Contextual Determinants of Marital Dissolution among Black South African Women: A Multilevel Analysis

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Abstract: Marital dissolution and their contextual determinants are concerns to the government and other stakeholders in South Africa. These are so, especially among the Black South African women of childbearing age. The South African Demographic Health Survey (SADHS) 2016 data was used to examine the role of three hierarchical layers of variables (individual, household and community level characteristics) in determining marital dissolution among Black South African women of childbearing age in South Africa. Based on the Social-ecological (SEM) and the Easterlin's micro-economic models, the chi-squared test and multilevel logistic regression were performed at the bivariate and multivariate levels respectively. The multilevel logistic regressions were performed using the generalised linear and latent mixed model (GLLAMM) to obtain fixed and random effects. Findings suggest that an insignificant proportion of the study sample were ever married. The level of those ever married increased with mother's age, while the highest proportion of those never married reside in KwaZulu-Natal (88,3%) province. With the exception of language, type of place of residence and place of delivery, all tested factors were found to be significant and/or associated with marital dissolution at different hierarchical model levels (p<0.05). Results of random effect revealed a very small, i.e. insignificant (0.01) variations in their log odds of predicting marital dissolution. The study recommends that these findings be considered in all programme and policy developments around the issue in South Africa.

Keywords: Marital dissolution, Multi-level regression, Contextual determinants, Black South African, Hierarchical layers

Background

In the twenty-first century, countries in sub-Saharan Africa are going through a series of demographic and socio-economic transitions (Posel *et al.*, 2011; Gerland

et al., 2017; Moore and Govender, 2013; Ziehl, 2002). And prominent among these are the changes in marriage formations and dissolutions. As the key demographic phenomenon, marriage in the African context is a socially accepted and legally approved solemnisation of two people of the opposite sex. It has been described as an early, universal and significant event in one's life-cycle (Garenne, 2004; Rampagane, 2016). Although marriage is one of the most important foundations in the family-formation processes, studies (e.g. Moore and Govender, 2013; Palamuleni and Palamuleni, 2011; Udjo, 2001; Posel *et al.*, 2011) have recently emerged, challenging the early assertion of marriage, especially in the South African context.

In South Africa, literary evidence indicates that marital patterns such as the timing at first marriage, the proportion never married, cohabiting (i.e. living together like married partners) and single parenthood are all on the rise; while the marriage rate is on the decline (Posel *et al.*, 2011; Moore and Govender, 2013; Rampagane, 2016; Palamuleni, 2010; Rossouw *et al.*, 2012; Udjo, 2001). Also of more concern is the assertion that divorce and separation rates (marital dissolution) in South Africa are relatively high and on the increase (Ackermann, 2014; Rampagane, 2016). Specifically, marital status distribution in South Africa indicates that 2.7% of the South African population (18 years plus) were divorced/separated in 2011 alone. Also of concern is that about 65% of this percentage of divorced/separated persons are females, with close to 57% (i.e. majority) being Black Africans (Stats SA, 2011). Specifically, the Black African population had the highest number of divorces in South Africa since 2008 (Stats SA, 2010). In addition, the highest number of divorces took place in urban areas (68%) compared to the rural areas (32%) of the country (Stats SA, 2011). These proportions indicate that marital patterns are also distinctive along sub-regional levels (rural-urban divide) in South Africa (Moore and Govender, 2013). Expressed in numbers, these proportions are said to be above average when compared to those of other sub-Saharan African countries. Also, as a country where only 35% of the population (18 years plus) are married (Stats SA, 2011), these numbers remain substantial and disturbing. More so, vital record estimates on divorce/separation in South Africa reveal almost a similar pattern, fluctuating perpetually since 2002. The number of divorced in South Africa decreased significantly "from 2009 to 2011,followed by a consistent increase in the years 2012 to 2017 and a slight decrease of 0,4% between 2017 and 2018" (Stats SA, 2018:6). The median age of divorce in the country was 41 years for females and 45 years for males, with the Black South African population recoding a high median age (Stats SA, 2018). This indicates that South Africans divorce early, with the female population divorcing earlier than the male population, compared to other traditional sub-Saharan African countries.

