentage widowed in the old elderly communities. More than 80% GRK-M and CTJ-U women aged 80+ were widowed.
- Women, in general, were less formally educated than the men in all communities, except FIL. The percentage who attended secondary school was highest amongst JPN-O and lowest amongst GRK-M, GRK-S, CTJ-R. Young elderly were not found to have more education than the old elderly in all communities.
- Less women than men reported their past occupation as being a manual worker. More than 70% of GRK-M, GRK-S and CTJ-R reported being manual workers in the past compared to <30% of ACA and SWE. A high percentage of women from JPN-O, GRK-M, GRK-S and CTJ-R reported their past occupation as being a manual worker compared with <20% ACA, SWE, CBJ and CTJ-U women.
- More than 80% of GRK-S elderly reported to be 'currently working' compared with <45% of men and 20% of women in all the other study communities.
- A greater proportion of old elderly women compared to men lived on a pension income alone. A high percentage of the CTJ rural community derived income from sources other than pension(s). More than 50% of JPN-O young female elderly and SWE elderly lived on a pension as well as income from other sources.

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6.8 LEGEND FOR FIGURES

- Figure 6.1 Median age, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.2 Percentage who lived in a rural area as a child, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.3 Percentage who lived in a rural area as an adult, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.4 Percentage widowed, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.5 Percentage who undertook secondary education, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.6 Percentage who worked as a manual worker in the past, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.7 Percentage of women who stayed at home for domestic duties, by age group (young elderly vs old elderly) and study community.
- Figure 6.8 Percentage currently working, by age group (young elderly vs old elderly), study community, and gender.
- Figure 6.9 Percentage who lived on a pension(s) income alone, by age group (young elderly vs old elderly), study community, and gender.

CHAPTER 6

DEMOGRAPHY

6.1 INTRODUCTION

6.2 METHODS

- 6.2.1 Age
- 6.2.2 Rural vs urban background
- 6.2.3 Marital status
- 6.2.4 Education level
- 6.2.5 Past occupation & current employment status
- 6.2.6 Income
- 6.2.7 Statistics

6.3 RESULTS

- 6.3.1 Subjects
- 6.3.2 Age entry and composition
- 6.3.3 Shift from rural to urban living
- 6.3.4 Widowhood
- 6.3.5 Secondary education attainment
- 6.3.6 Past occupation
- 6.3.7 Current employment status
- 6.3.8 Pension as the only source of income

6.4 DISCUSSION

- 6.4.1 Limitations in result interpretation
- 6.4.2 Cross-cultural differences
- 6.4.3 Differences between the old and the young
- 6.4.4 Gender differences

6.5 ADDITIONAL INFORMATION

- 6.5.1 Aboriginal Australians (A Kouris-Blazos)
- 6.5.2 Chinese in Tianjin, China
 - 6.5.2.1 *Age Distribution*
 - 6.5.2.2 *Education Level by Community and Gender*
 - 6.5.2.3 *Occupation*
 - 6.5.2.4 *Income*
- 6.5.3 Philippines (P de Guzman)

6.6 SUMMARY

6.7 REFERENCES

6.8 LEGEND FOR FIGURES

