

# Event History Analysis on Cessation of leisure activities Among Married South Korean Women from 2007 to 2018

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**Abstract:** The purpose of this study is to explore whether couples share the same amount of time together participating in leisure activities throughout their marital life. The results of the study revealed that, there are three contributing factors (financial, satisfaction with household labor distribution, and number of children in the family) that greatly affect the cessation of married couples' shared leisure activities. The importance of this study is to explore how long married couples engage in leisure activities together and when they stop doing so, as this relates to their overall marital quality of life. Quantitative methodology as the research design was used to analyze the data, specifically adopting the survival function through event history analysis. The study focuses on married women; thus, it utilized secondary data comprising public data from the Korean Longitudinal Survey of Women and Families on South Korean Women from 2007 to 2018. In this process, R was used for data preprocessing, and STATA statistical program was used for data analysis. The implication of this study is the need for policies that encourage young married couples to continue their leisure activities to enhance their overall well-being, marital satisfaction, and happiness because most of them ended up ceasing time of leisure activities within two years.

**Keywords:** Event History Analysis, Married Couples, Marital Life, South Korean Married Women, Leisure Activities

## 1. Introduction

The common occurrence of divorce in many societies is one of the underlying changes in family life[1]. One of the reasons for the growing divorce rate worldwide relates to changes in cultural norms. Married couples' decisions in relation to divorce are affected by the spread of a global culture and contemporary norms[2], such as those of individualism, human rights, and gender equality, and subsequent changes in laws, policies, as well as individual behavior[3]. For instance, divorce rates are related to a society's level of cultural individualism—societies with a higher level of individualism exhibit higher divorce rates[4]. The changes in global trends regarding marriage have resulted in a social recognition of divorce as a natural event that could occur in a marriage. Higher divorce rates have been observed in several Asian countries, including Korea, since the early 2000s[5].

Against this background, South Korea has been facing a continuous decline in its birth rate, despite government policies to counteract this trend, as well as delayed first marriages and decreasing marriage rates[6]. Institutional support to prevent marital risk and keep couples together could be a strategy to

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mitigate Korea's declining birth rate. A positive change in birth rate is associated with a decline in the divorce rate, which suggests that having children results in fewer divorces, most likely due to the higher transactional and psychological costs involved when couples with children get divorced[7]. For a country like Korea, which struggles to increase its birth rate, helping couples to maintain their marital status could be an effective way to cultivate social well-being and address low fertility rates.

So, what can be done to lower divorce rates and increase marital satisfaction? This study focuses on the role of shared cultural and leisure activities that couples engage in to maintain marital satisfaction. Previous studies showed that cultural and leisure activities are important factors in both physical and psychological health[8], and that participation in leisure activities could lead to greater physical health, happiness, and less depression[9][10]. A higher level of social activity lowers depression, while physical activities are linked to positive life satisfaction in married couples[10]. Moreover, leisure is significantly related to personal happiness, with a strong positive correlation between leisure activities and higher levels of happiness[11][12]. In the context of a family, shared leisure activities could contribute to greater satisfaction and quality of family life. The previous study has suggested that participation in family leisure activities is significantly related to family satisfaction, and helps to stabilize family interaction, communication, cohesion, and values[13]. However, few studies have examined the timing of cessation for couples' leisure activities, or the external factors that influence the timing and process of such cessation. In particular, this study focuses on Korean married woman and their marital life in terms of shared activities, which was not fully viewed by much research in the Korean context. To address this knowledge gap, this study was conducted to explore the period after which Korean couples ceased participating in leisure activities and the influence of external factors.