In the light of these developments, early studies have revealed some of the background and socio-economic characteristics behind the marital dynamics experienced in South Africa. However, much effort is still needed in uniquely exploring the contextual (distal) factors that also have a place in influencing marital dissolution specifically. This is so, especially among Black South African women of childbearing age in recent times. These are mostly socio-cultural, structural and neighbourhood related factors also expected to influence marital patterns and dissolutions in any social context.As such failed in providing a benchmark study and in advancing existing knowledge beyond the understanding of marital determinants at the individual levels.Literature suggests that certain contextual (household and community) factors that influence marital dissolutions remains key in many African countries and as such, cannot be ignored More so, statistical evidence indicates that Black South Africans make up about 80% of the South African population (Stats SA, 2011). Therefore, understanding their marital patterns and associated factors would also result in a better and broader understanding of the national patterns (Rossouw *et al.*, 2012). This study examined the contextual determinants of marital dissolution among Black South African women of childbearing age (15–49 years) in South Africa in a broader perspective. Understanding these dynamics should bring about informed policies and programme development in the country.

Study Aim and Objectives

The study aimed at examining the contextual determinants of marital dissolution among Black South African women of childbearing age in South Africa. Specifically, the study objectives are to unpack the levels of marital incidences (ever and never married) and selected contextual factors determining marital dissolution among the study sample at different hierarchical layers (operational/regional levels) in South Africa.

Methods

Data, Study Design and Analysis

The South African Demographic Health Survey (SADHS) 2016 data was used to examine the role of three hierarchical layers of variables (individual, household and community characteristics) in determining marital dissolution among Black South African women of childbearing age in South Africa. The SADHS 2016

data is secondary cross-sectional data collected at a point in time (de facto), using study sample evenly distributed in the country, and obtained using methodology appropriate to the South African context. The data was collected at different levels, as such hierarchical in nature (cluster). Therefore, appropriate in carrying out multilevel analyses, in order to investigate the factors responsible for the observed marital patterns, including existing variations at different hierarchical/operational model levels in the country. In all, making the data suitable for nationally representative study of this nature. The study employs an analytical cross-sectional study design, through the analysis of the secondary dataset referred to above. This design helped in creating a cross-sectional panel suitable enough to provide information appropriate in performing multilevel regression analyses i.e. allowing for a multilevel framework. Based on the Social-ecological (SEM) and the Easterlin's micro-economic models, the study adopted a quantitative method of analysis and this was carried out at the bivariate and multivariate levels. The chi-squared test was employed to obtain the association existing between each explanatory and outcome variable at the bivariate level, while the multilevel logistics regression model was employed at the multivariate levels. The multilevel logistics regression model analysis was performed using the generalised linear and latent mixed model (GLLAMM) to obtain the fixed and random effects (test of associations/goodness of fit and variations), existing in the relationship at the various operational level (i.e. individual, household and community hierarchical model levels) in the study period. Data was analysed using Stata software (version 14) and findings expressed in proportional levels and odds ratio.

Study Population

The study sample population (study sample/unit of analysis) are Black South African women of childbearing age (15–49 years). The sample includes those ever or never married in South Africa. The ever married sample consists of those who married and those whose marital status changed to divorced or separated (Omondi, 1989). The ever or never married sample were employed at the bivariate levels, while the ever married sample only was employed at the multivariate multilevel analysis.

Variable Measurements and Definitions Outcome (dependent) Variables

Marital status variable was used as a measure of the outcome variables in the study. The marital status variable is used to capture the current marital status of women. It is a multiple response variable, derived by asking a woman her current marital

status in the datasets. The responses to the question on current marital status in the SADHS 2016 data are never in union(i.e. never married), married, living with partner(cohabiting), widowed, divorced and no longer living together/separated. These were recoded into "Ever married" and "Never married" categories at the bivariate level. The responses categorised as "Ever married" were further recoded appropriately to suit the models and labelled "Marital dissolution" at the multivariate multilevel analyses of the study.

Explanatory (independent) Variables

Selected individual and contextual (socio-structural) characteristics in the datasets were identified and used as explanatory (dependent) variables in the study. Also known as individual and neighbourhood levels characteristics, these variables were appropriately defined (categorised) to fit into three hierarchical operational levels of individual, household, and community groupings at the multilevel analysis. A set of intermediate variables seen as intervening variables in which other level variables go through to exert their impact on the outcome variables were also identified and defined. Some of these variables were seen as part of the household variable and as such, were tested along with the household characteristics in the study to understand their effects on the outcome variables. These variables were carefully selected, extracted and recoded were necessary to suit the study objectives. The selection of all explanatory variables was guided by the variable being statistically significant (p<0.05) at the bivariate level, reviewed literature and established theoretical foundations of the study.

