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Single-Person Household Needs with a Focus on Interior Planning**

실내계획측면에서의 1인 가구 주거요구 분석 연구

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Abstract

우리나라 1인 가구는 대부분 다인가구로의 전환 이전에 잠시 거치는 거주형태로 인식되어 불안정한 상황이다. 그러나 오늘날 만혼, 비혼 등 결혼에 대한 인식 변화와 고령화 등의 영향으로 가족의 형태가 변화하고 있으며 이에 따라 거주형태도 다인가족 중심에서 1인 또는 2인 등 소단위로 분화되면서 다양해지고 있다. 하지만 다인가구에 중심으로 형성된 기존의 주거시장에서는 이러한 급속도의 변화를 수용할 수 없어 여전히 소형 주거는 많은 불편함을 감수해야만 하는 열악한 실정이다. 본 연구는 현 사회현상에 주목하고 1인 가구를 위한 주거 계획 시 실내환경 측면에서 고려해야 할 사항들을 도출하는 것에 목적을 두었다. 선행연구들을 바탕으로 1인가구의 생활유형과 실내공간에서의 요구 사항들을 파악하기 위한 설문을 구성하였으며 실제 1인가구를 대상으로 설문조사 하였다. 결과, 현재 1인가구들이 거주하는 소형주거에서는 식사공간, 수납공간 등이 미비하여 공간 만족도가 매우 낮게 나타나는 등 무계획적 원룸형태 공급으로 인한 문제점을 확인 할 수 있었다. 따라서 단순히 숙식을 위한 물리적 공간 공급이 아니라 다양한 라이프스타일을 반영한 계획적 평면개발이 이루어져야 할 것이다. 또한 공간이라는 하드웨어와 1인 주거 간의 커뮤니티 활성화, 고령사회를 반영하여 다양한 연령대 1인 주거를 위한 사회화 프로그램 개발 등 소프트웨어 적 고려도 함께 이루어져야 할 것이다. 본 연구 결과는 물리적, 심리적 전환기에 있는 우리나라 주택시장의 새로운 요구에 대응할 수 있는 기초자료로 활용되어지길 기대한다.

Keywords

실내계획, 1인주거, 주거요구, 거주만족도, 생활스타일
Interior Planning, Single-person household, Housing Need, Satisfaction, Lifestyle

1. Introduction

1.1. Backgrounds and Purposes

Since announcing its economic policy in 2014, the Korean government has emphasized the stabilization of housing market. Consequently, participation of private sector in the rental housing market has increased and the supply of houses available for rent has been increased.[1)] Despite the government's efforts to ensure the stability of the housing market a number of unstable factors still need to be considered, including reconstruction, redevelopment, *jeonse* (a form of renting) shortage, changes in people's value of houses and residential patterns. Recently, the Korea Legislation Research Institute (a leading national esearch and development institute) published report evaluating "the support legislation of single households" and noted that 43.7% of single-person households are unemployed and their average monthly income was 1,190,000 won, one third of the sum earned by average multi-person households. The report stated that single-person households suffer a vicious circle of poverty, as they spend the majority of their earnings on housing expenses and have unstable form of employment.[2)]

The demand for housing for single people continues to grow worldwide, including Japan and Europe. Such housing no longer represents a temporary, unsettled

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1) Financial News, 2013, 12, 27
http://www.fnnews.com/view?ra=Sent0501m_View&corp=fnnews&arcid=2013122801002973000156662&cDateYear=2013&cDateMonth=12&cDateDay=27
2) eToday, 2013, 12, 13
http://www.etoday.co.kr/news/section/newsview.php?idxno=837440

type of housing that individuals occupy before moving into multi-person households; rather, single-person housing is now a normal type of housing. Thus, attention must be directed towards housing planning to ensure that more stable types of single-person housing is designed.

This study aims to identify interior planning in light of changes views on residential types and perception of housings. It was anticipated that the result of this study would be utilized as preliminary data to address novel needs in the Korean housing market (a market presently facing physical and psychological turning points).

