

A Study on the Survey Modes Used in the 2020 Korean Crime Victim Survey

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Abstract

Surveys are an important data collection method for national statistics in Korea. As of July 22, 2024, based on data provided by the MDIS of Statistics Korea, approximately 92% of national statistics are compiled using the survey method, and about 85% of these rely primarily on face-to-face interviews for data collection. However, with the increase in single-person households, the nonresponse rate of surveys has been rising each year. This study examined the behaviors of respondents across different survey modes used in the 2020 Korean Crime Victim Survey, whose raw data about survey response modes is available for public use on the MDIS website in Statistics Korea. The results show that, overall, the younger the age group, the higher the proportion of self-administered responses, with this proportion being higher for female than male except over 60 years old. Notably, the 20s age group has a significantly higher percentage of self-administered (TAPI) responses for both male and female. Furthermore, the response using tablets generally has a higher proportion compared to the response using paper across all age groups except for females in their teens, regardless of whether the survey is interviewer-administered or self-administered.

Keywords: Correspondence Analysis, Log-linear Model, Survey Mode, Survey Response, 2020 Korea Crime Victim Survey

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1. Introduction

National statistics is an important, non-tangible key industry. Most of national statistics in Korea are survey statistics, which are compiled based on the responses of survey subjects using questionnaires. In the history of survey statistics, data collection methods have evolved in response to changes in the research environment.

In the West, where the survey research was

developed as a discipline, mail questionnaire surveys were widely used in the 1920s~1930s due to low survey cost and ease of administration. However, the low response rates led to unreliable survey results. Since then, face-to-face interviewing has become the leading method of data collection because of higher response rates, the development of good relationships between interviewer and respondent, the availability of visual tools, and others in the measurement process. Since the 1970s, the cost of face-to-face interviews has increased rapidly, and the

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telephone interviews using random digit dialing (RDD) have emerged as an alternative. However, in the 2000s, it has become increasingly difficult to maintain response rates in telephone interviews, and with the development of the Internet, Online surveys have emerged as a promising alternative^[1-2].

National statistics in Korea have been conducted primarily by face-to-face interviews, but the nonresponse rates have been rapidly increasing in recent years due to the rise in single-person households and increasing social distance between people. According to a 2023 report by the National Assembly's Special Committee on Budget and Appropriation in 2023, the nonresponse rates of the Social Survey of Statistics Korea have been steadily increasing, reaching about 16.1% in 2022, the highest in the past five years, and the nonresponse rates of the survey of Household Finances and Living Conditions, Regional Employment Survey and others have also been steadily increasing^[3]. In recent national statistics, many surveys that traditionally relied on face-to-face interviewing now use multiple survey methods. Many surveys also include questions to indicate the method used to complete the questionnaire. Given these circumstances, understanding respondent behaviors

regarding survey modes and incorporating this understanding into the survey process could significantly improve survey efficiency and the reliability of results.

Statistics Korea, through MicroData Integrated Service (MDIS), provides raw data (primary data), questionnaires, and statistical explanations for various national datasets. This study tracks changes in the household size of Korean households in recent years, analyzes the data characteristics provided by MDIS, and examines the respondent behaviors across different survey modes used in the 2020 Korean Crime Victim Survey. The raw data on survey response modes for this survey is exclusively available for public-use on the MDIS website in Statistics Korea.

2. Changes in household size in Korea

2.1. Distribution of household size by year

Table 1. shows the total number of general households and the percentage of households by the number of household members, by year, based on data from the household sector of the Total Census, available on the Korean Statistical Information Service

(KOSIS) website of Statistical Korea. Since 2015, the household section of the census has

Table 1. Distribution of household size by year based on Housing Census.

(Unit: households, %)

Year	Total household	1-person	2-person	3-person	4-person	5-person	6-person	7-person+	Total
2015	19,111,030	27.2	26.1	21.5	18.8	4.9	1.1	0.3	100.0
2016	19,367,696	27.9	26.2	21.4	18.3	4.8	1.1	0.3	100.0
2017	19,673,875	28.6	26.7	21.2	17.7	4.5	1.0	0.3	100.0
2018	19,979,188	29.3	27.3	21.0	17.0	4.3	0.9	0.3	100.0
2019	20,343,188	30.2	27.8	20.7	16.2	3.9	0.8	0.2	100.0
2020	20,926,710	31.7	28.0	20.1	15.6	3.6	0.7	0.2	100.0
2021	21,448,463	33.4	28.3	19.4	14.7	3.3	0.6	0.2	100.0
2022	21,773,507	34.5	28.8	19.2	13.8	3.1	0.6	0.1	100.0

been conducted annually as a registration-based census, resulting in the yearly update of household numbers. As is widely known, the number of single-person and two-person households steadily increasing, with an average annual growth rate of about 4.4% from 2015 to 2022. The average annual growth rate peaked at about 5.9% from 2019 to 2021, and then slowed down to about 3.9% in 2022.