Considering that participation in cultural and leisure activities as a couple can have a positive effect on marital satisfaction, this study examines the length of time that married couples in Korea engage in shared leisure activities and the factors that contribute to couples ceasing their participation in these activities. Notably, this study employs an event history analysis, which is a rarely employed sociological approach. By ascertaining when a married couple loses interest in participating in shared cultural and artistic activities together, it may be possible to suggest policy measures that could help prevent such a decline, and ultimately contribute to greater levels of happiness in Korean society. For instance, married couples could be encouraged to engage in shared activities by developing cultural and artistic programs. Therefore, the study reviewed previous research, focusing on three factors including financial influences, satisfaction with the distribution of household labor, and child status, to determine whether they have an impact on the overall married life of couples. The methodology section explains the research design, instrument, respondents, data collection procedures, and statistical tools. In the discussion section, the implications of this study's findings in relation to previous research are discussed. This study concludes with a summary of its findings, description of limitations, suggestions for further studies, and policymaking recommendations. Therefore, this study aims to examine the amount of shared leisure time spent together by a married couple and its cessation throughout their marriage owing to three main contributing variables: financial factors, distribution of labor work, and child status.

## **2. Theoretical Background**

### **2.1 The Three Main Factors for a Healthy Marriage**

(1) Financial factors: Several studies have highlighted the impact of economic factors on marital life and matrimonial satisfaction. A study by [14] demonstrated that a family's financial status is directly related to marriage satisfaction and dissolution, and that couples are more likely to experience conflict and engage in negative communication when they are arguing over money matters, which may be why research by [15] found that financial issues are a major reason for marital dissatisfaction. They also

found that affluent couples are more likely to experience marital satisfaction and a healthy relationship than couples who are less prosperous.

(2) Satisfaction with the distribution of household labor: Placing the burden of housework on one person can adversely affect marital satisfaction. There are many reasons for fluctuations in the distribution of housework. For instance, as the husband's income increases, the wife's responsibility for housework increases; conversely, an increase in the wife's income increases her husband's responsibility for domestic chores[16]. That said, regardless of whether the wife has a job, the allocation of housework is significantly related to marital satisfaction among women. Research by [17] found that married women experience lower marital satisfaction when the husband performs less housework duties, which may be more indicative of the likelihood of divorce. A study by [18] showed that marital satisfaction among wives in East Asian countries, such as China, Japan, and Korea, is negatively associated with the amount of housework they perform. In East Asian countries, there are also notable differences in the way housework is divided: Chinese couples prefer equal distribution of housework, Japanese couples prefer a traditional apportioning of household chores, while Korean wives struggle to balance their participation in the labor force with the traditional allocation of housework.

(3) Children in the family: A study by [19] argued that children can positively affect couples' level of satisfaction in family life, but they negatively affect the household's financial situation. Since younger children are more dependent on their parents, the cost of raising children during their early years is higher than with older children[20]. The study by [20] also found that married couples whose children become independent early experience an improvement in life satisfaction regarding their economic situation. Furthermore, many married couples choose to marry without plans to have a child due to financial issues, especially when their income levels are low[21].

## 2.2 Relationship between Leisure Activities and Married Couples

Leisure activities play an important role in human well-being. Engagement in leisure activities can provide opportunities to reflect on the value and meaning of life, and participation in leisure activities allows people to form social relationships, experience positive emotions, and acquire additional skills and knowledge[22]. Leisure activities impact marital life in a mostly positive way; marital recreation may be positively encouraged by leisure activities[23].

In this way, leisure activities affect perceived satisfaction in life, and produce positive changes in the way people communicate. Study by [23] examined the relationship between marital satisfaction and leisure activities and the duration of marital life, and found that when married couples participate in leisure activities to increase interactions with one another, they can communicate with and understand each other better. Thus, his study concluded that shared leisure activities are positively related to marital satisfaction. Research by [24] tested the relationship between patterns in leisure activity and marital satisfaction at different levels, and discovered that couples could experience low levels of marital satisfaction, even if they participated in shared leisure activities, when their level of communication was low. Yet, they also found that high levels of participation in shared leisure activities increase marital satisfaction. The study by [24] confirmed that married couples' leisure activity patterns are vital to marital fulfillment, and that there is a correlation between individual activities or time spent with others, and marital stress. Their investigation of whether the relationship between leisure activities and marital satisfaction differs significantly for husbands and wives reveals that, compared to husbands, wives show almost twice the variance in marital distress depending on patterns in their pursuit of leisure. For couples, shared leisure participation increases their satisfaction, and the time they spend together influences overall marital satisfaction[25]. In summary, joint participation in leisure activities could diversely influence overall satisfaction in marital life.