1.2. Research Methodology

The methodology of this study is as follows. First, a literature reviews was undertaken to examine previous studies, the status of the market and to categorized the housing lifestyles of singles. Second, a survey was conducted to investigate different housing lifestyles and the needs and preferences of singles in relation to interior planning. Third, interior planning considerations for single-person households were identified based on the result of the survey.

The survey was completed by individuals aged in their 20s to 40s, living in the Seoul metropolitan area over the period of April and June 2015. The data was analyzed by SPSS 20 statistic program.

2. Literature Review

2.1. Increase in Demand for Single-Person Households and Need for Small-sized Houses

Statics Korea (2012) reported that in 2012 single-person households constituted 23.4 percent of households and noted that this represented a 7.9 percent increase (i.e. from 15.5 percent) in single-person households from 2002[3]. These results exceeded expectations articulated in a previous report of Statics Korea (2007) that sought to estimate that future composition of households in Korea (see Table 1).

It was previously predicted that Korea's population would reach a peak of 49.34 million people in 2018 and thereafter decrease; however, recent reports suggest that Korea's population is expected to continuously increase for a significant period. Further, it has been reported that the number of members per household have decreased and the number of single-person households has increased.[4]

<Table 1> Estimation of the future composition of households(Statistics Korea, 2007)

Family Composition	2005	2007	2010	2020	2030
Parents+Children	42.2	42.0	41.3	38.0	33.8
Single-person household	20.0	20.1	20.3	21.6	23.7
Couples	14.2	14.6	15.2	17.7	20.7

From a sociocultural perspective, single-person households can be divided into four groups: an industrial preparatory group (individuals preparing themselves for the job market), an unmarried group, a divorced group, and a silver group (comprising aging members of society.[5]) Under formative factors, these groups can be categorized into voluntary and involuntary single-person household groups. Demographics revealed that the following groups of single-person households: a young-aged group, a middle-aged group, and an aged group. Conversely, sociocultural characteristics reveal that a married single-person household group and an unmarried single-person household group.[6] More than 70 percent of single-person households are located in cities and the young-aged and middle-aged groups that live in urban areas comprise approximately 60 percent of single-person households.[7]

In response to the increasing trend of single-person households, the government passed a law (Article 3 of the Housing Law Enforcement Ordinance) that relates to small-sized urban houses to induce the supply and revitalization of the small-sized housing in cities. Urban national sized houses (i.e. house below 85m^2) can be divided into complex multi-households houses, complex row houses, and one-room houses. The article 3 of the Housing Law Enforcement Ordinance

3) National Statistical Office, A report in the characteristics of single households reflected in a national censushttp://kostat.go.kr/portal/korea/kor_nw/2/1/index.board?bmode=read&aSeq=269194

4) Kim, Hye-Ryeon, A study on the small-sized housing for single household, University of Seoul, master thesis, 2010

5) SDI Policy Report, Single households have changed Seoul 30, 2009

6) in, Hae-Suk, Hong, Young-Kyun, and Hong, Gi-Suop, A study on planning of the housing complex for one person household, Proceedings of the Conference of Architectural Institute of Korea 29(1), 2009, pp.181-184

7) Kim, Hye-Ryeon, A study on the small-sized housing for single household, University of Seoul, master thesis, 2010

was revised in June, 2013 to require that the minimum living space standard in one-room houses be upgraded from $12m^2$ to $14m^2$ to improve housing environments. However, despite the increase in demand for single-person households, housing policies continue to concentrate on multi-households. Thus, institutional compensation for single-person households is needed.