Focusing only on one-person and two-person households, the growth rate for one-person households is higher than that for two-person households. The average annual growth rate for single-person households from 2015 to 2022 is about 5.4%, while for two-person households, it is about 3.3%. The largest increase in single-person households occurred in 2020, with a year-over-year growth rate of approximately 8.1%, followed by 2021 with about 7.9%. In 2022, the growth rate was about 4.7%, which is lower than in the previous two years. Despite this decrease, the number of single-person households continues to rise. As of 2022, one in three households in the country consists of individuals living alone.

Table 2. is based on the number of single-person households from the 20% sample surveys of

the 2015 and 2020 Population Census, available in the Households section of KOSIS in Statistics Korea. It shows the number of single-person households and the change rate from 2015 to 2020, broken down by sex and age group.

Compared to 2015, the number of single-person households increased by about 27.5% in 2020. The highest growth rate was observed in the 20s age group, which saw an increase of about 55%, followed by the 30s age group with an increase of about 36%. By sex, men in their 60s experienced the highest increase in single-person households, about 79%, followed by men in their 20s at about 53% and those in their 30s at about 40%. For women, the largest increase in single-person households was among those in their 20s, at about 57%, followed by those in their 30s at about 28%. Except for men in their 60s, both men and women in their 20s and 30s experienced the highest growth rates in single-person households.

Meanwhile, in 2015, the age group with the largest number of single-person households was the 70s and older group. However, in 2020, the 20s age group had the highest proportion, accounting for 19.2% of all single-person households. This is followed by the 70s and

Table 2. Number of single-person households and change rate by sex and age group from the 20% sample survey of the Population Census.

(Unit: households, %)

Age group	Male			Female			Total		
	Yr. 2015	Yr. 2020	change rate	Yr. 2015	Yr. 2020	change rate	Yr. 2015	Yr. 2020	change rate
under 20	29,001	33,854	16.7	29,635	38,265	29.1	58,636	72,119	23.0
20~29	425,626	652,219	53.2	394,072	619,010	57.1	819,698	1,271,229	55.1
30~39	510,048	714,573	40.1	313,199	400,770	28.0	823,247	1,115,343	35.5
40~49	460,238	572,207	24.3	299,304	331,549	10.8	759,542	903,756	19.0
50~59	433,001	594,697	37.3	427,913	444,798	3.9	860,914	1,039,495	20.7
60~69	252,330	451,014	78.7	482,944	587,971	21.7	735,274	1,038,985	41.3
70 and up	204,794	285,834	39.6	949,028	916,593	-3.4	1,153,822	1,202,427	4.2
Total	2,315,038	3,304,398	42.7	2,896,095	3,338,956	15.3	5,211,133	6,643,354	27.5

older group at 18.2% and the 30s group 16.9%. Together, individuals in the 20s and 30s account for about 36.1% of all single-person households.

The high proportion and growth rate of single-person households in the 20s and 30s age groups, when people are most active in social activities such as studying and socializing, indicate that the survey environment for national statistics, which relies heavily on face-to-face interviews, is becoming increasingly challenging. Additionally, it is noteworthy that the growth rate of single-person households among men in their 60s is significantly higher, marking an important social phenomenon.

Fig. 1. and Fig. 2. are based on data from Table. 2. Fig. 1. illustrates the rate of change in single-person households by age group from 2015 to 2020. Fig. 2. presents the distribution

of single-person households by age group for both 2015 and 2020.

2.2. Sources of raw data provided in the MDIS of Statistics Korea

Table. 3. summarizes information about the 402 raw data (primary data) available through the MDIS website of Statistics Korea as of July 22, 2024.