Results

Bivariate Analysis: Associated factors

Table 1: presents the percentage distribution of selected individual and contextual level characteristics by marital status incidence (ever and never married) among Black South African women of childbearing age, 2016. The results show that 65.5% of the women in the age group 30–34 were never married, suggesting a high level and that only one in every three were ever married in the study period. The levels of those ever married increased with age, while those of the never married category declined with age. Those with no schooling had the highest levels of association among those ever married (36.4%), while the least level of association occurred among those

never married (63.6%) (p<0.05). Also, as the level of education increased, the levels of association increased among those never married and decreased among those ever married. The results also show that a high level (66%) of the ever married owned a house both alone and jointly in the study period. In addition, a high level of these women whose households had no electricity (76.4%) were never married, although the proportion of those with electricity (25.7%) was slightly higher than those without electricity (23.6%) among those ever married.

More so, a high proportion of these women who never married used a pit latrine (76.4%). These high proportions were also consistent with the use of other types of toilet among these group. These distributions suggest that above three in every four of those women using all types of toilet facilities were never married. The results also show that a large proportion of these women (74.5%) who never married use piped water as their source of drinking water. This proportion suggests that more than two-thirds, making up a high proportion of those using piped water were never married, while those using other sources (22.9%) were the least among those ever married. Also, the results show that the proportions increased as the levels of wealth increase among those ever married. About two-thirds of richest Black South African women of childbearing age (63.7%) never married are living in the Western Cape, and with a proportion of 88.3%, the result shows that KwaZulu-Natal had the highest level among these women. Also, a high level of these women in the urban (73.6%) and rural (75.2%) areas were never married. In addition, a high level of these women who never married (73.4%) used the health facility as their place of delivery, while only 28.3% of those ever married use the home as their place of delivery. The proportion indicates a high usage of health facilities as places of delivery. Black South African women of childbearing age using other facilities (16.7%) as their place of delivery presented the smallest proportion among those ever married. Overall, the results also suggest that with the exception of variables such as household has electricity, source of drinking water, type of place of residence and place of delivery, all other tested factors were found to be associated with marriage status incidences among the study sample (p<0.05). The study also revealed that an insignificant proportion of Black South African women of childbearing age were ever married in the study period.

Multilevel Analysis: Fixed and Random Effects

Table 2: presents the results of the multilevel logistics regression model showing odds ratios (fixed and random effects) of individual, household and community level

Table 1: Percentage distribution of selected individual and contextual level characteristics by marital status incidence (ever and never married) among Black South African women of childbearing age

Variable	Marital status incidence		
	Ever married (%)	Never married (%)	P>|z|/ p-value
Mother (respondent) age			0.000***
15-19	1.2	98.8	
20-24	6.4	93.6	
25-29	17.9	82.1	
30-34	34.5	65.5	
35-39	41.4	58.6	
40-44	49.8	50.2	
45-49	56.8	43.2	
H/level of education			0.000***
No schooling	36.4	63.6	
Primary	32.9	67.1	
Secondary	23.1	76.9	
Higher	36.0	64.0	
Tenure/own house			0.000***
Does not own	15.5	84.5	
Alone only	33.8	66.2	
Jointly only	71.6	28.4	
Both alone & jointly	66.0	34.0	
H/hold has electricity			0.208
No electricity	23.6	76.4	
Has electricity	25.7	74.3	
Type of toilet facility			0.004**
Flush toilet	27.5	72.5	
Pit latrine	23.6	76.4	
Other	23.8	76.2	
None	23.8	76.2	
Source of drinking water			0.143
Piped	25.5	74.5	
Well/borehole	29.4	70.6	
River/stream	24.4	75.6	
Others	22.9	77.1	
Wealth quintile			0.000***
Poorest	21.2	78.8	
Poorer	23.0	77.0	
Average/middle	26.1	73.9	
Richer	28.3	71.7	
Richest	36.3	63.7	