2.2. Previous Studies on Small-sized Houses

Ryu Hoon and Bae Hoon-Gyu investigated the availability of the small-sized houses in relation to type; that is, urban houses (e.g., row houses, apartments and multi-households) and quasi dwellings (e.g.,. *gosiwon, officetel*). They identified a number signs suggesting that housing environment was worsening, particularly in relation to the physical supply of the small-sized houses. They contended that a socio-economic vitalization plan (directed towards urban housing) was required and that active steps needed to be taken to enhance housing designs.[8)]

Lee Hye-Bok and Kim Won-Pil surveyed residents to investigate possible improvement plans for urban houses. A number of physical environment factors (including size, design, rest spaces, and parking spaces) were identified as negative factors that urban housing designs needed to overcome.[9)] Similarly, Kim Jin-Young conducted in-depth interviews with single, female households and noted that the existing housing supply does not meet diverse needs of households.[10)]

Kim Do-Yeon and Yoon Jae-Sin suggested that shared houses as an alternative solution for one to two person households and explored their housing standards. They compared the legal standards of *gosiwon*, dormitory types of urban houses, and *eduhouse* of student welfare houses. to those of UK's multi-family houses. As a result, the quality of housing environment was considerably poor and even welfare houses were below the minimum standards. Therefore, specific minimum standards like those of the UK ought to be proposed in order to secure residents' comfortable and convenient living.[11)]

As the demand of small-sized houses has been increased for single-person households, policies for subdivided housing supply are required, and housing planning bases on socio-demographic characteristics and lifestyle of single-person households is needed.[12)]

3. Survey Design

In this study, a survey was used to identify the required conditions of small-sized houses for individuals. The survey comprised four categories: socio-demographic characteristics, current housing (and related satisfaction level), housing lifestyles, and housing needs/preferences for interior planning in single-person households. Pilot testing was conducted twice (in April and May 2015) with a number of single-person households using a preliminary survey. Defect that arose during the pilot testing phase were addressed and the final survey was completed in June 2015. One hundred and fifty surveys were distributed to male and female professionals aged in their 20s to 40s from Seoul and Gyunggido and 105 surveys were returned for analysis.

<Table 2> Survey Composition

Category	Survey Items
Demographic characteristic	demographic characteristics (i.e. age, gender, occupation).
Housing status & satisfaction	housing type, satisfaction level in spaces and facilities
Housing lifestyle	life patterns in housing, utilization of spaces by activities
Interior planning	housing needs and preferences in interior planning

3.1. Items on Occupants' Lifestyles

The survey items for analyzing housing lifestyle were derived from previous studies that focused on

8) Ryu, Hoon and Bae, Woong-Kyoo, Vitalization issues of small urban housing according to housing types based on the actual supply condition in Seoul, Korea, Journal of the Architectural Institute of Korea 27(6), 2011, pp.185-194

9) Lee, Hye-Bok and Kim, Won-Pil, A study on the improvements and the residential satisfaction with the small-size urban-life type housing through public opinion survey, Journal of the Architectural Institute of Korea 29(4), 2013, pp.159-156

10) Kim, Jin-Young, Housing consciousness and needs of single woman household for the small sized rental housing development: focusing on the residents of Seoul, Incheon, and Gyeonggi, Journal of the Korean Housing Association 24(4), 2013, pp.109-120

11) Kim, Do-Yeon and Yoon, Chae-Shin, A study on basic research setting standards for shared housing for one person household, Proceedings of the Conference of the Korean Housing Association 1, 2010, pp.302-307

12) Kim, Jin-young and Lee, Hyun-Soo, Research trends in housing for one-person household, Proceedings of the Conference of Architectural Institute of Korea 32(1), 2012, pp.83-84

lifestyles related to housing. Previous survey questions were adapted to investigate the activities of single occupants of houses (see Table 3).

<Table 3> Precedent researches' survey items on lifestyle

Research	Survey composition and Lifestyle classification
Mo Jung-Hyun et al. (2013)	32 items under 3 categories (housing values, housing space attitude and housing life), and 3 types of housing lifestyle
Lee, In Sun et al. (2009)	25 items for housing lifestyle, and 4 types of housing lifestyle
Lee, Yoon Jae et al. (2005)	35 items for housing lifestyle factors and 30 items for needs in a kitchen, and 5 types of housing lifestyle
Jo, Sung Hee et al. (2003)	25 items under 2 categories (housing life attitude and housing space attitude), and 4 types of housing lifestyles

* general items are excluded

3.2. Items on Housing Needs for Interior Planning

The survey items used to identify interior planning needs were based on questions used in previous studies investigating levels of residential satisfaction, housing needs, and space preferences (see Table 4).