The first column, 'Category', lists the categories used to organize the sources of raw data by MDIS according to themes. The 'No. of Data' column shows the number of sources of raw data provided for each category.

The 'No. of Surveys' column indicates the number of sources of raw data collected through survey methods, excluding reporting and aggregate statistics. In the 'Population' category, the 'Census of Population' is classified as a survey because its data was collected using both survey methods and processing of exiting public data. Additionally, 'Demographic Trends Survey' and 'Birth-Death Linkage of Infants and Children Under 5' was counted as a single survey because they were derived from the same surveys. Similarly, the 'Population and Housing Census' and its Panel data were also counted as a single survey. Consequently, the 'Population' category provides five sources of raw data, but they were aggregated into two surveys and one report statistic.

Two surveys ('Regional Employment Survey (2008-2020)_Annual' and 'Regional Employment Survey (2010-2012)_Quarterly') in the 'Labor' category, and one survey ('National Small Business Survey') in the 'General Economy, Business Condition/Management' category were excluded due to the lack of statistical explanations provided by MDIS.

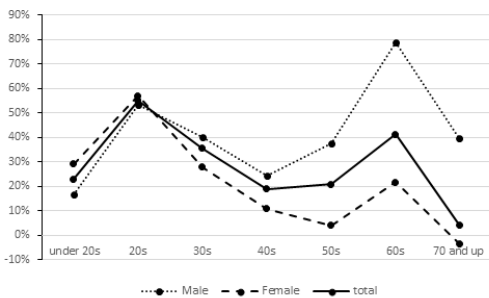


Fig. 1. The rate of change in single-person households by age group from 2015 to 2020.

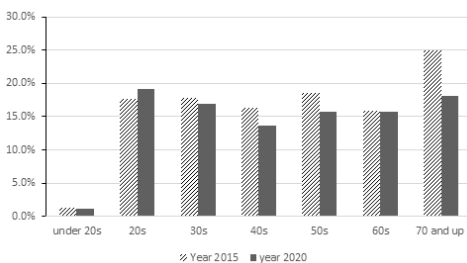


Fig. 2. The distribution of single-person households by age group in 2015 and 2020.

Table 3. The sources of raw data provided in MDIS of Statistics Korea.

Category	No. of Data	No. of Surveys	Survey modes		Having item about responding modes		Survey subject	
			Interviewing	Other	Yes	MDIS	Individuals (Households)	Businesses (Organizations)
Population	5	2	1	0	0	0	2	0
General Society	20	17	14	3	8	1	17(8)	0
Crime and safety	10	8	8	0	3	1	4(3)	4
Labor	18	12	10	2	3	0	7(3)	5
Income, Consumption, Assets	15	15	14	1	0	0	15	0
Health	10	6	4	0	2	0	3(2)	3
Welfare	10	8	7	1	2	0	8(2)	0
Education · Training/ Culture · Leisure	24	21	15	6	1	0	17	4(1)
Residential/Land use	6	4	3	1	1	0	4(1)	0
General Economy, Business conditions/ management	21	16	12	4	3	0	1	15(3)
Agriculture/Fisheries	26	25	15	10	0	0	17	4
Mining, Manufacturing	7	7	4	3	1	0	0	7(1)
Construction/Transport ation, distribution logistics	6	5	3	2	1	0	1	3(1)
Information & Communication Technology/Science, Technology	31	31	20	11	1	0	7(1)	24
Wholesale and Retail, Service	14	13	11	1	3	0	0	13(3)
Wages/Prices	3	3	1	2	0	0	0	3
Government, Public Finance	1	1	0	1	0	0	1	0
Finance/Trade, Balance of Payments	1	1	1	0	0	0	1	0
Environment	5	4	2	2	1	0	1(1)	3
Energy	2	2	0	2	1	0	0	2(1)
Regional Statistics	167	167	167	0	93	0	148(88)	18(5)
Total	402	368	312	52	124	2	256(109)	108(15)

The 'Survey modes' column is based on the data collection methods provided in the MDIS statistical description. This column is divided into two sub-columns: 'Interviewing' and 'Other'. The 'Interviewing' sub-column reflects

the number of surveys where face-to-face interviewing was the primary data collection method within the corresponding category. The 'Other' sub-column represents the number of surveys collected using alternative methods,

such as online, telephone, fax, and other approaches. For example, in the 'General Society' category, there are 20 sources of raw data, 17 of which are collected data by surveys. Of these, 14 are primarily collected through face-to-face interviews, while the remaining 3 used other survey modes. In cases where the MDIS statistical descriptions were insufficient, I referred to the files attached to the MDIS statistical descriptions or searched the Internet for reports on the surveys to supplement the information.

