



## DETERMINATION OF COVARIATE EFFECTS AND RISK RATIO OF DIVORCE IN NIGERIA

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### Cite this article:

Consul, J. I., O., Idochi (2025), Determination of Covariate Effects and Risk Ratio of Divorce in Nigeria. African Journal of Mathematics and Statistics Studies 8(4), 54-63. DOI: 10.52589/AJMSS-061LWDCV

### Manuscript History

Received: 20 Sep 2025

Accepted: 29 Oct 2025

Published: 11 Nov 2025

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**ABSTRACT:** *In this research, the factors contributing to divorce are examined using the Cox proportional fit. The Schoenfeld residual was used to test for the assumption of proportionality. This research determined the relationship between the observed covariates and divorce, and the risk ratio of divorce among the couples. A data set of 111 samples from the Rivers State Judiciary High Court who filed for divorce was used for this research. Some relevant observed covariates were the ages, professions and educational levels of the couples; the presence of children; the number of counselling sessions; the number of court sittings; and the times of the marriage and divorce. Results from this research revealed that the ages of the couples led to a slight increase in the risk of divorce and not having children had a greater risk of divorce. The risk of divorce decreased as the employment status of the couples changed since the employment status is related to the financial status of the couples. The risk of divorce increased as the educational level of the couples changed from illiteracy to a higher level of education. The result also revealed that divorce was not independent of the number of counselling sessions or number of sittings. The number of counselling sessions and the number of sittings are highly significant. This research highly recommends that the government should train more professional marriage counsellors and establish marriage counselling centres in most cities where seminars, conferences, workshops and enlightenment programmes are organised with the aim of reducing divorce among couples.*

**KEYWORDS:** Divorce, covariates, proportionality, risk ratio, counselling.



## INTRODUCTION

Marriage is known to be one of the oldest social institutions in a society (Anima & Ede, 2021). It is conceived as the formal union (which is typically recognised by law) of opposite sexes, such as in the case of a man and a woman (monogamy), a man and two or more women (polygamy), etc. There are four types of marriages practiced in Nigeria. They are Statutory, Customary, Church and Islamic marriages (Animashaun, 2020). The couples decide which type of marriage they engage in according to the laws of tradition. Each form has its own features that distinguish the wedding procedure from other types of celebration.

Marriage is the beginning of a new family which desires harmony, fidelity, unconditional love between couples. It is built on patience, endurance, tolerance and perseverance. It is expected that there should be proper understanding between the partners before going into marriage since marriage is a lifelong contract or lifetime affair in African societies (Arugu, 2014). Marriage should also offer security to meet the physical needs as well as emotional and sexual fulfilment. Marriages with unstable conditions manifest all forms of conflict, violence, neglect and marital crisis, which may result in separation or divorce. Divorce is the legal dissolution of a valid marriage by the judgment of a court (Kena, 2012; Nkuke & Modjadji, 2018; Mekonnen & Ayalew, 2019) while both partners are still alive, leaving them free to remarry. The rate of divorce seems to be on the increase due to the fact that people rush into and out as soon as they discover that their marriages are not what they expected (Makwanise & Masuku, 2016). Yakubu (2019) revealed that divorce figures are higher at customary courts than in Sharia customary courts. Divorce is a serious problem in Nigeria. Marriages do not all fail for the same reason (Adejare et al., 2019). There is the need to find the reason behind the increase in divorce among couples in Nigeria. Therefore, this research is aimed at examining the factors that contribute to divorce. This research will also determine the relationship between the observed covariates and divorce and the risk ratio of divorce among couples.

Koc, T. (2019) and Nkuke and Modjadji (2018) examined the factors that contribute to divorce. Anima and Ede (2021) examined the prevalence, causes and consequences of divorce. They found out that psychological, social and economic factors are some of the major causes of divorce. Anima and Ede (2021) and Mekonnen and Ayalew (2019) also discussed that unemployment, poverty, infertility, childlessness, hot temper, low income, physical abuse, adultery, etc. are factors of frustration and anger in marriage. Adejare et al. (2019) discussed some factors that influence marital stability and satisfaction, such as attitudes, in-laws, communication, etc. Koc, T. (2019) found out that the number of highly educated individuals had a positive effect on divorce and the number of illiterate people had a negative effect.