	Marital status incidence		
Variable	*Ever married (%)*	*Never married (%)*	*P>|z|/ p-value*
Province/region			0.000***
Western Cape	32.8	67.2	
Eastern Cape	29.4	70.6	
Northern Cape	25.3	74.6	
Free State	31.4	68.6	
KwaZulu-Natal	11.8	88.3	
North West	26.1	73.9	
Gauteng	30.1	69.9	
Mpumalanga	23.0	77.0	
Limpopo	31.3	68.7	
Type of place of residence			0.111
Urban area	26.4	73.6	
Rural area	24.8	75.2	
Place of delivery			0.684
Home	28.3	71.7	
Health facility	26.6	73.4	
Others	16.7	83.3	

Note: *** = Statistically Significant at p<0.05 (i.e. 0.05% test level or 95% CI)

factors associated with marital dissolution of the study sample, 2016. The results of the fixed effects in the study period showed that mother's age presented strong odds ratios, indicating a strong association in all age categories and hierarchical model level test (Models 2 and 5). Test of individual level grouping (model 2) showed that odds ratios were highest among those in the age group 35–39 (OR=1.15; p<0.05) and were levelling up after that among the older age groups (40–49). Specifically, the odds ratio of those in the age group 45–49 was 12% higher (OR=1.12; p<0.05), suggesting a 1.12 times association. The combination (inclusion) of all levels of variables (Model 5) maintained positive odds ratio values in all age groups, further reflecting the strength of the variable. Although with strong odds ratio in all model tests, the results show that mother's education was significantly associated at the individual level model test (Model 1), especially among those with a higher level of education. Also, their odds ratio values increased with increase in education, suggesting a direct relationship in all model tests. The inclusion of household and community level characteristics (Model 5) resulted in an increase in odds ratio values, further reflecting the strength and inscribing importance to the variable. The results of the full model test (Model 5) showed that the odds ratio of those with higher levels of education experiencing marital dissolution were 18% higher,

thus indicating a 1.18 (OR=0.18; p<0.05) times association (likelihood), compared to their reference category. Mother's language was not associated with marital dissolution, although the results showed that IsiNdebele was slightly stronger and speaking IsiZulu, SiSwati and Tshivenda was significant at the individual level model test (Model 2). The addition of a new level of variables (model 5) yielded an insignificant change in odds ratios values. The odds ratio of those women speaking IsiZulu was 4% lower (OR=0.96; p<0.05), compared to those speaking English in the study period (Model 2).

Mother currently working was associated in all level model tests. Also, the inclusion of new levels of variables (Model 5) maintained consistent higher odds ratio values. Results of the full-level model test (Model 5) showed that those currently working presented a 1.09 (p<0.05) odds ratio, suggesting a 9% (OR=1.09; p<0.05) higher association compared to those not working in the country. The results also showed that mother's occupation was significant at the individual level but not so at the full-level model test (Models 2 and 5). However, tests at individual level suggest that the odds ratio of those in formal employment was 12% lower (OR=0.88; p<0.05), compared to those in the reference category (Model 2). The results also showed that parity was associated with marital dissolution especially among those with five children plus (5+). Tests at household level (model 3) showed that women with 5 children plus presented a 12% higher odds ratio, suggesting a 1.12 (OR=1.12; p<0.05) times association, compared to those with less than three children (<3). Considered a continuous variable in the study, the result showed that CEB also maintained a similar pattern, especially among those with 3–4 children. The test at the household level (Model 3) presented a 4% higher odds ratio (OR=1.04; p<0.05), compared to those in the reference category. Also, the higher the CEB, the lower the odds ratios of dissolution.

Owning a house was statistically significant (associated) with marital dissolution, at all model test (model 3 and 5). Those who owned a house both alone and jointly presented a 25% higher odds ratio, indicating a 1.25 (p<0.05) times likelihood of association, compared to those in the reference category (Model 3). Although significant among families with seven members or more (7+) (Model 3), the results suggest that household size was not associated with marital dissolution, especially at full-level model test. The result at this level suggested a 0.89 (p<0.05) time odds ratio, compared to those in the reference category. With the exception of those not using, all types of toilet facilities were fairly associated with marital dissolution. Tests of models 3 and 5 levels revealed a 3% higher odds ratio (OR=1.03; p<0.05) among those using pit latrines, compared to their reference category. Furthermore,

