

Risk Factors for PTSD and Depression in Female Survivors of Rape

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Objective: To investigate association of the sociodemographic factors, characteristics of rape and social support to the development of depression and posttraumatic stress disorder at 6 months after the rape.

Method: A cross-sectional survey with female survivors of rape was carried out in 3 provinces of South Africa 6 months after the rape. **Results:** One hundred female survivors of sexual assault were interviewed. More than half (53%) were from Limpopo, 25% from Western Cape, and 22% from KwaZulu-Natal (KZN). 87% reported high levels of PTSD and 51% moderate to severe depression post rape. The major risk factors for PTSD and depression were the unmarried survivors of rape and those living in KZN. The female survivors of rape in KZN province were 7 times more likely to experience symptoms of depression compared to other provinces, while married/cohabiting female rape survivors were 6 times less likely to report symptoms of depression compared to the unmarried female rape survivors. **Conclusion:** These findings add support to existing literature on PTSD and depression as common mental health consequence of rape and also provide evidence that survivors' socio-demographics—marital status, employment status—are significant contributors to the development of symptoms of depression and PTSD after rape. The results have research and clinical practice relevance for ensuring that PTSD and trauma treatment focuses on an in-depth understanding of the various aspects of the sociodemographic factors and rape characteristics that contribute to survivors' mental state and how these compound stress and depression symptoms over time post rape victimization.

Keywords: rape, socioeconomic status, social support, depression, stress

Violence against women as a social problem in South Africa has been well documented (Dartnall & Jewkes, 2013; Jewkes, Sikweyiya, Morrell, & Dunkle, 2009). The rate of sexual violence is among the highest in the world. It is estimated that over 40% of South African women will be raped in their lifetime and that only 1 in 9 rapes are reported. Despite the decline in the number of reported sexual assault cases in the 2013–2014 crime statistics (South African Police Services, 2015), the epidemiology of rape remains an issue of considerable importance and a key health risk for South African women.

Previous research has identified numerous psychological effects of sexual assault on women (e.g., depression, anxiety) including posttraumatic stress disorder (Abrahams, Jewkes, & Mathews, 2013; Foa & Riggs, 1993; Foa & Rothbaum, 1998; Resick, 1993;

Ullman, Townsend, Filipas, & Starzynski, 2007). Sexual assault has been shown to result in particularly high rates of posttraumatic stress disorder (PTSD; Kilpatrick, Edmunds, & Seymour, 1992; Möller, Bäckstrom, Söndergaard, & Helström, 2014).

However, not all survivors of sexual assault develop PTSD. There is increasing acceptance of the fact that the exposure to trauma such as sexual assault may not always be sufficient to explain the development of PTSD and depression but that other factors have a role to play in understanding the condition (Brewin, Andrews, & Valentine, 2000). To better understand women's responses to sexual assault, various studies have been conducted to identify risk factors for PTSD among survivors of rape. The previous findings suggest that PTSD status and depression are related to factors that occur to the individual before, during, and after a traumatic event.

The empirical research on risk factors for the psychological impact of rape have used a broad variety of factors including preassault factors (e.g., sociodemographic factors—race, employment status, marital status), assault related factors (e.g., victim–perpetrator relationship, physical injuries, and assault severity), and postassault factors (e.g., social support, coping responses).

Pre-Assault—Socio-Demographics

In a study on the depression symptomatology among adults and adolescent female survivors of rape in Eastern and Western Cape provinces of South Africa, Abrahams et al. (2013) found race,

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ethnicity, and unemployment status to be associated with greater likelihood of symptoms of depression. Black (African and Colored) rape survivors from Cape Town reported very high levels of depression symptoms than those in other sites of the study. Furthermore, unemployment has also been significantly associated with symptoms of depression post rape (Abrahams et al., 2013; Möller et al., 2014). Conversely, inconsistent results have been found for the other demographic characteristics of age, marital status, education, and ethnicity (Cochran, Frazier, & Olson, 1997; Möller et al., 2014; Ullman & Filipas, 2001). Understanding the specific aspects of the sociodemographics and individual background factors relating to development of stress and depression post rape is critical.