## MATERIALS AND METHODOLOGY

### Data and Description of Variables

The data used for this research is on 111 samples from the Judiciary High Court, Rivers State of Nigeria, who filed for divorce. Some relevant variables include the ages, profession and educational level of the couples, the number of children, the number of counselling sessions, the number of sittings, the time of the marriage and time of divorce.

The respective ages at marriage of the husband and wife are divided into eight categories which include “less than 24 years old”, “25–29 years,” “30–34 years,” “35–39 years,” “40–44 years,” “45–49 years,” “50–54 years” and “more than 55 years.” The profession of the husband and wife are divided into three categories which include “unemployed,” “business man or woman” and “civil servant or other profession.” The educational level of the husband and wife are divided into four categories, which include “illiterate or primary certificate,” “secondary or Ordinary National Diploma (OND),” “Bachelors of Science (BSc.) or Higher National Diploma (HND)” and “Post Graduate.” The presence of children is categorised into two, which are “Yes” and “No.” The number of counselling sessions are presented in two categories, which are “no counselling session was attended” and “counselling sessions attended.” The number of sittings during the divorce process was also divided into three categories which include “0–5 sittings,” “6–10 sittings” and “more than 10 sittings.” The survival time used in this research was calculated from the day the couple filed for divorce at the court until the day the decision on divorcement was granted or the cancellation or divorce was taken. In this study, the R Software (R Development Core Team, 2008) was used for analysis.

### Pearson Chi-square Test Statistics

The Pearson Chi-square test Statistics ( $\chi^2$ ) (Turhan, 2020) was used to test for independence under the null hypothesis ( $H_0$ ) given that

**$H_0$ :** Divorce is independent of the variable of interest.

versus

the alternative hypothesis ( $H_1$ ) given that

**$H_1$ :** Divorce is not independent of the variable of interest.

### Survival Analysis

Survival analysis is a branch of statistics that is used to analyse a dataset, in which the variable of interest is the time until an event occurs (Kartsonaki, 2016). In this study, the event of interest is divorce. In some other cases, it could be death, treatment of a disease, disease progression, graduation, etc. Survival analysis may involve time to the event data which may be censored data. Censoring is a feature of survival data that involves when the exact survival time is unknown. Right censoring occurs when the event time is known to be larger than some given time or the individuals have not had the event at the end of the study or had lost follow up. At times, some survival data may include either left censoring (Mitra & Kundu, 2008) or interval censoring (Rodrigues et al., 2018).



**Survival Function:** Let  $t$  denote the survival time and  $T$  a non-negative random variable with probability density function  $f(t)$  and cumulative distribution function  $F(t)$  given by the probability:

$$F(t) = \Pr (T < t)$$

and

$$f(t) = \frac{d}{dt} F(t)$$

The survival function  $S(t)$  is defined as the probability of being in the marriage at time  $t$  or the probability that the event of interest (divorce) did not hold after time  $t$  and is given by

$$S(t) = \Pr (T \geq t)$$

**Hazard Function:** This is defined as the conditional probability that the time of divorce will occur in the interval  $(t, t+\Delta)$  given that it has not occurred after time  $t$ , where  $\Delta$  is a short interval of length. This is expressed mathematically as

$$\begin{aligned} h(t) &= \frac{\Pr \Pr (T < t + \Delta t | T \geq t)}{\Delta t} \\ &= \frac{F(t + \Delta t) - F(t)}{S(t)\Delta t} \\ &= \frac{f(t)}{S(t)} \end{aligned}$$

The Cox proportional hazard model is used to explore the relationship between divorce times and the independent variables (Cox, 1972). The Schoenfeld residual will be used to test for the proportional hazards assumption under the standard Cox model. The R software will be used for data analysis.

## RESULTS/FINDINGS

### Descriptive Analysis

Table 1 shows the frequency distribution of the couples who had the event (divorced) according to the independent variables.