the wealth quintiles (status) of these women were statistically significant (strongly associated) with marital dissolution, especially among the richer and richest at all model test. Results at household level test (model 3) indicated that the richest of these women had a 11% higher odds ratio (OR=1.11; p<0.05), suggesting a 1.11 (p<0.05) times likelihood of association, compared to the poorest i.e. reference category. Test of Model 5 (i.e. combination of all level tests) revealed a consistency of strong association in all response categories, and as such, highlighted the importance to the variable. The results show that province/region was relatively strong at the full-level test, but not so at the community level test. The results of the full model level test (model 5) show that those in KZN presented a 17% higher odds ratio (OR=1.17; p<0.05), indicating a 1.17 (p<0.05) higher association, compared to those in the Western Cape. Although significant at community level test, type of place of residence presented weak odd ratios at all model test (Model 4 and 5). Result of the community model test (model 4) showed a 7% lower odd ratio among those staying in the rural areas compared to those in the urban areas. Access to a gynaecologist was relatively associated with marital dissolution, especially at the community regional level test (Model 4), but not at the full model level test (Model 5). Test at model 4 among those who had access suggest only a 1% higher odds ratio (OR=1.01; p<0.05), compared to their reference category. However, the inclusion of all level variable (model 5) yielded a significant change in odds ratio values among these women, thereby ascribing a strong effect to the variable. Also, access to community health worker presented strong odd ratios in all model test (Model 4 and 5). The inclusion of all level variable also (model 5) yielded a significant change in odds ratio values among these women. The results of community and full model test show that those with access presented a 12% (OR=1.12:CI=0.71-1.77) and 38% (OR=1.38:CI=0.91-2.10) higher odd ratio compared to those without access. The results also show that place of delivery presented a weak odd ratio to marital dissolution at all level test. Test of model 4 among those who delivered at health facility showed a 11% lower odd ratio (OR=0.89:CI=0.79-1.00) compared to the reference category.

The results of the random effects model are shown in Table 3 (including empty Model 1). The results show that the variation in the log odds of experiencing marital dissolution across the communities (clusters) within the last twelve months to the time of the survey was very small (insignificant) at 0.01. The variation remained very small (i.e. consistent) even after controlling for individual, household and community regional level variables. According to the intra-cluster correlation coefficient implied by the estimated intercept component variance (VPC), 0.01% of the variance in

Table 2: Multilevel logistics regression model showing odds ratios (fixed and random effects) of individual, household and community level factors associated with marital dissolution of the study sample, 2016

Variables	Model 1 Empty model	Model 2 Individual level		Model 3 Household level		Model 4 Community level		Model 5 Full model (Empty, Individual, H/hold and Community)	
	OR	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
i. Fixed effects									
Individual level characteristics									
Mother's (respondent) age									
15-19		RC						RC	
20-24		1.08	0.87-1.35					1.21	0.94-1.55
25-29		1.12	0.90-1.39					1.17	0.92-1.50
30-34		1.14	0.93-1.41					1.15	0.90-1.47
35-39		1.15	0.93-1.37					1.19	0.92-1.53
40-44		1.11	0.90-1.37					1.14	0.88-1.48
45-49		1.12	0.90-1.38					1.15	0.87-1.54
Respondent's highest level of education									
No schooling		RC						RC	
Primary		0.99	0.88-1.12					1.05	0.85-1.29
Secondary		1.06	0.95-1.20					1.12	0.91-1.38
Higher		1.12**	0.98-1.27					1.16	0.93- 1.44
Language									
English		RC						RC	
Afrikaans		0.91	0.72-1.16					0.76	0.53-1.09
IsiXhosa		0.99	0.91-1.07					0.95	0.84-1.07
IsiZulu		0.96	0.88-1.05					0.89**	0.79-1.00
Sesotho		0.88**	0.81-0.96					0.91	0.80-1.03
Setswana		0.87***	0.80-0.95					0.76***	0.66-0.87
Sepedi		0.99	0.90-1.08					0.95	0.84-1.09
SiSwati		0.89**	0.79-1.00					0.83**	0.69-0.99
Tshivenda		0.81***	0.72-0.91					0.83**	0.70-0.97
Xitsonga		0.97	0.88-1.07					0.95	0.83-1.09
IsiNdebele		1.02	0.83-1.26					0.87	0.68-1.13
Mother c/working									
No		RC						RC	
Yes		1.04	0.95-1.14					1.09	0.97-1.23