Earlier studies have emphasized the importance of leisure activities in marital relationships; this study

aims to determine when and why married couples stop engaging in leisure activities, and the factors that contribute to this change. Existing Korean studies by [26] related to leisure activities of Korean couples have revealed the mediating effect of leisure activities on the change in childbirth and marital satisfaction in married women. External factors such as paid work and housekeeping affect leisure activity satisfaction[27]. The couple's choice of leisure activity and matching leisure activity can also affect leisure satisfaction[28]. However, studies on the timing of cessation of leisure activities in married couples are rare. To fill this knowledge gap, the study was conducted to explore when Korean couples stopped engaging in leisure activities, and how external factors influence this.

### **3. Methodology**

#### **3.1 Research Design**

This study's methodology is based on quantitative research utilizing secondary data released by a Korean government organization. The key areas of our research design include performing the survival function and executing the hazard rate model. Furthermore, this research design employed causal models to analyze rates of change between categorical variables. Consequently, it is crucial to secure data that includes the timing of information changes to develop an effective research design. In conclusion, this research model is appropriate for analyzing the dynamic processes of event changes.

This study performed an event history analysis to quantify the survival of leisure activities in marital life. This analysis aimed to find, based on the duration of the cessation of leisure activities, the survival and risks associated with couples continuing to participate in shared leisure activities. This type of analysis is popular among practicing physicians to deal with patients' survival timing; however, the tools used in those analyses have also been applied to examine many social science problems, such as the occurrence of a militarized dispute and unemployment. The current analysis examines two quantities, namely the duration and timing of an event change, usually called the "failure" of an event. In this paper, the point in time at which a married couple stops engaging in shared leisure activities is considered a "failure."

Furthermore, this study covers the years from 2007 to 2018. Data collected after 2018 may be strongly influenced by COVID-19 because of the external environmental changes, as social distancing policies may restrict leisure activities. Therefore, we only consider the data from 2007–2018, prior to the pandemic, which can provide valuable insights into couples' leisure activities.

#### **3.2 Data and Data Collection**

##### **3.2.1 Research Instrument**

This study used quantitative methodology to determine when the duration of the event ended. Particularly, it used event history analysis to understand the duration because this allows for the inspection of event duration and timing, variance over time, and shared time of leisure activities. This enables identification of trends in marital behaviors, such as the cessation of leisure activities at different ages. In addition, event history analysis can be used to observe the long-term impact of individual factors on the length of time spent engaging in leisure activities. The research endeavors to examine the long-term period of leisure activities; hence, long-term data collection was necessary. The Korean Longitudinal Survey of Women and Families (KLoWF) survey is longitudinal and depicts a long-term study that tracks various aspects of women's lives.

### 3.2.2 Study Participants

This study extracted the responses collected from married women from KLoWF; these women were set as the risk set. To isolate only the data on married women from the raw data, we extracted samples that answered “yes” to the question, “Have you ever been married?” Furthermore, only data from respondents who stated that they were currently married (in the 7th round of the survey), were considered for the analysis. As KLoWF recognizes common-law marriages (i.e., couples living together without getting formally married), this study identified respondents who indicated that they were in a common-law marriage as being married as well.

### 3.2.3 Data Collection Process

The data used in this research were obtained from KLoWF, which is a public database that collected data through seven rounds of surveys over a period of 11 years (i.e., 2007–2018). This government project was launched in 2006, and conducted its first survey in 2007 and its second in 2008; the survey was subsequently conducted every two years from 2009. The data were collected from the official website of “Korean Women’s Development Institute.” There was a section on personal data of women from the “Korean Longitudinal Survey of Women and Families”[29]. The survey was separated into three questionnaires targeting households, individuals, and workplaces, respectively. The questionnaires dealt with women’s economic activities, family situations, family values, and health in three main areas, namely family, work, and daily life. The national survey included 9,068 households. The original sample included 9,997 women between the ages of 19 and 64.