The column titled 'Having Item About Responding Modes' is divided into two sub-columns: 'Yes' and 'MDIS.' The 'Yes' sub-column indicates the number of surveys that include a question in the questionnaire about the respondent's method of responding. The 'MDIS' sub-column shows the number of sources that provide the results of this question as publicly accessible raw data on the MDIS website. For example, in the 'General Society' category, out of 17 sources, which used survey for data collection, 8 included a question about the respondent's method of responding in their questionnaires, but only one source provides publicly accessible raw data for this question from MDIS. For reference, the 'Life Time Survey' in the 'General Society' category included a question about the 'diary author,' and this survey was counted as having the question in the questionnaire. On the other hand, I excluded two surveys in the 'Income, Consumption, and Assets' category and two surveys in the 'Environment' category due to the absence of questionnaires in MDIS.

The 'Survey Subject' column is divided into two sub-columns based on the type of survey subject: 'Individuals (Households)' and 'Businesses (Organizations).' In this column, surveys within

each category were counted separately for individuals or households (Individuals (Households)) and businesses or organizations (Businesses (Institutions)). Surveys where the subject was both an individual (household) and a business (institution) were categorized under "Individuals (Households)." The number in parentheses () represents the number of sources (or surveys) that included a question in the questionnaire about the respondent's method of responding. For example, in the 'General Society' category, all 17 sources using survey targeted individuals (households), and 8 of them included a question about the respondent's method of responding. For reference, as survey subjects, four surveys in the 'Agriculture/Fisheries' category with a defined area, one survey in the 'Construction/Transportation and Distribution Logistics' category with a road, and one survey in the 'Regional Statistics' category with a hanok were excluded from the count.

According to **Table 3.**, approximately 92% of the sources of raw data available on the MDIS website were collected using survey methods, with about 85% of them primarily utilizing face-to-face interviewing. As the survey environment has changed, it has become increasingly common to use a combination of survey modes, with face-to-face interviewing as the primary method, supplemented by online, mail, fax, and other approaches. Consequently, the proportion of surveys conducting using online, mail, fax, distribution, and other methods is gradually increasing.

As a result, many surveys include a question to ask the respondent's method of responding, and as of July 2024, approximately 34% of the surveys for which MDIS provides raw data were investigating the respondent's method of

filling out the questionnaires. Among these, about 43% focused on individuals (households) and about 14% targeted businesses (organizations). However, only two sources provide the raw data on the survey response methods investigated, one of which is available for public use, so any MDIS subscriber can download and use it for research, but the other data is only available for authorized use through Remote Access (RAS) and the Resource Center (RDC).

3. The survey response modes in Korean Crime Victim Survey

In this section, we analyze the behaviors of respondents in the 2020 Korean Crime Victim Survey, conducted by the Korea Institute of Criminology and Justice, with a focus on the survey response modes they chose to complete the questionnaire. This survey is also known as 2020 National Life Safety Survey. It includes a question about the method of survey completion, and its results are publicly available.

3.1. 2020 Korean Crime Victim Survey

The 2020 Korean Crime Victim Survey is a nationally accredited statistic conducted biennially by the Korea Institute of Criminology and

Justice in accordance with Article 11 of Chapter 2 of the Crime Victim Protection Act in Korea. The survey aims to investigate the general public's experience with crime victimization and crime-related perceptions and others, providing essential data for developing policies to prevent crime and protect and support victims. The most recent raw data available through Statistics Korea's MDIS is from the 2021 survey, covering the period from January 1 to December 31, 2020. The survey targets all general households in Korea and their members aged 14 and older. The sample frame was stratified by 17 cities/provinces and districts (dong/ eup/myeon) based on the 2019 Population and Housing Census. Sampling survey districts defined by Statistics Korea were selected using probability proportional to size systematic sampling, and 11 households were chosen from each sampled survey district to survey the sampled households and their members aged 14 years and older^[4].