Table 3: Multilevel logistics regression model showing odds ratios (fixed and random effects) of individual, household and community level factors associated with marital dissolution of the study sample, 2016 (continued)

Variables	Model 1 Empty model	Model 2 Individual level		Model 3 Household level		Model 4 Community level		Model 5 Full model (Empty, Individual, H/hold and Community)	
	OR	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
i. Fixed effects									
Mother's occupation									
Not working		RC						RC	
Formal employment		0.88**	0.80–0.96					0.86**	0.76–0.97
Informal employment		0.87**	0.75–0.99					0.86	0.70–1.06
Manual		0.85**	0.77–0.94					0.84**	0.73–0.96
Household level characteristics									
Parity									
<3 children				RC				RC	
3–4 children				0.99	0.90–1.09			0.95	0.83–1.09
5+				1.12	0.96–1.29			0.98	0.78–1.22
Children ever born									
<3 children				RC				RC	
3–4 children				1.04	0.95–1.15			1.05	0.92–1.20
5+				0.91	0.79–1.04			0.99	0.80–1.22
Own house (tenure)									
Does not own				RC				RC	
Alone only				0.77***	0.72–0.82			0.83**	0.75–0.92
Jointly only				1.24***	1.19–1.30			1.22***	1.14–1.31
Both alone and jointly				1.25***	1.20–1.31			1.19***	1.12–1.27
Household/family size									
<5				RC				RC	
5–6				1.01	0.97–1.05			0.98	0.92–1.04
7+				0.94**	0.89–0.98			0.88**	0.82–0.95

Variables	Model 1 Empty model	Model 2 Individual level	Model 3 Household level	Model 4 Community level	Model 5 Full model (Empty, Individual, H/hold and Community)
Type of toilet facility					
Flush toilet			RC		RC
Pit latrine			1.03 0.98-1.09		1.07 0.98-1.17
Other			1.11 0.99-1.24		1.09 0.94-1.27
None			0.95 0.85-1.07		1.02 0.87-1.19
Wealth quintile					
Poorest			RC		RC
Poorer			1.03 0.97-1.09		1.07 0.99-1.16
Average			1.01 0.96-1.07		1.10** 1.01-1.20
Richer			1.09** 1.01-1.16		1.14** 1.04-1.26
Richest			1.11** 1.03-1.19		1.12** 0.99-1.26

Table 3: Multilevel logistics regression model showing odds ratios (fixed and random effects) of individual, household and community level factors associated with marital dissolution of the study sample, 2016 (continued)

Variables	Model 1 Empty model	Model 2 Individual level		Model 3 Household level		Model 4 Community level		Model 5 Full model (Empty, Individual, H/hold and Community)	
	OR	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
i. Fixed effects									
Community level characteristics									
Province/region									
Western Cape						RC		RC	
Eastern Cape						1.06	0.91–1.24	1.09	0.95–1.26
Northern Cape						0.94	0.78–1.13	1.07	0.87–1.31
Free State						0.98	0.84–1.14	0.99	0.84–1.16
KwaZulu–Natal						1.12	0.96–1.32	1.17	0.99–1.39
North West						0.91	0.78–1.06	1.10	0.93–1.31
Gauteng						1.08	0.93–1.25	1.12	0.96–1.30
Mpumalanga						1.01	0.86–1.17	1.10	0.93–1.30
Limpopo						1.10	0.94–1.29	1.11	0.93–1.33
Type of place									
Urban area						RC		RC	
Rural area						0.93**	0.87–1.00	0.94	0.85–1.02
Prenatal care: Gynaecologist									
No						RC		RC	
Yes						1.01	0.95–1.08	0.97	0.91–1.04
Prenatal care: Com h/worker									
No						RC		RC	
Yes						1.12	0.71–1.77	1.38	0.91–2.10
Place of delivery									
Home						RC		RC	
Health facility						0.89	0.79–1.00	0.85**	0.75–0.97
Others						0.97	0.62–1.51	0.82	0.54–1.26

Table 3: Multilevel logistics regression model showing odds ratios (fixed and random effects) of individual, household and community level factors associated with marital dissolution of the study sample, 2016 (concluded)