### 3.3 Research Procedure

The questionnaire items on leisure activities were divided into three categories (Activity-1, Activity-2, and Activity-3) to examine whether there are differences in the level of engagement depending on the type of leisure activity. The question about leisure activities was, “How often did you engage in the following activities together with your spouse in the past month?” For this question, we extracted the responses for “watch a movie, performance, or sports as a couple” (Activity-1), “walking, jogging, mountain climbing, or exercise as a couple” (Activity-2), and “went out to meet family or relatives, such as the in-laws or siblings of your spouse, as a couple” (Activity-3). We obtained a total of 10,304 observations from the original data. The number of observations for the three types of activities were as follows: 2,813 samples for Activity-1, 3,573 samples for Activity-2, and 3,918 samples for Activity-3. It should be noted that respondents may have engaged in more than one activity per category.

The data for the financial factor were based on the responses to three questionnaire items concerning the total amount of income earned in the preceding year. Specifically, the questions were, “What was your household’s personal and/or business income in the past year?” (eco1), “What was your household’s financial income in the past year?” (eco2), and “What was your household’s real estate income in the past year?” (eco3). The average income for the three types of income was used as data.

The distribution of household labor was set as a variable for “satisfaction with housework.” Although this study examines the timing and factors behind married couples no longer engaging in shared leisure activities, we chose to focus on the responses of married women, based on a review of the literature on the burden of domestic chores on married women. Since women are traditionally responsible for housework within a household, we assumed that higher satisfaction with housework among women would mean that the responsibility for performing household chores was fairly shared among the household members. Thus, only the samples collected from married women were used for the analysis. The responses for the questionnaire item, “Are you satisfied with the degree to which your husband shares housework, such as washing dishes and cleaning?” were extracted and coded, where 0 referred

to high satisfaction, 1 referred to average satisfaction, and 2 referred to low satisfaction.

Last, we extracted the responses for the questionnaire item asking about the married couples’ status regarding children, “Have you ever given birth?” to examine this factor as a variable. The responses were coded 0 if they answered “yes” to the question and 1 if they answered “no.”

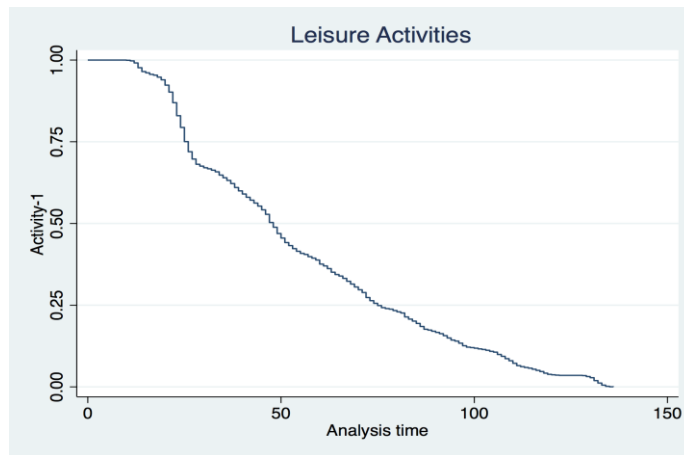
### 3.4 Analysis Process

#### 3.4.1 Event History Analysis

Event history analyses enable the examination of experiences and behaviors over time[30]. In our research, the equation used for the event history analysis was formulated as follows: Let T denote the duration random variable that represents the length of time that the married couple is active. The probability distribution function of T is denoted by  $F(t) = Pr(T \leq t)$ , and the corresponding probability density function is  $f(t)$ . The survival function is

$$S(t) = Pr(T > t) \tag{1}$$

and represents the probability of the activity until time t. For various values of t, one can infer the decline of the activity from the graph of S(t). For example, for the duration of activity spent watching movies and concerts together, the survival function S(t) is indicated in Figure 1. From the figure, we observe that married couples’ participation in shared activities declines over time. From the day a married couple starts to engage in leisure activities, they are exposed to the risk of inactivity due to many factors in married life, such as having a child and dissatisfaction with the marriage. Figure 1 presents the survival function of participation in shared leisure activities by married couples over 10 years. The x-axis represents the time in months, and the y-axis the probability of the activities declining.



[Fig. 1] Survival Function of Participation in Shared Leisure Activities for Married Couples Over 10 Years

Leisure activity 1 (Activity-1) represents outdoor activities such as watching plays and movies, and their survival function of the duration of cessation of the activity.