<Table 4> Precedent researches' survey items on space composition

Research	Survey composition
Lee, Hye Bok et al. (2013)	24 items under 5 categories (physical environment of housing unit, social exchange, security safety, housing identity, surrounding environment)
Kim, Jin young (2013)	52 items under 3 categories (socio-demographic characteristics, housing characteristics, housing needs)
Kim, Min Seo et al. (2012)	36 items for housing values and space preference
Ha, Mi Kyung et al. (2011)	49 items under 3 categories (required space in small-sized houses, types of small-sized houses, interior planning elements for small-sized houses)

* general survey items are excluded

3.3. Customized Items on Housing Lifestyles and Interior Planning

Customized items on housing lifestyle and interior planning for the survey were selected from previous studies and adapted (see Table 5).

<Table 5> Customized items on housing lifestyles and interior planning for the questionnaire survey

Category	Survey items
Housing lifestyle	dining, laundry/dry/iron, spare time, visitor, shopping, clothes change, makeup/hair, storage, Internet, work
Interior planning	residence type/size/form, important space, space composition, planning, furniture/appliance, kitchen layout, bathroom layout/composition/function, storage item

4. Analysis of Questionnaire

4.1. Demographic Characteristics, Housing Status and Satisfaction

The demographic characteristics and current housing status of participants were analyzed. Of the 105 participants who completed the survey, 30(28.6%) were men and 75(71.4%) were women (see Table 6). In relation to age, 54(51.4%) of participants were in their 30s and 37(35.2%) in their 20s, and 14(13.3%) were aged 40 or older. The majority of participants (94.2%) had graduated from university and 29(27.6%) had completed graduate schools. Occupations were varied and included 45(42.9%) professionals, 37(35.2%) office workers, 10(9.5%) self-employers and 8(7.6%) graduate students. The majority of participants (75.2%) earned more than 2,000,000 won per month, 45(42.9%) participants had a monthly salary between 2,000,000 to 3,000,000 won, 18(17.1%) earned more than 4,000,000 won per month and only 26(24.8%) earned less than 2,000,000 won per month.

<Table 6> Demographic characteristics

category		frequency(%)	category		frequency (%)
gender	male	30(28.6)	occupation	professional	45(42.9)
	female	75(71.4)		employee	37(35.2)
	total	10500.0)		researcher	5(4.8)
age	20-29	37(35.2)		graduate student	8(7.6)
	30-39	54(51.4)		self-employment	10(9.5)
	40-49	14(13.3)			
	total	105(100.0)		total	105(100.0)
education	high school	6(5.8)	monthly income	-2,000,000 won	26(24.8)
	college & university	70(66.6)		2,000,000-2,999, 999 won	45(42.9)
	graduate school	29(27.6)		3,000,000-3,999, 0999 won	16(15.2)
				4,000,000 won-	18(17.1)
	total	105(100.0)		total	105(100.0)

The housing status and satisfaction levels of the participants were examined (see Table 7 and Table 8). Of the 105 participants, it was found that 86(81.9%) participants have lived alone for more than one year, 47(44.8%) had lived alone for one to three years, 23(21.9%) had lived alone for more than five years, and 16(15.2%) had lived alone for three to five. The residence size of the participants varied; 61(58.1%) participants lived in 30-60m^2, 23(21.9%) lived in 15-30m^2, 10(9.5%) lived in 60-90m^2, 16(15.2%) lived in an area greater than 60m^2 and 5 (4.8%) lived in a less than 15m^2. The residence types of participants included row house (48.6%), apartment (23.8%) and *officetel* (21.9%). Only a few participants (5.7%) lived in houses or *gosiwons*. Further, 89(84.8%) participants were tenants renting their homes and 16(15.3%) participants were homeowner.

