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Variations in First Union Dissolution Patterns among the Lebou, Peuhl, Sereer, Toucouleur, and Wolof in Senegal

Justin Dansou

Abstract

Major changes have been observed in recent decades both in the mode of union formation and in the stability of conjugal unions in Sub-Saharan Africa. Although these changes are known to vary in intensity across countries, variations across ethnic groups within countries are still not well studied. The present study investigates ethnic variations in the dissolution of first union in Senegal, focusing on five ethnic groups: Lebou, Peuhl, Sereer, Toucouleur and Wolof. It attempts to examine the specific effect of ethnicity and to identify underlying mechanisms of action of ethnic variations in union dissolution among men and women. The study uses data from a biographical survey on “vulnerabilities and chronic poverty” in Senegal (2008-2009) and event history analysis techniques. Kaplan-Meier survivor functions were used to explore bivariate relationships and Cox semi-parametric hazard model for multivariate analysis. Results showed that ethnic differences in the hazard of union dissolution become apparent only after controlling for the effects of cumulated fertility, education and birth cohort highlighting the persistence of cultural differences between ethnic groups that cannot be explained by only standard sociological and demographic variables. Ethnicity practices continue to shape marital outcomes in Senegal, especially after controlling for other covariates. This study suggests the need for large-scale and more detailed data covering all Senegalese ethnic groups for a better understanding of the complexity and the persistence of domestic and matrimonial customs and traditions in matrimonial relationships.

Keywords: marriage, divorce, union dissolution, ethnic group, Senegal, biography

1. Introduction

In sub-Saharan Africa (SSA), union dissolution has become one of the main drivers of family instability in most countries [1], with a declining proportion of women in marital unions [2]. In this region, under the influence of acculturation factors and socioeconomic modernism, major changes have been observed in recent decades in various areas including both mode of union formalization and their subsequent stability [3]. The investigation of the evolution of family patterns has begun to draw the attention in this part of the world not only of researchers but also of policymakers. However, due limited data a little is known about union

dissolution in SSA [1]. The changes in family transformations are observed in the mode of constitution of the unions, and in their dynamics: rise of the age at first union, simplification of union formation rules and the extent of celibacy [3]. Based on systematic estimates of union dissolution in 33 SSA countries including Senegal, Clark and Brauner-Otto [1] found that beyond substantial geographic variation, union dissolution is common in most countries investigated and far exceeds the risk of widowhood as a cause of union instability. Progress in education especially for girls was revealed to be among the leading causes of those changes [3, 4]. The great diversity in social, economic and cultural practices, including marital ones, across the subcontinent likely yields subnational variation in prevalence of union dissolution [5].

In general, functional families love, rear and protect children and buffer them from negative effects [6]. As a result, union instability could moderate its consequences for children [5]. While extensive evidence pays attention on worse outcomes [7, 8], other focuses on positive outcomes [9] of parents' separation on children outcomes. But, the majority of evidences come from studies in European and American families [9–14]. However, studies from low and middle income countries including African countries, have linked parents' separation to worse outcomes on children [5, 15–17]. Sub-Saharan African children with separated parents experience significantly amplified mortality risk [5, 16, 18] than their peers whose parents remain in union. Clark and Hamplová [16], for example, found in 9 SSA countries (Ethiopia, Kenya, Malawi, Tanzania, Congo “DRC”, Liberia, Nigeria, Sierra Leone, and Zambia) that union dissolution is negatively associated with child survival. SSA children with separated parents are also more likely to be malnourished [17], have lower probability of entering school [19], lower probability of achieving university [11], and more likely to be poor [14]. In Abeokuta metropolis (Nigeria), children with separated parents are prone to drug addiction, armed robbery, commercial sex workers and other forms of criminal activity [20]. The same study also established that children who grow up in a single parent family are more likely to be used for trafficking, rituals, and house helps than their peers who grow up with both parents. In short, understand the underlying factors and mechanisms of action of union dissolution in SSA is not only a moral obligation, but also, an essential mean to guide actions toward human development improvement especially at the young ages.

Meanwhile, despite the mounting interest in explaining trends and differentials in union transformation in SSA during the past decades, evidences of the ethnicity membership variations in union dissolution remain fragmentary and unknown. As a result, the role of ethnicity membership in unions dissolution variations remains obscured in this region including Senegal. In Senegal, underlying factors and mechanisms of unions transformation remain under investigated. Although predominantly Muslim, the Senegalese's ethno-linguistic composition is much complex comprising many ethno-linguistic groups among which Wolof (Wolof, and Lebou), Pulaar (Fula, Laobe, Peulh, Toucouleur), Sereer, Diola, Manding (Malinke, Manding, Soce), Other (Balante, Bambara, Bassari, Conagui, Khassonke, Mancagne, Manjaag, Maure, Sarakhole, Other) [21]. Each ethnic group with its own customs and dialect. The largest single ethnic group is the Wolof, who counts for over one-third of the population [22].

Studies examining families' transformation in general, and the union dissolution in particular, within Senegal are scarce. Until the eve of independence, the investigation of family changes held little attention of researchers as well as Senegalese policymakers. For instance, the results of Dakar's 1955 census paid little attention to the subject [23]. Moreover, the role of the ethnic background, well known in sociodemographic changes, remain underexplored in the evolution of family

patterns studies in SSA in general and Senegal in particular. This study aims to examine variations in first unions dissolution between ethnic groups within Senegal. It covers the whole country, in reverse to some past studies which focused on Dakar (capital of the country) [24]. The present study investigates ethnic variations in the dissolution of first union in Senegal, focusing on five ethnic groups: Lebou, Peuhl, Sereer, Toucouleur and Wolof. It attempts to examine the specific effect of ethnicity and to identify underlying mechanisms of action of ethnic variations in union dissolution among men and women.

2. Literature review

This section is organized into two parts. The first section showed differences between ethnic groups and underlying factors that might intermediate ethnicity and union dissolution (potential intermediate variables), while the second one focused on factors that are not likely related to ethnic differences (confounding variables) but, which might induce union dissolution differences.

2.1 Ethnicity differences and potential intermediate variables for union dissolution

Some studies have provided evidence on the relationship between ethnicity and union dissolution in SSA [3, 25, 26]. In Ghana, matrilineal ethnic groups have significant higher dissolution rates than patrilineal groups [1]. Evidence at subnational level (in Nigeria), also showed the importance of ethnicity in union dissolution [25].

In Senegal, variations between regions and ethnic groups in classic sociodemographic changes (mortality, fertility, etc.) are well known. Studies investigating the underlying factors with sociodemographic changes in Senegal, have consistently shown great variation in mortality and fertility between regions and between ethnic groups [27]. The Senegalese 1988 census data, have shown that fertility rates are highest among the Sereer, while infant mortality rate is at its lowest among the Peuhl [28]. In 2002, cumulated fertility was at its highest level (6.3) among the Sereer and lowest among the Wolof (5.6) [29]. Senegal's census data of 1988, revealed distinct patterns among ethnic groups. The Sereer are among the most flexible and non-resistant ethnic groups [21]. Remarriages persist in Senegal. Therefore, the proportion of separated women in Senegal is low at a given time. It was estimated at 4% in 1997 [30], 4.2% in 2005 [31] and 2011 [32]. It is shown to be more frequent in the urban areas, especially at Dakar. About one third of first unions at Dakar ended up by dissolution and followed in majority by remarriage. Most of first unions dissolution were initiated with the purpose of remarriage [24]. Also, polygamy is well known in Senegal. However, relative to other sub-Saharan African countries, first union dissolution is far lower in Senegal. In rural Malawi, after 25 years, almost 65 percent of the first unions have been dissolved [33].