To quantify the risk related to the husband’s participation in household chores, we employed a hazard function. This function measures the rate of change in risk (instantaneous risk), and is expressed as

$$h(t) = \lim_{\Delta t \rightarrow 0} \frac{Pr(t \leq T < t + \Delta t | T > t)}{\Delta t} = f(t)/S(t) \tag{2}$$

The hazard function could be computed once the density and survival functions are known. The linear regression of the duration with other covariates is achieved by employing the following model for the exponential survival function:

$$\log(T) = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_j x_{ij} \quad (3)$$

where  $\beta_i$  indicates the coefficients of the linear model. The statistical significance of the model is used to infer the hypotheses in this study. By using an event history analysis, this research poses two primary questions: (1) How long do Korean married couples continue to participate in shared leisure activities? (2) Do financial factors, satisfaction with the distribution of housework, and children in the family affect the duration of shared leisure activities?

### 3.4.2 Statistical Tools for Data Analysis

For preprocessing the data set, we used the R statistical programming language. This employs a great number of packages and built-in functions for manipulating data and preprocessing large data sets[30]. For analyzing the data, we used the STATA statistical program because its survival analysis commands allow for event history analysis. The calculation of survival and hazard functions, management of censored and truncated data, and use of life tables are all made possible by these STATA instructions [31][32].

### 3.5 Data Analysis

[Table 1] Summary of the Covariates according to Activities

Couple index	activi~r	eco1	eco2	eco3	satisw	havech~d
Activity-1	54.88375	4585.255	42.07185	107.4289	.8094561	.0636331
	2813	2813	2813	2813	2813	2813
	136	16000	5000	40000	2	1
	10	-8	-9	-9	0	0
	48	4450	0	0	1	0
	26	3000	0	0	0	0
Activity-2	66.5709	4236.456	39.52735	97.71941	.815841	.0596138
	3573	3573	3573	3573	3573	3573
	137	18000	250	13333.33	2	1
	10	-8	-9	-9	0	0
	64	4080	0	0	1	0
	38	2640	0	0	0	0
Activity-3	70.9099	4118.05	37.82789	91.21462	.8379275	.0686575
	3918	3918	3918	3918	3918	3918
	137	24000	3000	10000	2	1
	10	-9	-9	-9	0	0
	69	4000	0	0	1	0
	44	2500	0	0	0	0
Total	65.033	4286.656	39.5758	97.89673	.8224961	.041498
	10304	10304	10304	10304	10304	10304
	137	24000	5000	40000	2	1
	10	-9	-9	-9	0	0
	61	4121.667	0	0	1	0
	34	2700	0	0	0	0
	93	5600	0	0	1	0

The collected data were processed and analyzed using Stata version 17 Basic Edition. The statistics are summarized in [Table 1].

As can be seen from the data in [Table 1], we examined each type of activity (Activity-1, Activity-2, and Activity-3) in the couple index (in the tables). The variables included activity duration (this variable describes actual time spent participating in activities), eco1, eco2, eco3, satisfaction with housework, and couples' status regarding children. From the top, the rows give the mean, N, max, min, p50, p25, and p75 of each variable.

[Table 2] summarizes the results of the various tests on whether there are significant differences between Activity-1, Activity-2, and Activity-3 in the couple index. Log-rank, Wilcoxon–Breslow–Gehan, Tarone–Ware, and Peto–Peto–Prentice tests were performed, which showed  $Pr>chi2 = 0.0000$ , implying the statistical significance of the test results.

[Table 2] Testing of the Accuracy for the Activity Survival Functions

Test of equality for survivor functions					
1. Log-rank test			2. Wilcoxon–Breslow–Gehan test		
Couple index	Observed events	Expected events	Observed events	Expected events	Sum of ranks
Activity-1	2813	2105.60	2813	2105.60	4944988
Activity-2	3573	3683.88	3573	3683.88	-990017
Activity-3	3918	4514.52	3918	4514.52	-3954971
Total	10304	10304.00	10304	10304.00	0
chi2(2) = 337.28 Pr>chi2 = 0.0000			chi2(2) = 395.57 Pr>chi2 = 0.0000		
3. Tarone–Ware test			4. Peto–Peto–Prentice test		
Observed events	Expected events	Sum of ranks	Observed events	Expected events	Sum of ranks
2813	2105.60	57810.599	2813	2105.60	470.43631
3573	3683.88	-10700.388	3573	3683.88	-94.329132
3918	4514.52	-47110.212	3918	4514.52	-376.10718
10304	10304.00	0	10304	10304.00	0
chi2(2) = 390.09 Pr>chi2 = 0.0000			chi2(2) = 395.89 Pr>chi2 = 0.0000		