<Table 7> Housing status

category		frequency(%)	category		frequency(%)
residence place	seoul	83(79.0)	residence type	apartment	25(23.8)
	kyunggido	22(21.0)		house	4(3.8)
	Total	105(100.0)		row house	51(48.6)
residence period	less than 1 year	19(18.1)		officetel	23(21.9)
	1-3 years	47(44.8)		gosiwon	2(1.9)
	3-5 year	16(15.2)		Total	105(100.0)
	more than 5 years	23(21.9)	reason to live alone	convenient to commute	66(62.9)
	Total	105(100.0)		family members left for marriage	11(10.5)
residence size	less than 15m^2	5(4.8)		independent from parent	14(13.3)
	15-30m^2	23(21.9)		parents' house is too small'	3(2.9)
	30-60m^2	61(58.1)		others	11(10.5)
	60-90m^2	10(9.5)		Total	105(100.0)
	more than 10m^2	6(5.7)	ownership	landlord	16(15.3)
	Total	105(100.0)		tenant	89(84.8%)
				Total	105(100.0)

Participants' levels of satisfaction were investigated in relation to housing spaces, facilities, and overall housing environments. Except in relation to dining rooms, kitchens and storage, participants' satisfaction levels were over 3.00. Thus, it appears that participants were not satisfied with the spaces provided for cooking and eating and storing households items and clothes.

<Table 8> Housing satisfaction

Category (including spaces functioning in a studio)		satisfaction(M)
space	living room	3.05
	bedroom	3.31
	dining room	2.80
	kitchen	2.90
	bathroom	3.02
	storage	2.63
facility	air conditioning system	3.33
	heating system	3.82
	water supply and draining system	3.85
	ventilation system	3.26
	lighting system (natural + artificial)	3.42
overall environment	interior environment	3.34
	residence size	3.12
	space composition and layout	3.23

4.2. Housing Lifestyle: Life Patterns and the Use of Spaces in relation to Activities

We analyzed the housing lifestyles of participants by investigating life patterns and the use of spaces within housing (see Table 9 and Table 10). Sixty-five participants (61.9%) stated that they rarely ate meals at housing; however, when they did, 75(71.4%) participants stated that they tried to cook their meals rather than eating instant or take-away foods. Eighty-nine participants (84.7%) stated that they did laundry at home, but sometimes went to commercial laundries for large items. Thus, cooking and doing laundry were essential activities within single-person households. In relation to what activities they engaged in during their spare time, the majority of participants (74.3%) stated that they preferred being out to staying at home.

<Table 9> Life patterns within housing

Activities within housing		frequency (%)		
		few/ little	quite a few	almost always
dining	eating meals	65(61.9)	24(22.9)	16(15.2)
	cooking when eating meals	30(28.6)	30(28.6)	45(42.8)
laundry	doing laundry often	14(15.3)	35(33.3)	54(51.4)
	doing laundry in a commercial shop	59(56.2)	14(13.3)	32(30.5)
spare time	preferred being out	27(25.8)	30(28.6)	48(45.7)
	taking a rest or sleep	14(13.3)	27(25.7)	64(60.9)
	watching a television for entertainment	22(21.0)	30(28.6)	53(50.4)
	surfing the Internet or online games	53(50.4)	26(24.8)	26(24.8)
	doing exercise	61(58.1)	25(23.8)	19(18.1)
	looking after pets	87(82.8)	16(5.7)	12(11.5)
others	having often visitors	52(49.5)	39(37.1)	14(13.4)
	buying many household items at a time	48(45.7)	42(40.0)	15(14.3)
	shopping online more than offline	43(40.9)	39(37.1)	23(21.9)

In their spare time at home, 91(86.7%) participants stated that they took a rest or slept and 83(79.0%) participants indicated that they enjoyed watching television for entertainment. Contrary to our expectations, 53(50.4%) participants stated that they rarely surfed the Internet or played online games at home. Further, 44(41.9%) participants stated that they did not exercise and 28(17.2%) participants had pets. These results revealed the activities performed within single-person households. Interestingly, 62(59.1%) participants stated that they enjoyed online shopping more than offline shopping; however, 43(40.9%) participants equally enjoyed online and shopping at stores. Fifty-seven participants (54.3%) bought many household items at the same time and thus needed storage space. Fifty-three participants (50.5%) stated that they often had visitors; however, 52(49.5%) participants stated that they rarely had visitors.