Institutionally, unions formation and the process of their subsequent dissolution were recorded by both the Senegalese civil law and the Islamic law. The colonial legislation through the Mandel Decree of 15 June 1939 fixed the minimum age for first union at 14 years for women and 16 years for men and required the consent of the spouses as key requirement as the Islamic law also stated. Later, in 1990, the Family Code brought the minimum age for union to 16 for girls and 20 years for men. With regards to unions dissolution, it is institutionalized in Senegal. It is stated in the Senegalese civil law in 1972 (Family Code), and later considered as a fact and

not as a fault. Before, it was stigmatized and considered as a social risk since it causes single parenthood [34] with its numerous consequences. It may be dissolved either by the justice, or by repudiation (the more frequent). In 1972, the law has given the women the right to initiate union dissolution if she wants [35].

Despite, such legislation, variations between ethnic groups about family patterns persist. Preferential unions and early age unions exist in almost all Senegalese ethnic groups [23] even though they have declined over time. In 1960 in Pikine (Senegal) among current unions, 40% were compelled unions, 37% after the agreement of the young girls, and only 23% were the young girls' own choice [36]. With cultural modernism, ethnically heterogeneous unions become more and more common among the younger generations in particular among the most acculturated [37]. Among some ethnic groups like Sereer, the process of union formation remains predominately managed at family level. The Sereer women are free to choose their partners [36]. Even though, the choice of partners has been made flexible over time, parental consent still required. Parents ensure the respect of alliance rules [4], and play key roles to ensure union stability. Under this setting, in case union dissolution occurs, the wife is considered failing in her main duties, especially towards the family in law [23]. Among the Toucouleur, it is customary to never ask consent of the girl especially when she is virgin. In this ethnic group women's first union is the most compelled. Among the Peuhl, men could get married at age 14 and girls at age 11 [23].

Furthermore, the Senegalese 2002 census report, has shown spatial variations in some indicators such as education and nuptiality, linked to the variation in ethnic compositions between areas. For instance, in areas like Tambacounda, Kolda and Matam, predominantly Peuhl, the median age at first union was lower than elsewhere in the country and was explained by the early age at union/marriage which characterizes the Peuhl ethnic group who were the majority ethnic group in these areas. In addition, these areas (Tambacounda, Kolda and Matam, predominantly Peuhl), less urbanized, showed the lowest education level in the Country [29]. The fact that the Peuhl live mostly in less urbanized areas is in agreement with their main occupation – beef breeding. The same report also revealed important variations in union dissolution rates between the place of residence and between age groups. In rural area, union dissolution rates were high between 30-49 years and lower, otherwise.

Childlessness within the first marriage is found to have strong impact on union stability [3, 25, 26, 33, 38–43]. This result is consistent with almost all of the previous studies and is in agreement with the purpose of union formation everywhere, especially in SSA. The family that emerge from a union has some basic functions which makes it unique [44]. Among those functions, conception and birth [45]. Some societies used to validate the union after the first positive pregnancy experience of the couple. For instance, in Ivory Coast, it was a tradition among the young Dagara and Lobi women to prove their fertility through childbearing before marriage [46]. In the Wolof culture (in Senegal), marriage relied essentially on procreation. In this society, in cases of polygamy, the first wife has authority over all other cowives. But she will lose her place if she doesn't conceive.

Several studies reported the early age at first union among the leading risk factors for union dissolution [1, 3, 26, 38, 43]. At very young age, many grooms are too young to be able to carry the heavy load responsibilities involved in marital life. As a result, union dissolution is likely to be more common among couples who are poorly prepared to undertake such responsibilities [39]. In addition, a large age difference between spouses significantly reduces the risk of union dissolution and may be an indication of a greater submissiveness of women to the authority of their

husband [33]. Marital history impacts union stability [39, 47]. Primary unions (where the two partners had never been in union) are more unstable than those where at least a partner had ever been in union (being currently in union, or separated, or widowed). In other circumstances, polygyny was found among union dissolution accelerators [24, 33]. The risk of union dissolution increases when a woman inter union into a household where other wives are present.

Education was also found with significant influence on union instability. In some cases, the relationship between union dissolution and female education is found to be negative [1, 38, 42]. Under other circumstances its influence appears to be non-linear, with the lowest union dissolution rates observed among uneducated women and among the highest educational groups [3, 26, 43, 48].

2.2 Potential confounding factors for union dissolution

Social acceptance/recognition of separation is considered as an important risk factor in the increasing in unions dissolution rates in Africa in this 21st century [40] even though, evidences aren't consistent about its evolution over time in SSA countries. While some found a stable or even a decline in unions dissolution among women in SSA countries [1, 3], others point to the rising number of SSA women who are currently separated [17, 41, 48]. For example, Adjamagbo et al. [3] found no significant variation in unions dissolution among generations of women (three generations were considered: those born before 1972, between 1972-1981 and after 1982) in two West African cities Cotonou (Benin republic), and Lome (Togo). This study reported a decline in unions dissolution over time (by considering the same generations as for women) among men in Lome (Togo) and no significant variation in Cotonou (Benin republic). In Lome (Togo), men born between 1972 and 1981 were less likely to experience union dissolution compared to those born before 1972. Another study in West Africa (Burkina Faso) reported a rising in the risk of unions dissolution among young women cohort of union - women's first unions that took place between 1975-1989 and 1990-2000 were more likely to be dissolved compared to those taking place before 1975 [26]. The decline in the level of involvement of families in the matrimonial life of the younger generations [49] is one of the explanations of the latter finding. The young generations become more and more master of their matrimonial life.

Furthermore, on the other hand, Dial [35] categorized the causes of women's union dissolution into three categories including material causes, problems of couple, and familial causes. Material causes of divorce, refer to, among other, the incapability of the husband to take good care of the wife and also his inability to meet the material needs of the woman. Causes pertaining to the lack of love in the couple and other factors behind union deterioration were cited under couple problems for unions dissolution. The presence of family members (family in law and other relatives) in the household was found to increase the risk of union dissolution and considered among family causes. The co-residence of the spouses is a much stronger covariate of union dissolution. Union with husband staying usually in the household have lower dissolution probability [33].

Union dissolution was also found to be closely associated with women's socio-economic status [1, 26, 33, 35, 50]. Women's socioeconomic independence significantly increases the likelihood of divorce, especially among couples with children. Urbanization is associated to higher union dissolution risk in SSA [1, 25, 26]. In Senegal, the continuing local migration toward the capital (Dakar) remains a key factor in changes in family patterns [35]. It remains among the leading causes of the declining of parental control over the young generations about matrimonial issues [4].