## 4. Results

The study examined the couple index for various types of activities (Activity-1, Activity-2, and Activity-3) using variables such as activity duration, eco1, eco2, eco3, satisfaction with housework, and couples' status regarding children. [Table 1] shows the mean, N, maximum and minimum value, p50, p25, and p75 of each variable. [Table 2] reviews the results of the tests, including log-rank, Wilcoxon–Breslow–Gehan, Tarone–Ware, and Peto–Peto–Prentice, that demonstrated the statistical significance ( $Pr>chi2 = 0.0000$ ) in differences between the three activities in the couple index. Thus, credibility of the survival function has been proven in this study.

To tackle the research question, the survival times for the three different leisure activities were computed by identifying the shortest, longest, and average duration of couples' engagement in leisure activities, as shown in [Table 3]. As can be seen, most married couples continued to engage in leisure activities for an average of 65 months (i.e., about five and a half years). The shortest duration of shared



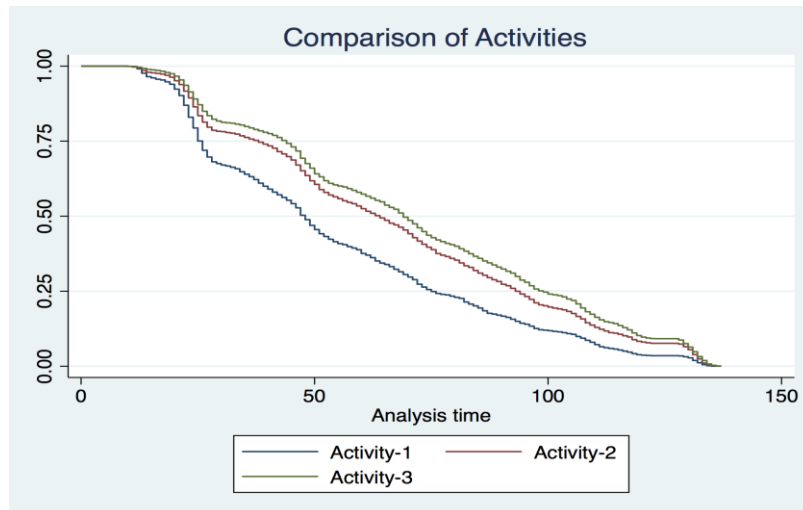
leisure activities was about 10 months, and the longest period was 137 months.

[Table 3] Duration of Engagement in Leisure Activities

Variable	Obs	Mean	Std. dev.	Min	Max
Activity dur	10,304	65.033	34.71898	10	137

[Fig. 2] presents a comparison of couples’ engagement in the three types of leisure activity (Activity-1, Activity-2, and Activity-3). The results show that engagement in Activity-1 (such as watching a movie, attending a performance or a sports event) dropped steeply, even when taking the relatively small number of observations for Activity-1 into consideration. The faster decline in engagement in Activity-1 compared to the other types of leisure activities is clearly identifiable, and the steepest drop occurs at 25 months, which is about two years after a couple’s wedding. Shared participation in Activity-1 continues to decrease gradually from 25 to 50 months. The rate of decline slows down at around 50 months, but engagement in Activity-1 continues to show a consistent drop after 50 months. Compared to the other activities, Activity-1 refers to what could be perceived as the most cultural and leisure-like activities. The fact that engagement in Activity-1 declines more significantly compared to that of other leisure activity categories is a point of concern, as it is most likely to affect marital satisfaction.