The result on the use of spaces for living activities were informative. Twenty-four participants (22.9%) did their laundry in their kitchens and 19(18.1%) participants and 38(36.2%) participants did their hair and makeup in their bathrooms. It appears that washing machines are either located in kitchens or participants use their kitchen sinks to wash clothes.

Some participants appears to do their hair and makeup in bathrooms for convenience. The majority of participants stored household items in various spaces including bathrooms, kitchens, living rooms, balconies, and utility rooms. Seventy-nine percent of participants stored clothes in their bedrooms and 21 (20.0%) participants stored clothes in their living rooms. Thus, it is clear that participants do not sufficient storage space and have to distribute their personal items and clothing across several spaces.

<Table 10> The use of spaces in relation to living activities

Activities	living room	bedroom	dining	kitchen	bathroom	balcony	utility room	foyer
changing clothes	10(9.55)	92(87.7)	0(0.0)	0(0.0)	3(2.9)	0(0.0)	0(0.0)	0(0.0)
doing makeup	13(12.4)	70(66.7)	0(0.0)	0(0.0)	19(18.1)	0(0.0)	0(0.0)	1(1.0)
doing hair care	7(6.8)	58(55.2)	0(0.0)	0(0.0)	38(36.2)	0(0.0)	0(0.0)	1(1.0)
having meals	24(22.9)	24(22.9)	44(41.9)	13(12.4)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
having snack	41(39.0)	46(43.9)	11(10.5)	7(6.7)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
doing laundry	7(6.7)	2(1.9)	0(0.0)	24(22.9)	29(27.6)	15(14.3)	28(26.7)	0(0.0)
doing dry	44(42.0)	12(11.4)	0(0.0)	3(3.0)	1(1.05)	34(32.4)	11(10.5)	0(0.0)
ironing	57(54.3)	40(38.1)	0(0.0)	2(1.9)	0(0.0)	0(0.0)	6(5.7)	0(0.0)
keeping household items	10(9.6)	6(5.8)	0(0.0)	12(11.4)	18(17.1)	9(8.6)	47(44.8)	3(2.9)
keeping books	58(55.2)	44(41.9)	0(0.0)	0(0.0)	0(0.0)	1(1.0)	2(1.95)	0(0.0)
keeping clothes	21(20.0)	83(79.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1(1.0)	0(0.0)
watching TV	57(54.3)	47(44.9)	1(1.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Internet use	43(41.0)	61(58.1)	1(1.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
working	53(50.6)	49(46.7)	2(1.9)	1(1.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
hosting visitors	80(76.2)	25(23.9)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)

4.3. Housing Preferences and the Needs for Interior Planning in Single-Person Households

Participants' housing preferences and interior planning needs were also investigated (see Table 11 and Table 12). Apartments were the most popular type of residences (59.1%), followed by houses (19.0%). Further, the preferred size of residences was 30m^2 or greater, 51 participants (48.6%) indicated that they would prefer residences of 30-60m^2 and 21 participants (20.0%) wanted residences larger than 60m^2. Participants did not view their present homes as temporary ones, thus they wanted more stable residences for their life.

In relation to household spaces, participants emphasized the importance of bedrooms (82.9%) and living rooms (63.9%). Fifty-five participants (52.4%) placed more value on bathrooms and 41 participants (39.1%) regarded kitchens as a critical space. In relation to the composition of space between bedrooms (B), living rooms (L), dining rooms (D) and kitchens (K), the results showed that the majority of participants preferred separating bedrooms and kitchens in any composition of the four spaces.