3. Data and methods

3.1 Data

The study draws on data from the survey “vulnerabilities and chronic poverty in Senegal” conducted in 2008-2009. It used mixed methods design combining quantitative and qualitative approaches. Qualitative approach consisted of collection of respondents’ life narration while the quantitative approach relied on collection of quantitative biographies. This paper used data from the quantitative approach of the study. The study was nationally representative with two-stage cluster sampling drawn from the study “enquête de suivi de la pauvreté (EPS, 2006)”, which was based on national census bodies. At the first stage, districts (75) were selected and households (16 per district) at second degree. Thus, 75 districts were sampled and 1,200 (75*16) households were reached. The study reached its initial sample size (a total of 2,400 respondents on account of 2 respondents per household), by adopting a replacement strategy in case of unavailability of any sampled household. The quantitative approach, conducted during 6 months, used two types of questionnaire. Household questionnaire and biographic questionnaire. The biographic questionnaire was preceded by the AGEVEN slip. Data were cleaned and all datasets were merged. The merged data consisted of 2,048 individuals instead of 2,400 initially investigated (352 individuals were removed due to large dating inconsistencies) [51]. Respondents (including men and women) were aged 10 years or above at the time of the survey. For each union, among others, its rank, and the marital status of partners before the union were collected. Likewise, the outcome of the union (ongoing or dissolved or widowhood), and the date of its termination (if any) were collected.

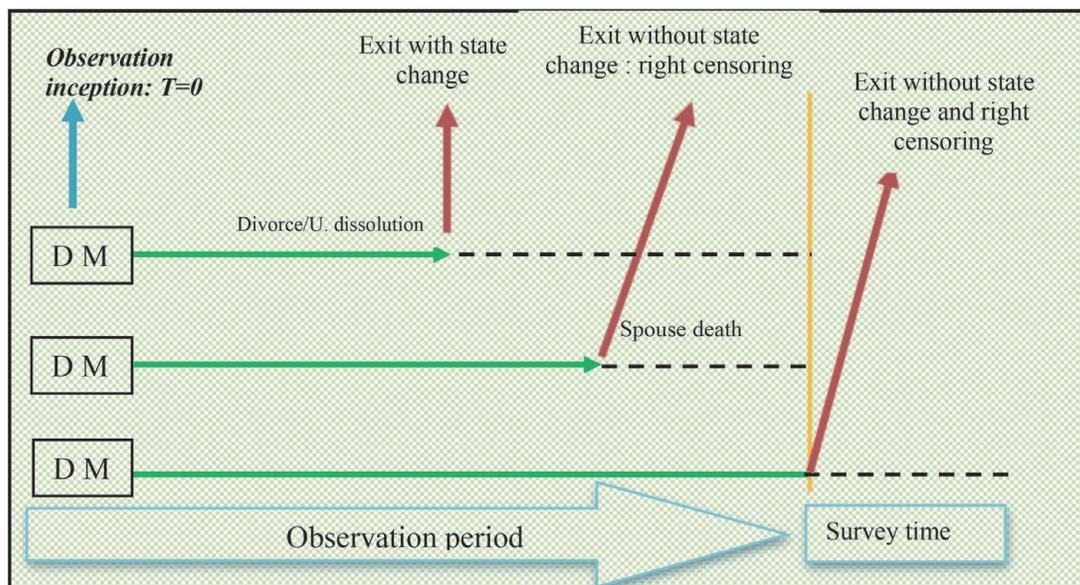
3.2 Methods

Two types of methods relating to event history analysis were employed. These are Kaplan-Meier comparative curves (at descriptive level) and Cox semi-parametric regression models (at multivariate level). The Kaplan Meier curves were used to explore the comparative survival curves of first unions dissolution according to the five ethnic groups. This method doesn’t allow to explore the influence of several independent variables simultaneously. It considers the study population as homogeneous by estimating the risk distribution for the whole population without taking into account the influence of individual characteristics. The biographical approach allows, at multivariate level, to estimate the role of each characteristic on the risk of occurrence of the event over time [52]. Proportional hazards regression using a partial maximum likelihood function to estimate the covariate parameters in the presence of censored time to failure data [53] has become widely used for conducting survival analysis [54]. Cox proportional hazard models present the advantage to highlight potential differences in the risk of divorce by a wider number of explanatory variables. Cox models take into account time change variables, too. Past studies have also adopted this approach while assessing union dissolution [26, 33]. The hazard of divorce for an individual at a given time t is a function of a baseline hazard function that left unspecified, and a linear function of a set of fixed covariates that are exponentiated [55, 56]. The hazard ratio (e^{β}) can be interpreted as the ratio of the estimated hazard for those with value 1 to the reference category. For quantitative covariates, we subtract 1 from the hazard ratio and multiply by 100 to obtain the estimated percent change in the hazard rate for each one-unit increase in the covariate [55].

The adequacy of Cox semi parametric proportional hazards regression depends on how well one of its major assumptions have been heeded. It is the proportional hazards assumption. This assumption has been checked. At least the main independent variable (ethnicity), almost, met that assumption.

3.3 Conceptualisation of the event under study: 1st unions' dissolution

This study investigated respondents' first unions. This union may be a second or higher rank for the partner. The study took into account all types (legally formalized or non-legally formalized/consensual union) since the survey did not distinguish cohabiting unions from formal ones. The study took into account all kinds of union dissolution: either legally or repudiation. Throughout the text, union dissolution is preferred not divorce. A union is at risk of dissolution from the moment of 1st religious marriage/cohabitation and remains at risk until its dissolution, or until the time of the survey (when it doesn't occur), when it is removed from the risk set without contributing to the count of events. **Figure 1** presents the conceptualization of the first unions' dissolution.



D M: Date of 1st religious marriage/cohabitation

Figure 1. Conceptualization of the event under study: 1st unions' dissolution.

3.4 Variables and expected outcomes

3.4.1 Dependent variable

The dependent variable associated with this event is a time variable, measured for each individual subject at risk. It equals to either the duration of observation (if the event does not occur until the time of the survey) or the duration at the time of event (if it occurs). The time is measured in year.

3.4.2 Independent variables

Independent variables included based on past studies and their availability in the data were: ethnicity (main independent variable), place of residence,

socioeconomic status, existence of domestic/servant in the household, education, age at first union, partner's marital status, knowledge of serious mishap/disaster, times of dining together daily, de-cohabitation, birth cohort, cumulated fertility.

3.5 Analytical strategy

The study adopted an analytical strategy guided by the searching for mediating causal relationships. It distinguished: main independent variable X (ethnic group), potential intermediate variables Z_s (Age at first union, education, cumulated fertility, place of residence, and birth cohort), and a series of confounding variables W_k (Socioeconomic status, existence of domestic/servant, marital status, knowledge of serious mishap/disaster, times of taking meals together daily, and de-cohabitation). The influence of confounding variables was simply controlled. The strategy involved the estimation of several equations.

1. a single equation $Y = f(X)$ for the gross effect of ethnic group and one equation $Y = f(Z)$ for each potential intermediate variable for the gross effect of each of the potential intermediate variables;
2. a series of equations $Y = f(Z, X)$ for the effect of each potential intermediate variable net of the effect of ethnic group. If a variable mediates the effect of ethnic group, the effect of this variable net of that of ethnic group should be lower than its gross effects whereas the net effect of ethnic group should be lower than its gross effect;
3. a series of equations $Y = f(Z, X, W_k)$ for the effect of each potential intermediate variable net of the effect of ethnic group and all control variables W_k .
4. a single equation including all potential intermediate variables and all control variables for the net effects.

All analyses were performed separately for men and women.