Out of 111 couples, 95 (85.6%) had the event (divorce). Of those who divorced, 22 (23.2%) had no child or children while the remaining had at least one child. In terms of the educational level of the couples, 83 (87.4%) of the husbands who divorced had Bachelors of Science (BSc.) or Higher National Diploma (HND) degrees and only 3 (3.2%) had postgraduate degrees. On the other hand, 61 (64.2%) of the wives who divorced had Bachelors of Science (BSc.) or Higher National Diploma (HND) degrees and 32(33.7%) had secondary or Ordinary National Diploma (OND) degrees. Of those who divorced, 71 (74.7%) had counselling sessions while 67 (70.5%) had at least 5 sittings and 23 (24.2%) had between 5 and 10 sittings. In terms of the profession of the couples, 60 (63.2%) of the husbands who divorced were civil servants or other



professions, 30 (31.6%) were business men while 44 (46.3%) of the wives who divorced were civil servants or other professions, and 43 (45.3%) were business women.

**Table 1: Frequency distribution of the couples who had the event (divorced) according to the independent variables**

Variables	Frequency (%)	Variables	Frequency (%)
Age of husbands		Age of wives	
≤ 24 years	1 (1.1%)	≤ 24 years	17 (17.9%)
25–29 years	10 (10.5%)	25–29 years	51 (53.7%)
30–34 years	37 (39%)	30–34	18 (18.9%)
35–39 years	28 (29.5%)	35–39 years	5 (5.3%)
40–44 years	13 (13.7%)	40–44 years	3 (3.1%)
45–49 years	2 (2.1%)	45–49 years	1 (1.1%)
50–54 years	2 (2.1%)	50–54 years	0 (0%)
≥ 55 years	2 (2.1%)	≥ 55 years	0 (0%)
Presence of children		Number of sittings	
No	22 (23.2%)	0–5 sittings	67 (70.5%)
Yes	73 (76.8%)	6–10 sittings	23 (24.2%)
		More than 10 sittings	5 (5.3%)
Educational level of husbands		Educational level of wives	
Illiterate or primary (0)	1 (1.1%)	Illiterate or primary (0)	1 (1.1%)
Secondary or OND (1)	8 (8.4%)	Secondary or OND (1)	32 (33.6%)
BSc or HND (2)	83 (87.4%)	BSc or HND (2)	61 (64.1%)
Post graduate (3)	3 (3.1%)	Post graduate (3)	1 (1.1%)
Profession of husbands		Profession of wives	
Unemployed	1 (1.1%)	Unemployed	8 (8.4%)
Business men	34 (35.8%)	Business women	43 (45.3%)
Civil Servant or others	60 (63.1%)	Civil Servant or others	44 (46.3%)
Counselling session			
No counselling session (0)	24 (25.3%)		
Had counselling session (1)	71 (74.7%)		

### Bivariate Analysis

We sought to find out whether the status of divorce of the couples was independent of the age group of the couples. The results from Table 2 shows that divorce is independent of the age of the husband ( $p = 0.5042$  at  $\chi^2_7$ ) and the age of the wife ( $p = 0.8693$  at  $\chi^2_5$ ). The results also showed that divorce was independent of the presence of children ( $p = 0.3623$  at  $\chi^2_1$ ), the profession of the husband, 372 ( $p = 0.91$  at  $\chi^2_2$ ), the profession of the wife ( $p = 0.4834$



at  $\chi^2_2$ ), the educational level of the husband ( $p = 0.8389$  at  $\chi^2_2$ ) and the educational level of the wife ( $p = 0.9393$  at  $\chi^2_3$ ). The results also show that divorce was not independent of the number of counselling sessions ( $p = 0.05$  at  $\chi^2_1$ ) and the number of sitting ( $p = 0.0427$  at  $\chi^2_2$ ).

**Table 2: Bivariate analysis using the Pearson Chi-square test**

Variables	P value
Age of husbands	0.5042
Age of Wives	0.8693
Presence of children	0.3623
Profession of husbands	0.9137
Profession of wives	0.4834
Level of education of husbands	0.8389
Level of education of wives	0.9393
Number of counselling session	0.0500
Number of sitting	0.0427

### Test of Proportionality

Table 3 shows the Schoenfeld residuals of the data used in this research.