The first page of the 2020 Korean Crime Victim Survey questionnaire included a question instructing the interviewer to record how the respondent completed the questionnaire, as shown in Fig. 3. The survey was primarily intended to be conducted through face-to-face interviews, where the interviewer visits the sampled household to collect responses. The interviewer

Survey Modes	Interviewer-administered	① PAPI	② TAPI
	Self-administered	③ PAPI	④ TAPI
	Etc	⑤ Leave paper questionnaires at home → write the reason why ⑥ url survey → write the reason why	
	Reasons of ⑤,⑥	① temporary absence ② want to answer when available ③ feel a burden about face-to-face interviews	

Fig. 3. The question to ask survey responding modes in Public Life Safety survey.

were expected to revisit the household up to four times if necessary. In practice, this survey employed multiple modes of data collection: the interviewer used Paper-and-Pencil interviewing (PAPI), where interviewer records responses on a paper questionnaire, and Tablet Assisted Personal Interviewing (TAPI), where interviewer records responses on a tablet; Pen-and-Paper Self-Interviewing (PAPI), where the respondent personally records their answers on a paper questionnaire, and Tablet Assisted Self-Interviewing (TAPI), where the respondent records their responses on a tablet; and solicitation, where the questionnaire is delivered to the respondent's home, allowing them to respond at their convenience. **Table 4.** presents the distribution of the survey response methods among the 13,836 respondents in the 2020 Korean Crime Victim Survey.

Table 4. The distribution of the survey response methods used by the 2020 Korean Crime Victim Survey respondents.

(units: person, %)

Survey modes	Frequency	percentage
Interviewer-administered (PAPI)	1387	10.02
Interviewer-administered (TAPI)	11266	81.43
Self-administered (PAPI)	286	2.07
Self-administered (TAPI)	645	4.66
Paper solicitation	252	1.82
Total	13,836	100.00

3.2. Survey response methods by respondent characteristics

Table 5. shows the distribution (row percentage) of survey response methods by sex and age group for the 13,836 respondents of the 2020 Korean Crime Victim Survey. The last column gives the number of respondents in each category, and the remaining columns give the row percentages for each respondent characteristic.

Both men and women preferred self-administered method over interviewer-administered method as their age decreased. This is more pronounced for women than men. Among women in their 20s, we observe the lowest percentage of interviewer-administered methods compared to other age groups

Table 6. presents the results of applying a log-linear model to three categorical variables: sex, age group, and survey response method. For more information on log-linear models, refer to Agresti (1995), Park and Lee (2020), Hong (2012), Heo (2021), and others^[5-8]. The λ s in the table are the parameters of the log-linear model for a three-way cross-tabulation of the these variables. The likelihood ratio value is 31.92 with a p-value of 0.227, suggesting that the model fits the data in **Table 5.** well. Since $\lambda_{jk}^{YZ} \neq 0$ with a p-value <0.0001, we can infer that there is an interaction between age group and survey response method, conditional on sex. Conversely, we cannot reject the null hypothesis ($\lambda_{ij}^{XZ} = 0$) regarding the interaction between sex and survey response method conditional on age, indicating that sex and survey response method are independent within each age group.

Fig. 4. and **Fig. 5.** show the percentage of survey response methods by age group, separately by male and female. The survey response methods in **Table 5.** are grouped into interviewer-administered methods (interviewer-administered PAPI and interviewer-administered TAPI) and self-administered methods (self-administered PAPI, self-administered TAPI, and solicitation with paper). For both males and females, younger age groups show a higher proportion of self-administered responses and a lower proportion of interviewer-administered responses.

Table 5. Distribution of Survey Response Methods by Sex and Age Group.

(units: %, person)