Variables	Model 1 Empty model	Model 2 Individual level		Model 3 Household level		Model 4 Community level		Model 5 Full model (Empty, Individual, H/hold and Community)	
	OR	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
i. Fixed effects									
Community level characteristics									
Measure of variations (variance)									
ii. Random effects									
Community level variance (SE)	0.01 (0.00)	0.01 (0.00)		0.01 (0.00)		0.03 (0.01)		0.01 (0.00)	
PCV (explained variation) (%)	Reference	0.00		-76.79		-76.79		0.00	
MOR	1.10	1.10		1.10		1.18		1.10	
ICC/VPC (%)	0.00	0.00		0.00		0.01		0.01	
Model fit statistics									
AIC	1466.15	1347.33		1101.12		447.37		335.75	
BIC	1482.45	1487.12		1203.63		519.93		579.11	
Sample size									
Level 1	1,695	1,598		1,628		689		617	
Level 2	543	528		536		382		357	

Note: *** = Significant at p<0.05 (i.e. 0.05% test level or 95% CI); Abbreviations – RC – Reference category, OR - Odds ratio, CI – Confidence interval, ICC – Intra-cluster Correlation Coefficient, VPC - Variance Partition Coefficient, BIC – Bayesian Information Criterion, AIC – Akaike Information Criterion, SE - Standard Error, MOR – Median Odds Ratio, PCV - Proportional Change in Variance

the experience of marital dissolution could be attributed to community/cluster-level variables. Also, as judged by the proportional change in variance (PCV), zero percent (0%) of the variance in log odds of experiencing marital dissolution by the respondents across the community clusters was explained by individual compositional factors (Model 2) and all the variables combined (Model 5), while -76.79 was attributable to household and community factors independently. The median odds ratio (MOR) of 1.10 (in all the models except Models 4) shows that in the median case, the residual heterogeneity between areas increased by 1.10 times the individual odds of experiencing marital dissolution by the respondents within the last twelve months to the time of the survey. The value of the MOR also showed that there were no (significant) differences (variability) between areas/clusters in the probability of experiencing marital dissolution by the respondents. Also, the low (insignificant) value observed and the continuous reduction of the AIC and BIC from the empty model to the full model is an indication of a good model fit (Uthman, 2008). These therefore indicates that the models used in the study correctly predicted the outcomes of the study in the study period.

Discussion

The study presented the results of bivariate and multilevel levels analysis of factors determining marital dissolution of the study sample (i.e. Black South African women of childbearing age), 2016. Bivariate results from the study suggest that with the exception of variables such as household having electricity, source of drinking water, type of place of residence and place of delivery, all other tested factors were found to be associated with marriage status incidences among the study sample (p<0.05). In line with expectations, the study also revealed that an insignificant proportion of Black South African women of childbearing age were ever married in the study period. The result of multivariate multilevel analysis carried out revealed the fixed and random effects of all tested variables associated at different hierarchical operational levels. Results of fixed effects revealed that mother's age was strongly associated with marital dissolution in all hierarchical model levels tested. Specifically, the study found that those in the age group 30–39 recorded the highest association (Model 2), with the odds ratio slightly levelling off among the older ages. In support of these findings, Ziehl (2001) argued that divorce (marital dissolution) was more prevalent during the prime reproductive years, rising with age until the late 30s and levelling off thereafter (Ziehl, 2001). Early studies associated this development to several socio-economic and cultural reasons. In applying the

Bayesian multilevel analysis, Manda and Meyer (2005) found mother's age to be associated in their study in Malawi.

Consistent with earlier findings, the study also revealed that mother's educational level was significantly associated with marital dissolution at all hierarchical model levels tested (Models 2 and 5). The odds ratio increased with an increase in education, indicating a direct relationship. Also, the addition of new class of variable (model 5) resulted in a positive increase in the odds ratio values, further indicating the importance and ascribing a strong importance to the variable. Earlier studies also demonstrated the relationship between education and nuptiality among women in general, insisting that education positioned women with a greater power of making choices, i.e. choosing to stay or leave a relationship. Earlier studies such as those undertaken by Adegoke (2010), Kalule-Sabiti *et al.* (2007), Kaufman *et al.* (2001), etc., were consistent with these line of thinking. The study also revealed that mother currently working was associated with marital dissolution, especially at the individual and full level model tests (Models 2 and 5). Demographic knowledge suggests that employment places a woman in a positive economic environment to enter or leave a relationship at will. In applying various methods, studies in South Africa and beyond have documented the influence of employment to marital dissolution (divorce/separated).