4. Results

4.1 Sample characteristics

Table 1 showed percent distribution of the study population by selected background characteristics. There were five ethnic groups represented in the sample, the top first was Wolof (44.9%), the majority ethnic group in the country, while 22.3%, 15.0%, 11.0% and 6.8% were the Peuhl, the Sereer, the Toucouleur, and the Lebou, respectively. Half of respondents (51.6%) lived in rural area. They were born between 1918 and 2000. The average age of respondents at their first marriage was 22.6 ± 0.18 years. Most (88%) of respondents did not have domestic servant in their household. Forty-one percent (41.5%) of respondents did not have any formal education while 30.8% attended the secondary or higher-level and 27.7% attended the primary level of education. Most of respondents (81.1%) got their first union with a partner who had never been in union. Among respondents, half was male. The majority of respondents (70%) had at least three children at the time of the survey.

Variable	Frequency	Percent
Ethnic groups (1,469)		
Wolof	659	44.9
Lebou	100	6.8
Toucouleur	162	11.0
Peuhl	328	22.3
Sereer	220	15.0
Place of residence (1,474)		
Urban	713	48.4
Rural	761	51.6
Socio-economic status (1,474)		
Non-poor	610	41.4
Poor	864	58.6
Existence of domestic/servant (1,447)		
No	1269	87.7
Yes	178	12.3
Education level (1,433)		
Uneducated	595	41.5
Primary	396	27.7
Secondary or above	442	30.8
Age at first union/marriage (1,460) Mean = 22.6±0.18		
Less than 18 years old	354	24.2
18-25 years old	658	45.1
Above 25 years old	448	30.7
Partner's marital status at the union (1,457)		
Single	1182	81.1
In union/ever been in union	275	18.9
Knowledge of serious mishap/disaster (1,474)		
Never	761	51.6
Before 35 years old	213	14.5
After 34 years old	500	33.9
Times of taking meals together daily (1,398)		
Three times or more	1260	90.1
Twice or less	138	9.9
De-cohabitation (non-co-residence after union) (1,379)		
No	1133	82.2
Yes	246	17.8
Birth cohort (1,474)		
Before 1954	314	21.3
1954-64	578	39.2
1965 or above	582	39.5

Variable	Frequency	Percent
Cumulated fertility (1,474)		
0	147	10.0
1	131	8.9
2	158	10.7
3 or above	1,038	70.4
Sex (1,474)		
Male	740	50.2
Female	734	49.8

Source: Estimations based on data from the survey "vulnerabilities and chronic poverty in Senegal", 2008-2009.

Table 1.
Description of study population by selected variables.

4.2 Sample description by potential intermediate variables breakdown by the main independent variable (ethnicity)

Table 2 showed the distribution of the study population by potential intermediate variables according to the main independent variable. Corresponding p-value based on Pearson chi-square test were also presented. Except birth cohort (p-value = 0.274), all other intermediate variables seem to be statistically associated to ethnic group. The Peuhl involved in the present study lived, in majority, in rural area (74.4%), were uneducated (57.5%), were young (born after 1964: 57%). With regards to Wolof, slightly more than half (53.7%) lived in urban area, 40% were educated (secondary or above), 50% was born after 1964 and 44% went into union between 18 and 25 years. Most (73.1) of Wolof had three or more children at the time of the survey. The Sereer were half (52.3%) rural dweller, uneducated (55%), born after 1964 (55%) and were most (73%) with at least three children and went into their first union between 18 and 25 years (48%). More than half of Toucouleur (58%) lived in urban area, 67% had at least three children, 37% was uneducated, 54% born after 1964. Relative to other ethnic groups, the Peuhl and the Sereer were the least educated (57% and 55% respectively were uneducated) ethnic groups, they lived in majority in rural areas (74% and 52% respectively). Except the Lebou (47%) all respondents from other ethnic groups were most (more than half) young, born after 1964. With regards to fertility, most of subjects investigated regardless of the ethnic background were with at least three children at the time of the survey.

4.3 Prevalence and comparative curves of union dissolution

Before elaborating on the net effects of the searching of potential intermediate variables of union dissolution, it is worth looking at the prevalence of union dissolution and the probabilities of surviving in union in the five ethnic groups. **Figure 2** showed the levels of first unions' dissolution across the five ethnic groups. The discrepancy between the different ethnic groups is striking. The highest level (20%) of first unions' dissolution is noticed among the Lebou and the lowest (9%) was recorded among the Peuhl. The proportion of union dissolution is estimated at 11.4, 11.7 and 12.4 among the Sereer, the Toucouleur and the Wolof, respectively. Overall, the difference among all the five ethnic groups is significant at 10% level (Test

Variable (n)	Ethnic group: n (%)					p-value*
	Wolof	Lebou	Toucouleur	Peuhl	Sereer	
Age at first union (1,455)						
Less than 18 years	139 (21.4)	24 (24.0)	44 (27.3)	94 (28.8)	52 (24)	0.048
18-25 years	291 (44.7)	46 (46.0)	61 (37.9)	151 (46.3)	105 (48.4)	
26 or above	221 (33.9)	30 (30.0)	56 (34.8)	81 (24.8)	60 (27.6)	
Cumulated fertility (1,469)						
0	49 (7.4)	15 (15)	18 (11.1)	37 (11.3)	28 (12.7)	0.041
1	49 (7.4)	9 (9)	18 (11.1)	36 (11)	18 (8.2)	
2	79 (12)	12 (12)	17 (10.5)	36 (11)	13 (5.9)	
3 or above	482 (73.1)	64 (64)	109 (67.3)	219 (66.8)	161 (73.2)	
Place of residence (1,469)						
Urban	354 (53.7)	71 (71)	95 (58.6)	84 (25.6)	105 (47.7)	0.000
Rural	305 (46.3)	29 (29)	67 (41.4)	244 (74.4)	115 (52.3)	
Education (1,428)						
Uneducated	209 (32.3)	28 (29.1)	59 (37.1)	181 (57.5)	116 (55)	0.000
Primary	178 (27.5)	45 (46.9)	54 (34)	65 (20.6)	53 (25.1)	
Secondary or +	260 (40.2)	23 (24)	46 (28.9)	69 (21.9)	42 (19.9)	
Birth cohort (1,469)						
Before 1954	156 (23.7)	20 (20)	29 (17.9)	59 (18)	42 (19.1)	0.274
1954-64	172 (26.1)	33 (33)	44 (27.2)	82 (25)	56 (25.5)	
After 1964	331 (50.2)	47 (47)	89 (54.9)	187 (57)	122 (55.5)	

p-value based on Person chi2 test.
Source: Estimations based on data from the survey "vulnerabilities and chronic poverty in Senegal", 2008-2009.

Table 2.
Description of study population by potential intermediate variables breakdown by the main independent variable

of proportions equality¹, p-value=0.08). Likewise, some differences are significant between groups taken by twos.

Based on Kaplan Meier comparative survivor curves, the probabilities of surviving of first unions in the five ethnic groups (**Figure 3**) highlight discrepancies between the different ethnic groups. Though still uncontrolled for other factors, these differences are statistically significant (log-rank test = 10.8 and Pr = 0.028). Yet, the Lebou's first unions seem unstable. Their survival curve is below that of the four other ethnic groups. After 20 years, about 95 percent of the first unions among the Lebou remains intact. The Lebou were the less represented in these data while the Wolof were the most represented. However, by considering all ethnic groups without Lebou, the statistical differences regarding the survivor functions noticed earlier disappear (log-rank test = 1.69 and Pr = 0.639). The differences remain (log-rank = 10.28 and Pr = 0.016) when the statistical test is tested without the majority ethnic group (Wolof).