Sex	Age group	Survey Response Method					No. of Respondents
		Interviewer (PAPI)	Interviewer (TAPI)	Self (PAPI)	Self (TAPI)	solicitation	
Male	14 ~ 19	9.84	76.07	4.59	7.21	2.30	305
	20 ~ 29	9.15	78.17	3.27	7.32	2.09	765
	30 ~ 39	9.52	80.41	2.38	6.06	1.62	924
	40 ~ 49	7.90	82.83	3.18	3.18	2.92	1165
	50 ~ 59	10.56	80.51	2.18	4.86	1.90	1421
	60 ~ 69	9.59	84.30	0.93	3.9	1.27	1178
	70 and up	10.81	84.93	0.36	3.65	0.24	823
	Total	9.60	81.66	2.17	4.80	1.76	6581
Female	14 ~ 19	9.52	75.85	7.48	4.76	2.38	294
	20 ~ 29	12.55	72.83	4.00	7.31	3.31	725
	30 ~ 39	9.73	79.25	2.78	5.56	2.67	935
	40 ~ 49	9.39	81.53	2.55	4.06	2.47	1256
	50 ~ 59	9.76	82.38	1.36	4.32	2.19	1691
	60 ~ 69	10.40	85.02	0.78	3.26	0.54	1288
	70 and up	12.01	83.30	0.09	4.13	0.47	1066
	Total	10.41	81.21	1.97	4.53	1.87	7255
Total	14 ~ 19	9.68	75.96	6.01	6.01	2.34	599
	20 ~ 29	10.81	75.57	3.62	7.32	2.68	1490
	30 ~ 39	9.63	79.83	2.58	5.81	2.15	1859
	40 ~ 49	8.67	82.16	2.85	3.63	2.68	2421
	50 ~ 59	10.12	81.52	1.74	4.56	2.06	3112
	60 ~ 69	10.02	84.67	0.85	3.57	0.89	2466
	70 and up	11.49	84.01	0.21	3.92	0.37	1889
	Total	10.02	81.43	2.07	4.66	1.82	13836

Table 6. Maximum likelihood analysis of variance of log-linear model for three variables (sex, mode, age group)

Parameter	Source	DF	Chi-Square	Pr > ChiSq
λ_i^X	sex	1	14.74	0.0001
λ_j^Y	age	6	319.14	<.0001
λ_k^Z	mode	4	10798.86	<.0001
λ_{ij}^{XY}	sex*age	6	31.54	<.0001
λ_{jk}^{YZ}	age*mode	24	200.91	<.0001
residual	Likelihood Ratio	28	31.92	0.2778

Fig. 6. and Fig. 7. are biplots from the correspondence analysis of age group and survey response method by gender.

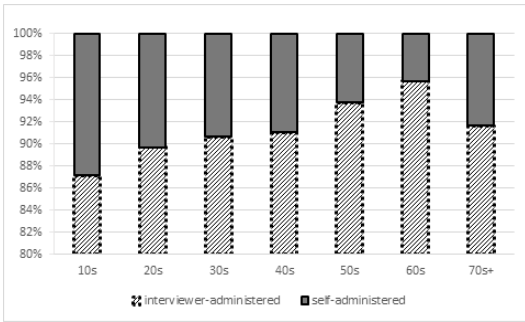


Fig. 4. Percentage of survey answering modes by age group (Male).

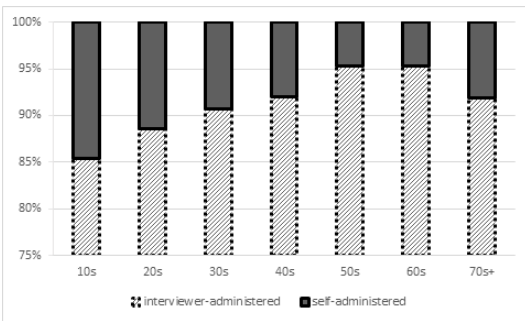


Fig. 5. Percentage of survey answering modes by age group (Female).

These plots illustrate the relationship between age groups and survey response methods, with high proportions indicated in the areas where age groups are close to specific response methods. The percentages on the horizontal and vertical axes of these plots represent the amount of variance explained by each axis^[9]. In Fig. 6., the sum of the percentages for the two axes is 96.4%, and in Fig. 7., it is 91.7%. These high percentages indicate that the plots effectively capture the relationship between age group and survey response method.

Table. 5. shows that, for male, the proportion

of interviewer-administered TAPI (interviewer TAPI) is relatively lower while self-administered TAPI (self TAPI) relatively higher in the teens, 20s, and 30s compared to other age groups, with particularly high proportions of self-administered TAPI in the teens and 20s. Fig. 6. illustrates the close proximity of self-administered TAPI to these age groups (teens, 20s, 30s).

The table also indicates that for males, the 30s, 50s, 60s, and 70s exhibit a high proportion of interviewer-administered methods (interviewer PAPI and interviewer TAPI), with similar proportions observed between the 60s and 70s, and between the 50s and 30s, for these methods. Fig. 6. shows that these age groups are closely positioned in both interviewer-administered methods, with the 60s and 70s near each other and the 30s and 50s also close together.