<Table 11> Housing preferences

category		frequency(%)	category		frequency(%)
residence type	apartment	62(59.1)	space composition	B/L/D/K	26(24.8)
	house	20(19.0)		B/L/(D+K)	51(48.6)
	row house	8(7.6)		B/(L+D)/K	10(9.5)
	officetel	13(12.4)		B/(L+D+K)	9(8.6)
	gosiwon	0(0.0)		(B+L)(D+K)	6(5.7)
	others	2(1.9)		B+L+D+K	3(2.9)
	total	105(100.0)		total	105(100.0)
important space (multiple reply)	foyer	10(9.5)	residence size	less than 15m^2	0(0.0)
	bedroom	87(82.9)		15-30m^2	2(1.9)
	living room	67(63.9)		30-60m^2	31(29.5)
	dining	4(3.8)		60-90m^2	51(48.6)
	kitchen	41(39.1)		more than 90m^2	21(20.0)
	bathroom	55(52.4)		total	05(100.0)
	dress room	10(9.5)	residence form	two stories-unit	16(15.2)
	study room	9(8.7)		open two stories-unit	17(16.2)
	utility room	0(0.0)		one story-unit	72(68,6)
	balcony	4(3.8)		total	05(100.0)
	storage	18(17.2)			

The results showed that participants want a flexible space layout (3.47) for their homes that can be manipulated to meet their own needs. Further, they preferred separated spaces (3.55) to one large multi-purpose space that could be divided by movable partitions or free standing furniture. Participants preferred varied plans and interior design options such as door and finishes of their choice. Additionally, they preferred built-in furniture (3.00), built-in electrical appliances (3.17), and built-in wall storage (3.83) to multiple-purposed furniture. In terms of built-in items, closets for clothes, shoes, and other items were the most needed while air conditioners, washing machines, refrigerators and microwaves for electrical appliances.

<Table 12> Housing needs on Interior planning I

housing needs				needs(M)
space layout	flexible spaces			3.47
	separated spaces			3.55
planning	varied plans			3.85
	interior design options (i.e. door, finishes)			3.68
furniture & appliance	built-in furniture			3.00
	built-in electrical appliances (i.e. refrigerator)			3.17
	built-in walls			3.83
	multiple-purposes furniture			2.79
	furniture	frequency(%)	appliances	frequency(%)
	bed	36(34.3)	refrigerator	71(67.6)
	desk	54(50.4)	microwave	68(64.8)
	bookshelf	73(69.5)	television	49(46.7)
	cloth closet	101(96.2)	air conditioner	89(84.8)
	shoes closet	103(98.1)	washing machine	74(70.5)
	storage closet	100(95.2)	drying machine	44(41.9)
	dressing table	52(49.5)	dish washer	46(43.8)

In relation to the layout of kitchens, rather than parallel type or ㄱ type kitchens for smaller residences,

32(30.5%) participants preferred ㄷ type and 30(28.6%) participants preferred island kitchen layout. Thus, it appears that single-person households place a high value on cooking and want spacious kitchen benches.

<Table 13> Housing needs on Interior planning II

category		frequency(%)	category		frequency(%)
kitchen layout	parallel type	21(20.0%)	bathroom layout	W+T+S&B	49(46.7%)
	ㄱ type	22(21.0%)		W/T/S&B	24(22.9%)
	ㄷ type	32(30.5%)		W/T+(S&B)	6(5.7%)
	island type	30(28.6%)		T/W+(S&B)	16(15.2%)
	total	105(100.0%)		W+T/(S&B)	10(9.5%)
storage items	clothes	78(74.3%)		total	105(100.0%)
	books	10(9.5%)	bathroom composition	bath tub	44(41.9%)
	bath&kitchen items	2(1.9%)		shower booth	61(58.1%)
	household items	14(3.3%)		total	105(100.0%)
	shoes	1(1.0%)	bathroom function	bathroom only	71(67.7%)
	total	105(100.0%)		laundry function	21(20.0%)
				dress room	13(12.4%)
				total	105(100.0%)

In relation to bathroom, a majority of the participants (67.7%) stated that they only needed bathrooms; however, 21(20.0%) participants and 13(12.4%) participants, respectively, wanted laundry and dressing room spaces within bathrooms. Forty-four participants (41.9%) wanted a bathtub; however, 61(58.1%) participants preferred a shower stall to a bathtub. Forty-nine participants (46.7%) wanted a combination bathroom with a washbowl, toilet, and shower stall or bath tub; however, some participants preferred bathroom components be separated according to specific functions.