¹ 5-sample test for equality of proportions without continuity correction (prop.test() with R software).

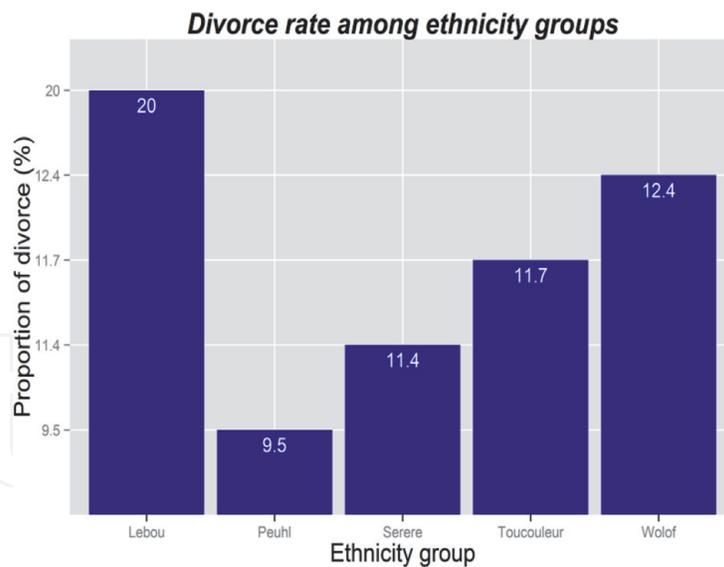


Figure 2. Union dissolution rates among the five ethnic groups. Source: Estimations based on data from the survey “vulnerabilities and chronic poverty in Senegal” 2008-2009.

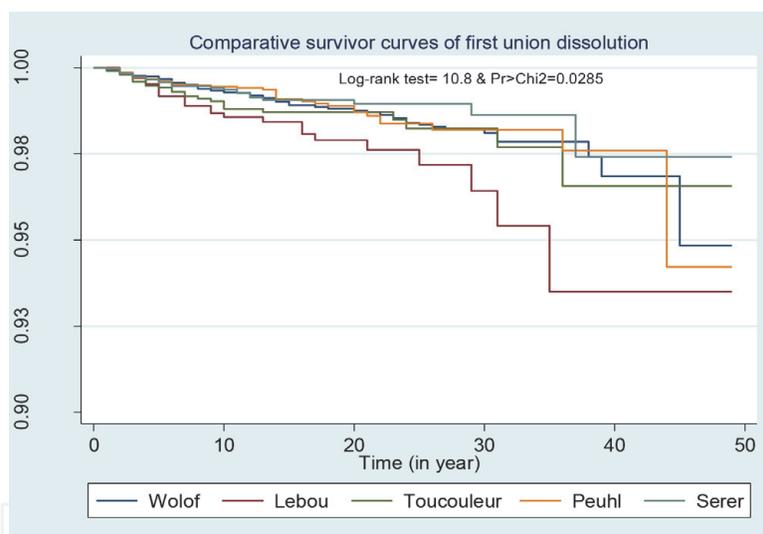


Figure 3. Kaplan Meier survival curves of first unions' dissolution. Source: Estimations based on data from the survey “vulnerabilities and chronic poverty in Senegal” 2008-2009.

4.4 Ethnic variations in the hazards of union dissolution: risk factors and underlying mechanism of action

Table 3 presented unadjusted hazard ratios (Gross effects) of first union dissolution of the main independent variable and all potential intermediate variables. It also showed the adjusted hazard of union dissolution of each potential intermediate variable controlling for ethnic groups. The unadjusted equations showed no statistically significant ethnicity difference. In addition, the pairwise comparisons of the hazards of union dissolution between ethnic groups showed no significant difference. Among the potential intermediate variables, except the age at first union, all other variables were significantly associated to first union dissolution. Findings also revealed a negative and linear relationship between union dissolution and the

Variable (Reference)	Gross effects		Age at first union/marriage		Cumulated fertility		Place of residence		Education		Birth cohort	
	M	F	M	F	M	F	M	F	M	F	M	F
Ethnic group (<i>Peuhl</i>)												
Wolof	1.2	1.0	1.2	1.0	2.1**	1.1	1.0	0.8	1.4	1.0	1.4	1.0
Lebou	2.0	1.9	2.1 ⁺	1.9 ⁺	4.2**	2.1*	1.8	1.4	2.3*	1.5	2.7*	2.2
Toucouleur	1.0	1.6	1.0	1.5	1.0	1.7	0.9	1.1	1.2	1.2	1.2	1.8
Sereer	1.0	0.8	0.9	0.7	1.5	1.0	0.9	0.7	1.0	0.7	1.2	0.8
Age at first union/marriage (< 18)												
18-25 years old	0.8	1.0	0.8	1.0								
Above 25 years old	1.0	1.7	0.9	1.6								
Cumulated fertility (3 or above)												
0	20.2**	7.8**			26.0**	7.6**						
1	16.8**	10.4**			21.6**	10.6**						
2	8.7**	4.1**			9.9**	4.1**						
Place of residence (<i>Urban</i>)												
Rural	0.6**	0.3**					0.6**	0.4**				
Education level (<i>Uneducated</i>)												
Primary	0.8	2.0**							0.7	1.8**		
Secondary or above	0.8	0.2**							0.7	0.2**		
Birth cohort (<i>Before 1954</i>)												
1954-64	1.6 ⁺	1.0									1.6 ⁺	1.0
1965 or above	2.9**	2.9**									3.3**	3.0**

Source: Estimations based on data from the survey "vulnerabilities and chronic poverty in Senegal", 2008-2009.

*Significant at 5 % level.

⁺Significant at 10%.

**Means significant at 1 % level.

Table 3.

Hazard of first union dissolution: gross effects, and net effects by controlling for the joint effects of each potential intermediate variable and that of ethnic groups (Cox model, under STATA 13).

cumulated fertility, especially among men. Relative to those with three or more children, the hazard ratio of union dissolution is higher among those with fewer or no children [For men: HR = 20.2 and 8.7 among men with no children and those with 2 children, respectively; among women they were 7.8 and 4.1 respectively]. The gross hazard of union dissolution is negatively associated to female education [HR = 2 for less educated (primary level) women against 0.2 among more educated (secondary or above) women]. Union dissolution risks are also higher among young generations (born after 1964), relative to their older (born before 1954): [HR = 2.9 among both men and women]. The hazard of union dissolution is lower in rural area: [HR = 0.6 for men and 0.3 for women].

However, when estimating the difference between ethnic groups while estimating those of cumulative fertility, education and birth cohort, net differences among ethnic groups appear and the initial differences (gross effects) across cumulated fertility categories, within education levels and within birth cohorts remain. Controlling for the effect of place of residence did not induce ethnic variations though

differences between urban and rural areas remained. The age at first union remained non-significant and failed to induce ethnic differences while controlling the joint effects. The age at first union has no significant impact on union dissolution, though ethnic differences in age at first union exist in Senegal. When controlling the joint effects of ethnicity and that of cumulated fertility, the effect of the various levels of cumulated fertility change a bit while the hazards of union dissolution are higher among Wolof (Men) and Lebou (Men and women). In other words, for a given level of cumulated fertility, the hazard of union dissolution was higher among the Wolof (men) and still higher among the Lebou (men) than among the three other ethnic groups. However, the pairwise comparisons of the hazards of union dissolution between ethnic groups showed significant differences in the hazards only between Lebou and Peuhl (HR of Peuhl = 1.0 and Lebou = 4.2) and between Toucouleur and Lebou (HR of Toucouleur = 1.0 and that of Lebou = 4.2).