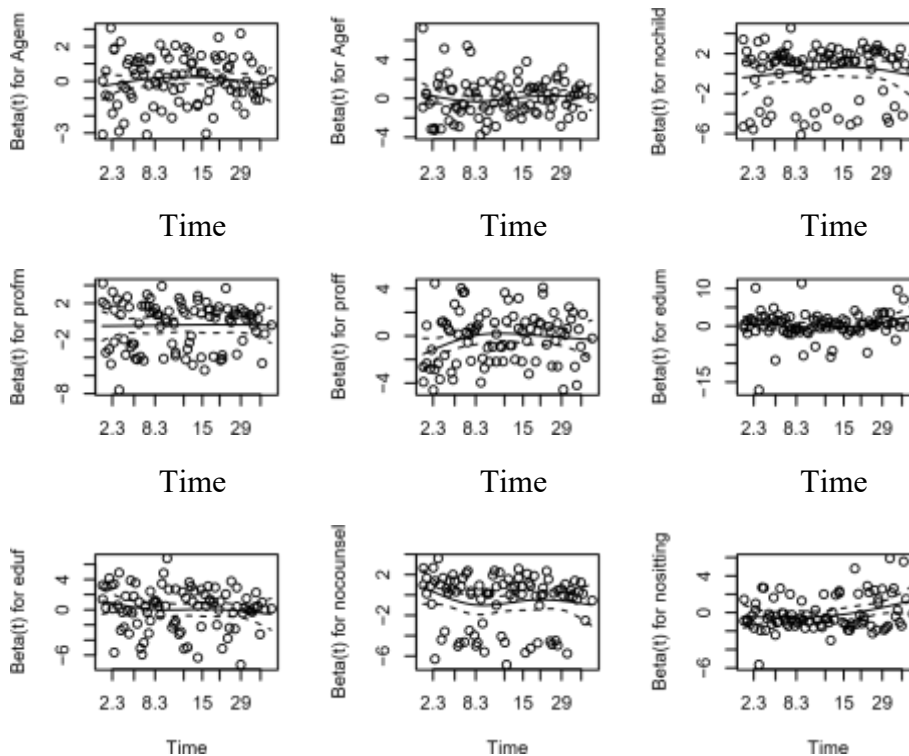
**Table 3: Test of Cox proportional hazards model assumption**

Variables	Chisq	P value
Age of husbands	0.0002	0.99
Age of Wives	0.2810	0.60
Presence of children	0.4580	0.50
Profession of husbands	0.1250	0.72
Profession of wives	0.4440	0.51
Level of education of husbands	0.1800	0.67
Level of education of wives	40.2400	0.62
Number of counselling session	1.1700	0.28
Number of sitting	3.5500	0.06
Global test	1.0700	0.30

The Schoenfeld residual will be used to test for the proportional hazards assumption under the standard Cox model. The table presents the results for testing the proportional hazards assumption for each variable and the global test. The result shows that all variables met the standard for the Cox proportional hazards model. None of the variables violated the proportional hazards assumption, and hence, all the variables should be used in the analysis. Figure 1 shows the plots of Schoenfeld residuals of all variables. The figure also shows that all variables satisfied the proportional hazard assumption.



**Figure 1: Plots of Schoenfeld residuals of all variables**



**Cox Proportional Fit**

The Cox proportional fit of the data is given in Table 4.

**Table 4: Test of Cox proportional hazards model assumption**

Variables	Coef	exp(Coef)	P value
Age of husbands	0.0683	1.0700	0.5634
Age of Wives	0.0410	1.0421	0.8015
Presence of children	0.2400	1.2808	0.3394
Profession of husbands	-0.4143	0.6608	0.0898
Profession of wives	-0.2128	0.8083	0.2983
Level of education of husbands	0.2310	1.2600	0.4759
Level of education of wives	0.1390	1.1493	0.5852
Number of counselling session	-0.5440	0.5800	0.0319
Number of sitting	-0.1280	0.8792	0.4971