Activity-2 refers to engagement in walking, jogging, mountain climbing, and exercise as a couple. As with Activity-1, engagement in Activity-2 declines sharply at around 25 months, and again at around 50 months, after which a steady decline is observed. Activity-3 refers to meeting family or relatives, such as the in-laws or spouse’s siblings, as a couple. The engagement in Activity-3 also shows a steady decline, marked by steeper rates of decline at around 25 months, 50 months, and 75 months, similar to the other activities.



[Fig. 2] Failure of Leisure Activity by Activity Type

Next, we used an exponential regression model to examine which variables affected the failure of leisure activities. The most interesting finding is related to the *eco1* variable, which concerns the amount of personal and/or business income earned by the household in the preceding year. The *p* value for this item was 0.0, which implies that the variable has a significant negative effect on the failure of shared leisure activities. In other words, a household’s personal and/or business income has a positive influence on the continuation of leisure activities. The higher the personal and/or business income of a household,

the greater the negative effect it has on married couple's failure to engage in shared leisure activities.

Eco2 refers to the amount of financial income (e.g., profits from stocks) that the household earned in the preceding year. The p value for this variable was 0.135, showing a statistically insignificant relationship. Eco3 refers to the amount of real estate income earned by the household in the preceding year. The p value for eco3 was 0.049. The results show that this variable, like eco1, has a significant negative impact on couples' engagement in leisure activities. Thus, real estate income also has a positive influence on couples to maintain the leisure activities they engage in together, where the higher the real estate income, the greater the negative influence it has on married couple's failure of leisure activities.

In the case of the satisfaction with housework variable, 0 denotes a high level of satisfaction, 1 refers to average satisfaction, and 2 means that the wife was not satisfied with the distribution of housework. For the group that indicated 0, the p value was 0.0, implying a significant relationship, and that the impact of satisfaction with housework occurs in a negative trajectory. Therefore, the greater the level of satisfaction with the allocation of domestic chores, the more negative its impact on married couple's failure to engage in leisure activities. For the group that responded with 1, the p value was 0.199, implying that the variable is statistical insignificant. For the group that replied with 2, the p value was 0.0, indicating a significant relationship, but in this case, the direction of influence is positive. Thus, the results confirm that the lower the satisfaction with the distribution of housework, the greater the positive influence on married couple's failure to engage in leisure activities.

Last, we examined the impact of having children, where 0 indicates that the couple has a child or children, and 1 denotes a childless couple. In the case of the group that responded with 0, the p value was significant at 0.0, with an influence in the negative direction. The same held true for the group that responded with a 1; the p value was significant at 0.0, and the influence was in a negative trajectory. Thus, children have a negative influence on married couple's failure in leisure activities.

[Table 4] Results of Regression Model

Failure_d: Des						
Analysis time_t: Activity dur						
Iteration 0: log likelihood = -12042.762						
Iteration 1: log likelihood = -11888.434						
Iteration 2: log likelihood = -11886.486						
Iteration 3: log likelihood = -11886.485						
Exponential PH regression						
No. of subjects	= 10,304	Number of obs		= 10,304		
No. of failures	= 10,304					
Time at risk	= 670,100					
		LR chi2(6)		= 312.55		
Log likelihood	= -11886.485	Prob > chi2		= 0.0000		
_t	Haz. ratio	Std. err.	z	P> z	[95% conf. Interval]	
eco1	.9999399	4.35e-06	-13.82	0.000	.9999314	.9999484
eco2	.9999043	.000064	-1.49	0.135	.9997788	1.00003
eco3	.9999577	.0000215	-1.97	0.049	.9999156	.9999999
cat_satisfhw						
1	1.028938	.0228464	1.28	0.199	.9851198	1.074704
2	1.126599	.0303921	4.42	0.000	1.068579	1.187769
cat_havechild						
1	.7387586	.029834	-7.50	0.000	.6825394	.7996085
_cons	.0200182	.0005041	-155.30	0.000	.0190541	.021031

Note: cons: estimates baseline hazard.

## 5. Discussion

This study employed an event history analysis to investigate points in time at which married couples ceased to engage in different types of leisure activities together, and the variables that influenced this cessation, specifically financial factors, satisfaction with the distribution of housework, and children.