By estimating the joint effect of ethnic groups and education, the hazard of union dissolution becomes higher among Lebou (men). In other words, for a given level of education, the hazards of union dissolution were visibly higher among the Lebou than among the four other groups. Despite such result, pairwise comparisons of the corresponding hazards between ethnic groups reported no significant difference. The net effect of birth cohort by controlling that of ethnic groups also showed similar results. For a given birth cohort, the hazards of dissolution were higher among the Lebou (men) than among men from the other four ethnic groups: [HR = 2.7 among the Lebou and less than 1.5 for each of the four other ethnic groups]. Only the differences between female from Wolof and Lebou (HR of Wolof = 1.0 and Lebou = 1.7) were significant. In the meantime, the hazards of union dissolution still higher among the young generations (relative to older generations).

Table 4 presented the net effects between ethnic groups while controlling for the joint effects of each potential intermediate variables and all control variables. The influence of each of the four potential intermediate variables significant in previous equations viz. cumulated fertility, place of residence, education, and birth cohort remained. When estimating the effect of ethnic groups and those of education and all control variables the net differences between ethnic groups found earlier (in the equation involving ethnic groups and education) become non-significant though the net differences within education categories remained. In the equations involving cumulated fertility and birth cohort the net differences between ethnic groups found above (equations involving ethnic groups and each potential intermediate variable) remained. In other words, for a given level of cumulated fertility, the hazard of union dissolution remains higher among the Wolof (hazard for men = 2.4) and still higher among the Lebou (hazard for men = 4.5) than among the three other ethnic groups even after controlling for the joint effects of cumulated fertility and all control variables. Likewise, for a given birth cohort, the hazard of union dissolution remained higher among the Lebou men (hazard = 2.4) than among the four other ethnic groups. In the meantime, the net differences within cumulated fertility categories and those between the birth cohorts remained. In the equation involving the levels of cumulated fertility, pairwise comparisons of the hazards of union dissolution between ethnic groups showed the following differences among men as statistically different: Wolof vs Peuhl (HR : 2.4 vs 1.0), Lebou vs Peuhl (HR 4.5 vs 1.0), and Toucouleur vs Lebou (HR: 1.1 vs 4.5). Lebou and Wolof men had higher hazards. As in the case of age at first union, equations involving place of residence and education did not show any net difference between ethnic groups. Then, our assumptions forecasting differences between ethnic groups in term of age at first union, place of residence and education as intermediate variables were inconsistent. No significant difference in

Variable (Reference)	Gross effects		Age at first union		Cumulated fertility		Place of residence		Education level		Birth cohort	
Ethnic group (<i>Peuhl</i>)												
Wolof	1.2	1.0	1.0	0.9	2.4**	1.0	1.0	0.8	1.2	1.1	1.2	1.0
Lebou	2.0	1.9	1.9	1.4	4.5**	1.3	1.9	1.2	2.2*	1.3	2.4*	1.7
Toucouleur	1.0	1.6	0.8	1.2	1.1	1.3	0.8	1.0	1.0	1.1	1.0	1.6
Sereer	1.0	0.8	0.6	0.7	1.3	0.9	0.7	0.7	0.7	0.7	0.8	0.8
Age at first union/marriage (< 18)												
18-25 years old	0.8	1.0	0.6	0.8								
Above 25 years old	1.0	1.7	0.7	1.2								
Cumulated fertility (3 or above)												
0	20.2**	7.8**			34.5**	8.1**						
1	16.8**	10.4**			26.1**	11.7**						
2	8.7**	4.1**			9.7**	3.6**						
Place of residence (<i>Urban</i>)												
Rural	0.6**	0.3**					0.6*	0.4**				
Education level (<i>Uneducated</i>)												
Primary	0.8	2.0**							0.6	1.6*		
Secondary or above	0.8	0.2**							0.7	0.2**		
Birth cohort (<i>Before 1954</i>)												
1954-64	1.6*	1.0									1.6*	0.9
1965 or above	2.9**	2.9**									3.0**	3.1**
Socio-economic status (<i>Non-poor</i>)												
Poor			1.0	0.8	1.3	0.7	1.2	1.0	1.0	0.8	1.0	0.8
Existence of domestic/servant (<i>No</i>)												
Yes			1.0	1.8*		1.3		1.4	1.3	1.5	1.2	1.9*
Partner's marital status at the union (<i>Single</i>)												
In union/ ever been in union/married			1.0	1.2	0.9	1.0	0.9	1.1	0.9	1.0	1.0	1.3
Knowledge of serious mishap/disaster (<i>No</i>)												
Yes			1.0	0.9	1.1	0.7	1.1	0.9	1.2	1.0	1.1	1.0
Times of dining together daily (<i>Three times</i>)												
Twice or less			2.6**	1.5	1.6	1.4	2.3**	1.2	2.7**	1.3	2.5**	1.5
De-cohabitation (stopping living together) (<i>No</i>)												
Yes, job			1.2	0.4	0.9	0.4	1.2	0.5	1.1	0.4	1.2	0.4
Yes, migration of partner			1.1	0.8	1.1	0.7	1.2	0.8	1.0	0.6	1.1	0.7
Yes, couple problems			3.7**	1.8	4.1**	2.4*	3.4**	1.8	4.3**	1.5	3.9**	1.6

Source: Estimations based on data from the survey "vulnerabilities and chronic poverty in Senegal", 2008-2009.

**Significant at 5 % level.

*Significant at 1 % level.

*Significant at 10%.

Table 4.

Hazard of first union dissolution: gross effects and net effects by controlling the joint effect of each potential intermediate variable, ethnic groups, and all control variables (Cox model, under STATA 13).

the pairwise comparisons of the hazards between ethnic groups was noticed in the equations involving other potential intermediate variables (place of residence, age at union and birth cohort). Among control variables, only “times of taking meals together daily” and “reason for stopping living together” showed significant difference among men. The hazards of union dissolution were higher among men who reported taking meals twice or fewer daily in their household and among those who stopped living together with their partners due to problems in their couple.

Table 5 presented net effects of the hazards of union dissolution between ethnic groups while taking into account all potential intermediate and control variables in a single equation. It reveals that ethnicity variations remained especially among men. Men in Wolof and Lebou ethnic groups had 2.6 times more chance and 5.6 times more chance, respectively to experience union instability relative to the Peuhl (men), keeping all study variables constant. In addition of ethnicity variations, the influence of 4 selected intermediate variables (cumulated fertility, place of residence, education, and birth cohort) reported earlier with significant effects remained. Increasing cumulated fertility reduced the hazard of union dissolution: relative to those with three or more children the hazard ratio is about 41 times among men with no children and 11 times among men with two children. Among women they were 6.5 and 3.3, respectively. More educated women (with secondary or above) was about 80% less likely to experience union dissolution while a young woman (born after 1964) had 2.2 times more risk to experience union instability. It was further discovered that only 1 out of 6 control variables (reason for stopping living together) was statistically significant after controlling for all study variables. Men who reported problems of couple as motive of stopping living with their partner were 3.7 times more likely to have union dissolution. The pairwise comparisons of the hazards of union dissolution between ethnic groups (after controlling for all study variables) showed the following differences among men as statistically different: Wolof vs Peuhl (HR : 2.6 vs 1.0), Lebou vs Peuhl (HR: 5.2 vs 1.0), Toucouleur vs Lebou (HR: 1.2 vs 5.2), and Sereer vs Toucouleur (HR: 1.1 vs 1.2).