5. Discussion and Conclusions

This study identified interior planning considerations for single-person households focusing on lifestyles, preferences, and needs. One hundred and five single-person households completed the survey.

The result suggests that the overall satisfaction levels of participants in relation to the interior spaces of single-person households were low, as currently, single houses have been designed as studios or single large rooms and failed to consider occupants' lifestyle. From the results, a number of significant issues need to be considered in relation to single-person households, including:

- The current status of single-person households: The monthly income of 79(75.2%) participants was more than 2,000,000 won, 86(81.9%) participants had lived alone for more than one year, 77(73.3%) participants had residences sized over 30m^2 and 89(84.8%) participants leased their residences.
- Satisfaction levels: Participants were not satisfied with the conditions of dining rooms, kitchens and storages compared to other spaces.
- Kitchen and dining spaces: When eating meals at home, 75(71.4%) participants cooked meals at home rather than eating instant or take-away foods.
- Laundry space: 89(84.7%) participants often did laundry and, surprisingly, 24(22.9) participants did their laundry in the kitchen and not in the utility room.
- Spare time: 91(86.7%) participants take a rest or slept when they had spare time at home rather than playing games or surfing the Internet for entertainment.
- Preferred residence type: Currently, the most comon type of residence was row houses (48.6%); however, apartments were the most popular type of residences (59.1%).
- Importance spaces within housings: 55(52.4%) participants placed a higher value on bathrooms and 41(39.1%) participants regard kitchens as a critical space.
- Preferred space composition: Participants preferRED independent rooms to one large multi-purpose room, but wanted flexible space layout that could be modified to meet their own needs or preferences. The majority of participants tried to separate bedrooms from kitchens.

From the results, following implications can be drawn (and should be addressed in the future interior planning for single-person households):

- Single-person households are no longer temporary forms of housing and the financial status of single-person households has improved. Thus, detailed consideration must be given to the interior planning for single homes to ensure high quality of life.
- Many participants stored household items across a variety of spaces due to insufficient storage. Thus, more effective storage spaces should be designed using built-in walls or free standing furniture.
- Cooking is an essential activities in single-person

households. Thus, more value should be placed on the planning of kitchens and dining spaces to enhance occupants' quality of life.

- Washing machines need to be more efficiently placed within residence. Thus, alternative options for the location of washing machines should be considered in interior planning. Further, more attention is needed to improve the conditions of the bathrooms.
- More comfortable environment need to be planned, as participants indicated that they rest or slept during their spare time. Additionally, more entertaining elements could be provided in single-persons' homes to elevate boredom.
- More reasonal prices, small-sized apartments should be developed for single-person households, not limited to current row houses. Further, the residential environment for row houses could be improved to meet apartment standards.
- Various plans and a variety of interior design options should be provided, including built-in furniture and built-in electrical appliances. In relation to built-in items, closets for clothes, shoes and storage need to be incorporated into designs as well as built-in electrical appliances such as air conditioners, washing machines, refrigerators, and microwaves.

This preliminary study identified novel needs within Korean housing market for single-person households. A T-test was first conducted to investigate the preferences and needs of participants based on gender, age, and marital status and residence size. No significant differences were found among these variables. For future studies, a customized interior plan will be systematically developed that depicts single-person household needs. Detailed interviews will also be conducted to extend the result of this research. Additionally, considerations will be given to other factors effecting residential housing environments such as community activities and social programs. Finally, research will be conducted on how these factors affect the quality of life of individuals living in single-person households.

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