The results performed on the three variables also revealed interesting findings. First, we found that the higher the amount of personal and/or business income earned by a household in the preceding year, the greater the negative effect on married couples' failure to engage in shared leisure activities. These findings show that better financial situations allow married couples to maintain their engagement in shared leisure activities for a longer period, while for less well-off couples, the duration of shared leisure activities is much shorter. Assets in a marriage have an impact on both marital satisfaction and divorce[14]. Here, there is a positive correlation between having wealth and being married. Research by [33] explores the link between financial issues and the quality of cohabiting couples' relationships. It demonstrates that financial issues play a crucial role in relationship dynamics; cohabiting individuals are more likely to break up when their financial exchanges are unsatisfactory or when there is financial inequality in their relationship. As discussed in previous research, this study also confirmed that not only was financial status an important factor in marital relationships, but it was also an external factor that could influence the duration of leisure activities.

Second, we analyzed how women's satisfaction or dissatisfaction with the distribution of housework chores will affect married couples' continuance of leisure activities. Higher satisfaction with the distribution of housework has a negative impact on married couples' failure to engage in leisure activities together, while low satisfaction has a positive effect. Korean couples often face challenges due to the tension between traditional gender roles and the wife's participation in the workforce[18]. Compared to Japanese and Chinese wives, Korean wives had a more difficult time balancing work and domestic duties. Study by [17] investigated the effect of uneven household chores on stability and satisfaction. Their study revealed that when women shoulder a larger share of domestic responsibilities, it increases their likelihood of breaking up and leads to lower relationship quality for both partners. Consequently, as discussed in previous studies, our findings indicate that when married women were dissatisfied with housework responsibilities, shared leisure activities were engaged in for a shorter period. In this context, when the division of domestic labor is equal, the possibility of spending time on leisure activities together would be higher.

Last, we found that children negatively impact married couples' duration of engaging in shared leisure activities. However, the probability that the couple will cease to engage in shared leisure activities lessens when they have children. Research by [20] maintained that couples with dependent children tend to have lower levels of well-being than those without dependents. This literature revealed that the greater the number of dependent children living at home, the lower the level of life satisfaction, whereas the greater the number of adult children who have moved out, the higher the level of life satisfaction. Consequently, as discussed in previous studies, our findings suggest the possibility that the leisure time of couples with children is affected by a variety of factors, including a feeling of duty to take care of children, financial burdens, and a lack of time.

## 6. Conclusions

The purpose of this study is to determine how long married couples engage in leisure activities together and when they cease doing so, with regards to their overall marital quality of life. For this, we utilized three main variables that affect this discontinuation: financial factors, satisfaction with housework, and the presence of children.

This study has several limitations that need to be addressed in future research. First, the panel data

used in this study were collected through surveys conducted, on average, every two years. As such, the panel data cannot accurately represent the number of couples who ceased to engage in shared leisure activities during the two-year gaps between surveys. Second, the panel data used in this study were collected over approximately 11 years, which made it impossible to investigate the duration of the couples' marital life and engagement in leisure activities by cohort. Further longitudinal studies are necessary to tackle this task. Third, whether the couple has children should be considered with various external variables in further studies. Last, the data were collected before the COVID-19 outbreak; therefore, this study could not take the ongoing situation into account.

The duration of the couple's joint leisure activities, including various external variables, can be examined in the future. For example, the subjective factors, such as marital satisfaction and happiness, need not be considered in isolation. Environmental factors, such as time at work and geographical accessibility to leisure activities, can be considered simultaneously. In addition, this study analyzed data prior to the COVID-19 period; in the future, it will be meaningful to study the duration of joint leisure activities for couples in the post-COVID-19 era.

The implication and significance of this study contribute to the literature by providing a theoretical foundation for investigating married couples' engagement in leisure activities, and the factors that contribute to its decline. From a practical perspective, the findings of this study have implications for policies aimed at promoting marriages and well-being in marital life. Couples that stop participating in shared leisure activities in the early stages of their marriage mostly did so in the first two years. The experience of ceasing to enjoy participating in leisure activities as a couple can also affect their marital life and quality of life, which makes it desirable for policy strategies to help couples continue their engagement in leisure activities as a couple for longer periods.

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