5. Discussion

This study examined variations in first unions' dissolution among five Senegalese ethnic groups viz. Lebou, Peuhl, Sereer, Toucouleur, and Wolof using biographical data of the survey “vulnerabilities and chronic poverty in Senegal” conducted in 2008-2009.

The rate of first union dissolution ranked from 9.5% (among the Peuhl) to 20% (among the Lebou) in the current study area. It was lower relative to corresponding national estimates based on demographic and health surveys (23.4%) and also low relative to the levels observed in other sub-Saharan countries such as Congo Brazaville (51.0%), Central African Republic (50.0%). Union dissolution rate in Senegal was high relative to the levels observed in other SSA countries such as in Burkina Faso (17.2%), in Benin (17.9%) [1].

The present study adopted an analytical strategy aiming the searching of potential intermediate variables of ethnicity differences in union dissolution. It consisted of performing a series of equations at four different stages suspecting that differences between ethnic groups in union dissolution could be mediated by some other variables identified as intermediate variables (age at first union, place of residence, cumulated fertility, education, and birth cohort). Unadjusted hazard ratios (gross effects) failed to report ethnicity differences in union dissolution. However, ethnicity variations became visibly apparent only after controlling for some of potential variables suspected being intermediates variables and confounding variables (in

Variable (Reference)	Gross effects		Net effects	
	M	F	M	F
Ethnic group (<i>Peuhl</i>)				
Wolof	1.2	1.0	2.6**	1.3
Lebou	2.0	1.9	5.2**	1.5
Toucouleur	1.0	1.6	1.2	1.4
Sereer	1.0	0.8	1.1	0.8
Age at first union/marriage (< 18)				
18-25 years old	0.8	1.0	0.7	0.8
Above 25 years old	1.0	1.7	0.7	0.6
Cumulated fertility (3 or above)				
0	20.2**	7.8**	41.0**	6.5**
1	16.8**	10.4**	32.0**	11.2**
2	8.7**	4.1**	10.9**	3.3**
Place of residence (<i>Urban</i>)				
Rural	0.6**	0.3**	0.6 ⁺	0.6 ⁺
Education level (<i>Uneducated</i>)				
Primary	0.8	2.0**	0.6 ⁺	1.5
Secondary or above	0.8	0.2**	0.8	0.2**
Birth cohort (<i>Before 1954</i>)				
1954-64	1.6 ⁺	1.0	1.0	0.8
1965 or above	2.9**	2.9**	1.6	2.2 ⁺
Socio-economic status (<i>Non-poor</i>)				
Poor			1.6 ⁺	0.8
Existence of domestic/servant (<i>No</i>)				
Yes			1.3	1.0
Partner's marital status at the union (<i>Single</i>)				
In union/ ever been in union/married			0.9	0.9
Knowledge of serious mishap/disaster (<i>No</i>)				
Yes			1.2	0.8
Times of dining together daily (<i>Three times</i>)				
Twice or less			1.5	1.3
De-cohabitation (stopping living together) (<i>No</i>)				
Yes, job			1.0	0.3
Yes, migration of partner			1.1	0.5 ⁺
Yes, couple problems			3.7**	2.0

Source: Estimations based on data from the survey "vulnerabilities and chronic poverty in Senegal", 2008-2009

*Significant at 5 % level.

**Means significant at 1 % level.

⁺Significant at 10%.

Table 5.

Hazard of first union dissolution in Senegal: net effect by controlling all study variables (Cox model, under STATA 13).

some bivariate and multivariate equations). At bivariate level, when estimating the difference between ethnic groups while estimating those of cumulated fertility, education and birth cohort net differences between ethnic groups appeared. These results were uncommon and reversed our expectations regarding the structure of relationships between ethnicity and selected variables. When estimating the effect of either education or birth cohort the hazard of union dissolution was higher among the Lebou than among the four other ethnic groups. When controlling for the cumulated fertility, the hazard of dissolution was higher among the Wolof men and still higher among the Lebou men than among the three other ethnic groups. This means that there are cultural differences between the ethnic groups that cannot only be explained by standard sociological and demographical variables, but that become apparent only when taking the effect of these standard variables viz. education, cumulated fertility and birth cohort into account.

It was further discovered, after controlling for the effects of all study variables (intermediate and control variables) in a single equation, that the hazard of dissolution was higher among the Wolof men and still higher among the Lebou men than among the three other ethnic groups. In Senegal, though all ethnic groups place important value on procreation (cumulated fertility varying between 5.6 among the Wolof and 6.3 among the Sereer according to the 2002 census report), some ethnic specificities exist. For instance, in the Wolof culture where union essentially based on procreation in cases of polygamy (however legalized), the first wife has authority over all other wives. But she will lose her place if she doesn't conceive. If lack of procreation will lead to a loss of authority of the first wife, possibly it may induce a higher union dissolution risk and, then, could contribute to the higher union dissolution hazard observed among the Wolof men while controlling for the effect of cumulated fertility. With regards to the Lebou, first, they were the less represented (only 100 subjects) in the study sample. The Lebou have a dissolution rate higher than what would be expected from their composition along the standard variables (cumulated fertility, education and birth cohort) inducing net differences between the ethnic groups. However, their composition according to the place of residence may contribute to their higher dissolution hazard. Results showed that living in urban area increased the hazard of union dissolution and the Lebou involved in the present study lived in majority (71%) in urban area relative to other ethnic groups.

With regards to the Peuhl, they were the least acculturated – less educated, lived in majority in rural area. This could account for their lower union dissolution hazard. Also, the Peuhl's unions are too often, the most ethnically homogeneous. Even though, the Peuhl were known for their early age at union, this variable did not impact union stability in Senegal.

In Senegal, the colonial legislation through the Mandel Decree of 15 June 1939 and the Islamic law required the consent of the spouses as a key union requirement. Female from Sereer ethnic group are allowed to choose their partner. This could contribute to their lower union dissolution hazard similar to that of the Peuhl. In reverse, among the Toucouleur, despite the requirement of consent as condition of validity of unions, it is customary to never ask consent of the girl especially when she is virgin. But, they were found with lower hazard of union dissolution similar to that of the Peuhl. This could be explained by their education and place of residence. About 3 out of every 5 Toucouleur lived in rural area and 37% was uneducated.

Studies examining the influence ethnicity searching for potential intermediate variables as adopted here are very scarce especially in Senegal. However, ethnic variations in union dissolution reported by the present study was in agreement with past studies [25, 26, 33, 57] looking at ethnicity as mere control variable. In Cameroon, Wakam [57] found that unions of some ethnic groups such as Bamileke, Mbembe and Bakosi-Mbo are more stable than those of Maka, Baya, Kaka and Fang.