Assault Characteristics

Kaysen, Rosen, Bowman, and Resick (2010) found that the severity of the violence is a factor that should be considered a risk factor in the immediate aftermath of the event. In addition to the individual demographic background factors, correlates of PTSD have been identified to also include the sexual assault characteristics (e.g., physical injury, severity of sexual victimization) in predicting the risk of PTSD in victims of sexual assault (Abrahams et al., 2013; Acerno, Resnick, Kilpatrick, Saunders, & Best, 1999; Ullman & Filipas, 2001). The findings in these studies suggest injury during rape as one of the risk factors for posttraumatic stress disorder and depression in rape victims (Cook, Pilver, Dinnen, Schnurr, & Hoff, 2013; Möller et al., 2014).

Möller et al. (2014) found that perceived life threat and having been injured during rape were significant risk factors for PTSD among rape survivors at 6 months after the assault. While some of the studies have strongly confirmed the effects of rape severity in PTSD, these are mixed partially because other research has found no association between the severity of assault and development of PTSD following rape victimization (Abrahams et al., 2013).

Post-Assault Factors

Previous research has also given consideration to the influence of social support resources in individuals' psychological responses and recovery after trauma and rape victimization (Brewin et al., 2000; Ullman et al., 2007). It has been theorized that social support as a resiliency resource can aid in recovery from trauma, in part mediating psychological response to rape victimization (Brewin et al., 2000; Hobfoll, 1998; Schumm, Briggs-Phillips, & Hobfoll, 2006). It is suggested that social support networks provide victims of trauma with a platform to express their emotions and come to terms with what has happened and ultimately can also decrease the likelihood that victims experience negative sequelae post victimization (Southivong, Ichikawa, Nakahara, & Southivong, 2013). A meta-analysis on 14 separate risk factors for development of PTSD found the lack of social support among victims of trauma to convey the strongest risk of PTSD (Brewin et al., 2000). More specifically, in a study among female rape and physical assault victims, Gutner, Rizvi, Monson, and Resick (2006) found that the increase of social support over time decreased the PTSD symptomatology. Abrahams et al. (2013) also found that receiving support from various groups of people had lesser likelihood of depression among Colored and African female survivors of rape.

Thus, it is possible that social support provided a stress-buffering role for victims of rape.

Not all the studies have found support for the commonly posited theory of the impact of social support network in directly aiding in coping following victimization (Ullman et al., 2007). Despite the mixed findings on social support, there is considerable evidence showing perceived social support to be a stronger direct predictor of psychiatric adjustment (Norris & Kaniasty, 1996; Schumm et al., 2006).

Against the backdrop of this evidence on multiple potential influences on victim's PTSD symptomatology and depression following rape, it is important to identify specifically the risk factors for development of PTSD and depression following the sexual assault and subsequently permit early interventions with those victims at greater risk to reduce the incidence.

Given the prevalence of rape in South Africa and the frequency of associated trauma, identifying factors that place women at risk for the development and persistence of psychological symptoms following rape is imperative. Only a few studies have integrated the various sociodemographic factors with individual rape assault characteristics to understand how these may influence recovery post rape victimization within a culturally diverse sample. To accomplish this, the present study investigated factors associated with the development of depression and posttraumatic stress within a sample of female Black survivors of rape across three of the largest provinces in South Africa (KwaZulu-Natal (KZN), Limpopo, and the Western Cape) with relatively high incidence of reported rape cases. The three provinces account for over 30% of the South African population. With the exception of the Western Cape, both KwaZulu-Natal and the Limpopo provinces are characterized by higher levels of unemployment and relatively low levels of education. All three provinces are critical in the study of rape given the historical high incidence of rape reported in these communities.

In the current study, we examined the combined impact of the sociodemographic variables and characteristics of rape, and explored the potential that social support may have in risk for depressive mood and PTSD. Based on previous findings, we hypothesized the following:

1. The severity of rape (verbal threatened during the rape incident, being punched/kicked and choked, threatened with weapon and use of weapon) will increase the risk of depression and posttraumatic stress disorder.
2. Women reporting lack of social support will exhibit greater depressive mood and PTSD
3. The psychological response to rape victimization will be differentiated by the female survivors' sociodemographic factors (marital status, employment status, education levels, and region)

Method

Participants and Procedure

On average, the participants ($n = 100$) comprised females in their late 20s ($M = 27$, $SD = 11.5$), not married (79%), and

unemployed (67%). Most (53%) were Black female survivors from Limpopo, 25% from the Western Cape, and the remainder from KwaZulu-Natal (22%) provinces of South Africa, reporting to have been raped in the past 6 months. Eighty-four percent of the participants had achieved education levels equal to Grade 12 and less, 16% had achieved more than Grade 12. Over 70% of the survivors of rape in the three provinces were sexually assaulted outside of their homes, 28% reporting to have been raped in their own homes, and mostly (79%) during the night. Only a few (10%) reported to have had any childhood sexual assault history before the current incidence.