Mother's occupation was significant to marital dissolution among these women (Model 1). Adegoke (2010) also found that mother's occupation was significant to divorce in his study in Nigeria. However, parity was associated especially among those with 5 children plus (higher number of children), while the higher the CEB in general, the lower the odds ratio of association to marital dissolution among the study sample. Perhaps those women with high parity were remaining in the relationship because of their children. Owning a house jointly, and both alone and jointly was statistically significant (associated) with marital dissolution at all test levels. Although significant, the study also revealed that large households or family size (especially those with 7 or more members) were however not associated in all model tests. Empirical evidence suggests that this finding is contextual in the African context, because a large family size is seen as an important social support system which provides room for conflict settlement and child support. Studies supporting these facts are well documented in sub-Saharan Africa. In addition, owning traditional toilet facilities (pit latrine and other) were found to be only moderately associated with marital dissolution. The odds ratio of using a pit latrine was only 3% higher (Model 3). Budlender *et al.* (2004) ascribed marital dissolution to household and structural factors. The wealth quintile level of a Black South

African woman of childbearing age was statistically significant (associated) among the richer and richest of these women, especially at household level model test (model 3). The study also revealed that the richer the woman, the higher the chances of dissolution, thus suggesting a direct relationship and highlighting the importance of the variable. Studies such as Markos (2003) and Manda and Meyer (2005) found similar factors such as income and other factors defining the economic status of a woman as influencers of divorce. Consistent with earlier findings, KwaZulu-Natal (KZN) province presented the highest odds ratio (association) to marital dissolution (model 5), therefore suggesting a higher chance of dissolution in this province. Palamuleni (2011) in his study in Malawi found region of residence to influence divorce. More so, the study revealed that access to a prenatal care worker in terms of community health worker were strongly associated, especially at the general level model test.

The relationship between most neighbourhood socio-economic statuses (i.e. community structures) with marital dissolution are well documented in South Africa. For example, South (2001) found that that community structures did not actually influence marital dissolution. Although in exploring the high rates of non-marriage observed among Africans in South Africa in the 1980s, and whether these rates had been reversed following the political transformation which took place in the 1990s. Hosegood *et al.* (2009) found that marriage continued to decline in kwazulu-Natal province particularly in more urbanised areas (Hosegood et al, 2009). The study also found that divorce leads to children being victimised and confused, which in turn leads to social disorganisation, desertion and juvenile delinquency, low educational achievements as well as negative peer-group exposure (ibid). Thus implying that these factors contributed to the decline in marriage (and marriage dissolution) in the country. In addition, results of random effect revealed that the variation in the log odds of experiencing marital dissolution across the communities (clusters) within the last twelve months to the time of the survey were very small (insignificant) at 0.01, therefore do not almost exist, even after controlling for individual and household level variables. The value of the MOR reflected the residual heterogeneity between areas, indicating there were no (significant) differences (variability) between areas/clusters in the probability of experiencing marital dissolution by the respondents. The results also revealed a low and decreasing value in AIC and BIC from one model to the next, indicating a good model fit in terms of the data analyses (Uthman, 2008). This also suggests that the applied models correctly fitted and predicted the outcomes of the study in the study period (ibid).

Conclusion

The study reveals that an insignificant proportion of the study sample was ever married in the study period. Although moderate in some cases, the results showed that with the exception of language, type of place of residence and place of delivery, all other factors were found to be significant and/or associated with marital dissolution. The inclusion of a new class of variables also resulted to change in odds ratio values in most cases. The results of random effect revealed that the variation in the log odds of experiencing marital dissolution across the communities (clusters) within the last twelve months to the time of the survey was very small, i.e. insignificant (0.01), even after controlling for individual, household and community level variables. These findings highlights the importance of looking beyond the influence of individual-level factors (compositional characteristics) in the enquiries of associated factors and hierarchicalvariations in South Africa.

Ethical Issues and Conflicts of Interest

The study used secondary data already collected, processed and available on request. Also, the study design is quantitative in nature and as such, has no risk of undue disclosure and other ethical considerations. Consequently, ethics clearance was granted for the study by the Basic and Social Sciences Research Ethics Committee (BaSSREC) of the North West University. Also, permission to use the SADHS 2016 data for this study was obtained from ICF Macro Inc. accordingly. The author have no conflicts of interest to declare in carrying out the study.

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