In Burkina Faso, ethnicity differences in first unions dissolution were reported among women. Compared to the Gourmantché, Peuhl, Gourunsi, Bobo-Bwa, and Lobi-Dagari, the Mossi women showed a lower risk of first union dissolution [26]. Ethnically homogenous unions were less likely to experience separation in rural Malawi [33], and in Burkina Faso [26].

Fertility was a key factor for union stability in Senegal. The importance of procreation as a goal of the conjugal union is valued in Senegal. The Senegalese 2002 census report reported high fertility level among the ethnic groups. The highest cumulated fertility (6.3) was recorded among the Sereer and the lowest (5.6) among the Wolof. However, the key role of procreation in union stability reported by the present study is in agreement with past studies' findings. Childbearing plays a key role in matrimonial life [58], especially on the union's stability [39, 48]. According to a traditional thinking based on fertility test of the couple, once in union, African woman has to prove her ability to contribute to the descendant perpetuation [58] that constitutes afterwards an old age insurance for the parents [59, 60]. Even in rural Bangladesh, it was reported a lower contraceptive use before first birth [39]. In other circumstances, the lack of childbearing and even of a boy influenced the formalization of consensual union in West Africa [3]. Alam et al. [39] reported similar results in Bangladesh. Some societies used to validate the union after the first birth of the couple. For instance, it was a tradition among young Dagara and Lobi women from Ivory Coast to prove their fertility through childbearing before marriage [46].

Though the place of residence failed to mediate ethnic differences, its influence was found, however, determinant for union stability. Residence in rural area decreased the hazard of union dissolution. Such evidence is consistent with Takyi [48]. It is, also, in agreement with the statement of Kulu and Boyle underlying the necessity of examining variations in union dissolution across areas [61]. Perhaps, social disorganization thesis based on the key role that play acculturation factors (urbanization, etc.) in union dissolution explained by Takyi [48], could account for the spatial variations in union dissolution. Despite such result, evidences are not consistent. In Burkina Faso, the place of residence didn't make any difference in first union dissolution [26].

Education was found among standard variables making net differences between ethnic groups apparent only after controlling for their effects. Increasing education decreases the hazard of union instability, especially among more educated (secondary or above) women, keeping all other study variables constant. However, unadjusted hazard ratio and the net effects of education without other potential intermediate variables (equations: education + ethnicity, and education + ethnicity + all control variables) reported a higher union dissolution risk among less educated (primary level) and lower risk among well-educated (secondary or above) relative to uneducated women. These findings, however, were in agreement with past studies by Thiombiano and LeGrand [26]. In Burkina Faso Thiombiano and LeGrand reported higher risk of first union dissolution among women with primary education attainment after controlling the influence of individual characteristics. The influence of education in union dissolution varies across areas. While in Cotonou (Benin Republic) high union dissolution risk was reported among women from the first level of secondary school, in Lomé (Togo), no association was found [3].

The effect of birth cohort was found inconsistent with our expectation regarding its mediation effect. Little differences in the distribution of the study population by birth cohort breakdown by ethnic groups were noticed. Though the relationship between birth cohort and ethnic groups was not statistically significant (**Table 2**), after controlling for their effects, net differences between ethnic groups become apparent among men. In addition, it was further discovered that young women

(born after 1964) were more likely to have union dissolution relative to older people (born before 1954). Past studies [26] also reported similar findings regarding variations in dissolution hazard according to birth cohort. In Burkina Faso, the younger generations (between 1975 and 1989, and between 1990 and 2000) were more likely to have union dissolution than older people (marriage cohort before 1975). The influence of both the place of residence and generation were the consequences of socio-economic and technologic development (urbanization, etc.) reported by previous studies [23, 25, 40, 48, 49, 62]. According to some authors, urbanization and socio-economic development, among others, weaken social control of the older adults over the young. Evidences are inconsistent, however. Elsewhere, reverse effect of that one of our study was found. Adjamagbo et al. [3] found that men born between 1972-1981 in Lome (Togo) were less likely to experience union dissolution compared to older people born before 1972. The same study reported no significant variation in union dissolution according to the generation of birth in Cotonou (Benin republic) [3]. Older citizens cohort' unions were more stable because of strong involvement of families in their matrimonial life [49].

6. Limitations

I must acknowledge the limitations of this study. First, data from the biographic survey "Vulnerabilities and chronic poverty" conducted in Senegal in 2008-2009" used for the study were limited for this study; since it was not a specific study on family transformations. For instance, possible effect of ethnically heterogeneous unions on unions' stabilities were not possible. We couldn't distinguish formal (legally formalized) unions from informal ones (cohabiting/consensual/living together). Unions legally dissolved were not distinguishable from repudiation/informal dissolution. In a place where union formation is often an informal and fluid process [63], as it is the case for the context of the present study, identifying precise dates of union dissolution can be difficult, if not impossible [1]. Possibility of omitting previous unions is also acknowledged in this study. For instance, recent study in Malawi reported that 28.3% of men and 17.9% of women omitted at least a union. The same study reported that misreporting also affects marriage indicators and potentially analyses [64]. Thus, this study's findings may also be affected by memories biases since union dissolution as collected by the survey was recalled so many years, even decades ago. Little information was collected on the respondents' partners. In addition, this study was limited in terms of sample size. As result, two ethnic groups were not included in the study. Also, the Lebou found with the highest dissolution hazard was the least represented (only 100 subjects) in the study sample. All these limitations need to be taken into account while considering the study's findings.

7. Conclusion

This study investigated variations in first union dissolution among five ethnic groups viz. Wolof, Lebou, Peuhl, Sereer, and Toucouleur in Senegal using data from biographic survey "vulnerabilities and chronic poverty" conducted in 2008-2009. Its central goal was to examine the specific effect of ethnicity and to identify the underlying mechanisms of action of ethnic variations in union dissolution among men and women. Bivariate analyses based on Kaplan Meier comparative curves confirmed expected theoretical results with regards to the association of ethnicity and first unions' dissolution. Further analyses lied on hazard regressions models.

Results supported the fact that there were cultural differences between ethnic groups that not only cannot be explained by standard sociological and demographic variables, but that become apparent only when taking the effect of these standard variables. Indeed, unadjusted hazards reported no ethnic differences in union dissolution. Net differences between ethnic groups become apparent only after controlling for the effects of potential variables like cumulated fertility, education and birth cohort. The hazard of union dissolution was higher among the Lebou men and in some extent higher among the Wolof men than among other groups.

Though the place of residence does not act as intermediate variable, it remains a key factor for union stability. Ethnic differences regarding age at first union exist in Senegal, but, the age at first union does not neither shape union instability, nor mediate ethnic differences in union dissolution. Hazard regression adjusted for all studies variables (potential intermediate variables and control variables) revealed ethnicity differences in union dissolution especially among men. However, despite the present study clarified some aspects regarding underlying mechanisms of action of ethnic variations in hazard of union dissolution, large-scale and more detailed data covering all Senegalese ethnic groups are needed for better understanding of the complexity and the persistence of domestic and matrimonial customs and traditions in matrimonial relationships.

The present study's findings support the need for policy interventions to be strengthened toward reproductive health issues and infertility solving in particular. Encouraging younger generations to get into union at higher age (after 18 year olds) will also increase the rate of union stability in the study settings.

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