The survivors of rape were recruited from the hospital and affiliate sexual assault victim empowerment centers in the three provinces following procedures approved by the Institutional Review Board at the University of California, Los Angeles; University of Cape Town; University of Limpopo; and University of KwaZulu-Natal. The victim empowerment centers and hospital servicing the survivors of rape from the various Black communities were approached to obtain their support in allowing the investigator to recruit. All the interviews were conducted face to face with the participants at the centers before, during, and after a scheduled follow-up appointment at the facilities. Women were assured that all their participation was voluntary and would not impact their treatment and other services with the institution. Informed consent was obtained from the study participants before completing the 45 min interview and survey questionnaire.

Measures

The survey asked questions about demographic background, history of previous sexual victimization, rape assault characteristics including severity of assault, assessed symptoms of depression, posttraumatic stress disorder, social support, and social undermining. Only those measures and items that were used for the present analyses are described herein. The key predictor of interest, sexual assault severity, was assessed with a sum of an index of weapon presence (used or shown), moderate physical violence (using his superior body weight, twisting arm, or holding the victim down), severe physical force (hitting, slapping, choking, or beating), verbal threats, number of assailants, and duration of assault.

The perceptions of social support received was assessed with a brief 10-item Social Support Questionnaire (Van Tilburg, Van Sonderen, & Ormel, 1991; adapted by Timmerman, Emanuels-Zuurveen, & Emmelkamp, 2000), which includes descriptions of social support pertaining to Emotional Support, Informative Support, Social Companionship, or Instrumental Support received from others. The 5-point rating scale ranges from 1, *none of the time*, to 5, *all of the time*. The social support survey is a valid and reliable scale and has demonstrated satisfactory internal consistency with Cronbach's alpha ranging from .70 to .86. Cronbach's alpha indicated reliability for the current sample ($\alpha = .90$), and a summary score was calculated and used in the analyses.

The experience of social undermining post rape assault was assessed with the 7-item Social Undermining Scale (Vinokur & Van Ryn, 1993), which assesses the frequency at which a person has engaged in behaviors directed toward the target person that displays (a) negative effect (anger, dislike), (b) negative evaluation of the person in terms of his or her attributes, actions, and efforts

(criticism), and (c) behaviors that hinder the attainment of instrumental goals. The 7 items on a 5-point scale has a lower alpha coefficient ($\alpha = .73$) compared to previous studies reporting in the range of .84 to .92.

The primary outcome of interest was posttraumatic stress disorder symptoms and depression. The symptoms of posttraumatic stress disorder (PTSD) were assessed using response to symptom items from the Post-Traumatic Stress Disorder Symptom Scale—Self Report (Foa, Cashman, Jaycox, & Perry, 1997) providing the measure of severity and frequency of PTSD symptoms. The scale contains three subscales (Reexperiencing, Avoidance, and Numbing & Arousal) as well as a total score (ranging from 0 to 51). Respondents were asked to rate how often each symptom has bothered them in the past month on a 4-point scale (*Not at all, Once a week or less, 2 to 4 times a week, 5 or more times a week*), which totals up to a sum score of between 0 and 51. The sum score yielded an overall great internal consistency ($\alpha = .95$).

The severity of depression was assessed with Beck Depression Inventory II (BDI-II), a multiple-choice inventory self-rating scale measuring the severity of depression. The BDI-II consists of 21 items referring to common symptoms of depression such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight loss, and lack of interest in sex. Each answer is scored on a 4-point scale ranging from 0 to 3. Higher total scores indicate more severe depressive symptoms, with the cut-off for minimal depression at 13 and severe depression cut-off point between a score of 29 and 63. Cronbach's alpha demonstrated reliability for the current sample ($\alpha = .87$), and a summary score was calculated.