The likelihood ratio test of p-value = 0.3933 showed very low significant effects of at least some covariates. By inspection, the test showed that the number of counselling (no counsel) is highly significant. The hazard ratio estimate of the effect of the age of the husbands and wives



are 1.07 and 1.04 respectively. Therefore, increasing the age of the husbands leads to an increased risk of divorce at a rate of 7% a year while increasing the age of the wives leads to an increased risk of 4% a year. The ages of the husbands and wives do not seem to be important. Not having children has a greater risk of divorce with a hazard increase of 28%. The hazard ratio estimate of the effect of the profession of the husbands is 0.66076. As the professions of the husbands change from unemployed to business men to civil servants or other professions, the risk of divorce decreases. This is also the case for the hazard for the effect of the profession of the wives, which is 0.80831. Therefore, the profession of the husbands and wives are also important factors. Increasing the educational level of the husbands from illiteracy to secondary, BSc. and post graduate also increases the risk of divorce. This is also the case for the educational level of the wives. The risk of divorce ratio of either attending or not attending counselling sessions was 0.58. This indicates a decrease in the risk of divorce if the couples attend counselling sessions. The risk of divorce ratio of having 5 or less, between 5 and 10, and more than 10 sittings was 0.87. This indicates a decrease in the risk of divorce if the couples had more number of sittings.

## DISCUSSION

The results from this research showed that increasing the age of either the husband or the wife leads to a slight increase in the risk of divorce, and hence, the ages of husbands and wives do not seem to be important to divorce. Results also showed that not having children has a greater risk of divorce with an increase in hazard. This means that not being able to have children is a major life problem contributing to divorce in Nigeria. The results also showed that the risk of divorce decreased as the profession of the husbands or wives changed from unemployed to business men to civil servants or other professions. Therefore, the professions of the couples are important factors. The employment status is related to the financial status of the couples. Therefore, when the couples (especially the husband) are unemployed and unable to meet the family needs, this affects the stability of the marriage. The state of joblessness or unemployment significantly increases the risk of divorce.

The results revealed that increasing the educational level of the husbands from illiteracy to secondary, BSc. and post graduate also increased the risk of divorce. This is also the case for the educational level of the wives. It is believed that the more educated a woman is, the more stubborn and less submissive she becomes. It is also believed that an educated woman is well enlightened on her rights under the boundaries of marriage.

The results indicated that divorce was not independent of the number of counselling sessions. It is also given that the number of counselling was highly significant. Marriage counselling is an interactive process that is characterised by a unique relationship between counsellor(s) and the couples. It will help couples resolve conflicts and improve their relationship by making thoughtful decisions about rebuilding the relationship or going their separate ways. This means that there is an efficacy of counselling in marital stability. Counselling will help couples understand the expectation of marriage, the task of parenthood and the qualities of a good partner, such as love, patience and understanding. The success of the marital counselling sessions also depends on each partner's motivation and dedication to the process of counselling. Couples are also expected to become better listeners and communicators. The



counselling session can hereby curb the instability in marriages and enhance a healthy relationship and thereby reduce the rate of divorce among couples.

The results also showed that divorce was not independent of the number of court sittings during the divorce process. The Matrimonial Causes Act mandates the court not to be quick to grant divorce. The judge acts as the first reconciliation of the couples. He or she tries to make sure the couples try the option of reconciliation during court sittings. This happens through active steps of the court (during court sittings). It is clear that the number of court sittings of reconciliation is very much effective on the divorce. The judge commences the hearing of the divorce when reconciliation fails.

## **CONCLUSION**

The family is an important unit of every society. Marriage is the beginning of a new family. It is required that every family should be at peace. Marriage with unstable conditions may result in divorce and so this research has examined the factors that contribute to divorce and the risk of divorce among couples.

This research recommends that traditional and religious marriage counselling should be strengthened or carried out in every community in order to give the couples better training for better family responsibilities which will intervene in the rate of divorce. It is also recommended that child marriage should be discouraged since maturity is an important factor in marriage. Furthermore, more professional marriage counsellors should be trained. This research also suggests that the Government of Nigeria should help to establish premarital and marriage counselling centres in most cities and seminars, conferences, workshops and enlightenment programmes for both intending and married couples. This might lead to a reduction of divorce among couples.

## **FUTURE RESEARCH**

This research also recommends further research where a semi-structured interview or questionnaire be prepared to collect data from the couples, which is a limitation of this research. The data to be collected should include information on factors such as character, communication, financial problems, infidelity, etc. which may contribute to divorce among couples. In addition, pre-marriage counselling and training for couples on character, child care responsibilities, communication, conflict management skills, etc. should be organised.



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