Additionally, Table. 5. reveals that males in their 40s show a distinct pattern compared to other age groups. This age group has a lower proportion of interviewer-administered methods (interviewer PAPI) and a higher proportion of self-administered method (self PAPI) and paper solicitation (self SAH). Notably, the proportion of paper solicitation is the highest in the 40s compared to other age groups. Fig. 6. reflects this by showing the 40s as closer to both self-administered PAPI (self PAPI) and paper solicitation (Paper SAH) than other age groups.

Overall, teens and 20s are characterized by a relatively high proportion of self-administered TAPI, while older age groups tend to have higher proportions of interviewer-administered methods.

In Table. 5., for women, the pattern of survey response methods by age group is more pronounced. Individuals in their 30s and older show a higher proportion of interviewer-

administered PAPI and TAPI. Conversely, teens exhibit a significantly higher proportion of self-administered PAPI compared to other age groups, while those in their 20s have a higher proportion of self-administered TAPI and paper solicitation. Fig. 7. clearly illustrates these patterns.

4. Conclusion

Surveys are a crucial method for producing national statistics. As of July 23, 2024, data from the MDIS website of Statistics Korea indicate that approximately 92% of national statistics are based on surveys, with about 85% of these relying primarily on face-to-face interviews. Meanwhile, as of 2022, about 34.5% of general households in Korea are single-person households, and about 61.7% are either single-person or two-person households. Consequently, nonresponse rates are increasing annually, and completing a household survey often requires between four and ten visits. This process is highly inefficient. Given these challenges, nearly all surveys now employ multiple methods to ensure successful completion with their targeted samples.

This study analyzed respondent behaviors toward different survey modes used in the 2020 Korean Crime Victim Survey. The analysis reveals that, overall, younger age groups show a higher proportion of self-administered methods. Additionally, except for individuals aged 60 and older, women are more likely than men to use self-administered methods. Notably, the 20s age group exhibits a significantly higher percentage of self-administered TAPI for both men and women. Furthermore, surveys conducted using tablets generally had a higher proportion compared to paper surveys across all age groups except for females in their teens, regardless of whether the method was interviewer-administered or self-administered. Females in their teens showed a higher proportion of self-administered PAPI compared to self-administered TAPI.

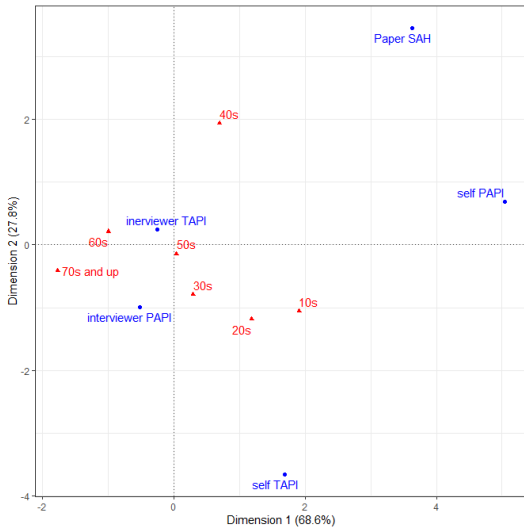


Fig. 6. Byplot of correspondence analysis of survey answering modes by age group (Male).

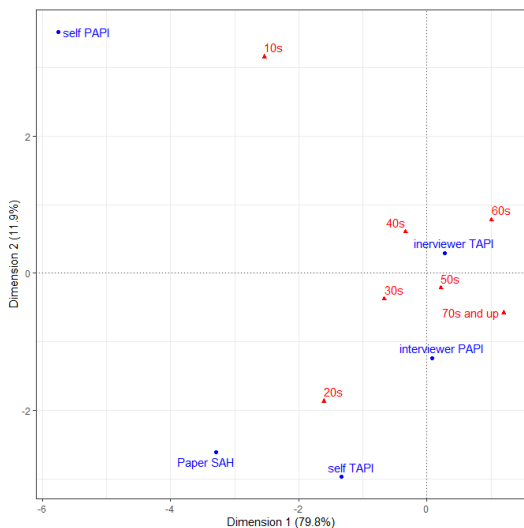


Fig. 7. Byplot of correspondence analysis of survey answering modes by age group (Female).

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