Statistical Analyses

Group comparisons between survivors of rape in the three regions—KwaZulu-Natal ($n = 22$), Western Cape ($n = 25$), and Limpopo ($n = 53$)—on age, marital status, and employment status and education levels were examined against the outcome variables in the study, development of depression, and PTSD through ANOVA and student tests. Pearson correlations were performed to examine bivariate associations among region, depression, PTSD, and social support. To test the potential moderators, regression analyses were used. The multivariate linear model included all the variables that contributed significantly to the univariate model. The p values less than 0.05 were considered statistically significant in the multivariate model. The R-square and the adjusted R-square for the final multivariate model were 0.397 and 0.3643, respectively. The VIF (variance inflation factor) values are all less than 2. All statistical analyses were performed with SPSS 11.0 software.

Results

Demographic Characteristics

Table 1 show the demographic profile of the female rape survivors who participated in the study per province. The mean age of the female rape survivors in KZN was significantly higher as compared to other provinces ($p < .05$, see Table 1). A greater proportion of rape victims in KZN (57%) were raped in their own home compared to Limpopo (21%) and Western Cape (20%; $p <$

Table 1
Demographics for Participants

Demographics & Assault Characteristics	n	Region			p-value
		Limpopo (n = 53)	Western Cape (n = 25)	KZN (n = 22)	
Age (Mean ± SD)	27 ± 11.5	26.5 ± 11.7	23.7 ± 9.1	31.9 ± 12.1	.047
Marital status					
Married or live with partner	21 (21%)	14 (26.92%)	2 (8%)	5 (23.81%)	.159
Not	77 (79%)	38 (73.08%)	23 (92%)	16 (76.19%)	
Education					
Secondary or less	84 (84%)	45 (84.91%)	23 (92%)	16 (72.73%)	.222
Tertiary	16 (16%)	8 (15.09%)	2 (8%)	6 (27.27%)	
Employment					
Unemployed	66 (66%)	36 (69.23%)	17 (68%)	13 (59.09%)	.690
Employed (full/part time)	33 (33%)	16 (30.77%)	8 (32%)	9 (40.91%)	
Location of Assault					
My own home	28 (28%)	11 (20.75%)	5 (20%)	12 (57.14%)	.004
Outside of my home	71 (71%)	42 (79.25%)	20 (80%)	9 (42.86%)	
Time of Assault					
Day	28 (28%)	9 (16.98%)	6 (25%)	6 (27.27%)	.553
Night	71 (71%)	44 (83.02%)	18 (75%)	16 (72.73%)	
Any child abuse history					
Yes	10 (10%)	3 (5.66%)	1 (4%)	6 (27.27%)	.013
No	90 (90%)	50 (94.34%)	24 (96%)	16 (72.73%)	
Perpetrator was a stranger					
Yes	35 (35%)	17 (32%)	8 (32%)	10 (46%)	.508
No	65 (65%)	36 (68%)	17 (68%)	12 (54%)	
Severity of Assault					
Punched & kicked	35 (35%)	15 (28%)	7 (28%)	13 (59%)	.078
Threatened with weapon	44 (44%)	28 (52%)	10 (40%)	6 (27%)	
Used a weapon	6 (6%)	4 (8%)	1 (4%)	1 (5%)	
Verbal threat	15 (15%)	6 (11%)	7 (28%)	2 (9%)	
Social support (Mean ± SD)	30.7 ± 6.2	32.1 ± 6.4	27.6 ± 4.9	30.9 ± 6.1	.009

Note. KZN = KwaZulu-Natal.

.05). Moreover, the findings also revealed that a significantly higher proportion of KZN female rape survivors had a history of child abuse compared to other provinces ($p < .05$). No significant relationship was observed between marital status, level of education, employment status, time of assault, type of perpetrator, and severity of assault, and the region of the female survivors of rape ($p > .05$).

Sociodemographic Factors, Assault Characteristics, and Post-Assault Factors by PTSD and Depression

The female rape survivors in this study exhibited high levels (87%) of posttraumatic stress disorder and moderate (51%) to severe symptoms of depression. As shown in Table 2, several sociodemographic variables predicted PTSD and symptoms of depression. The unmarried survivors of rape had significantly greater levels of depression symptoms (20.3 ± 6.7 vs. 13.9 ± 7.3 , $p < .05$) and PTSD (22.1 ± 11.4 vs. 16.7 ± 8.9 , $p < .05$) compared to the married/cohabiting female rape survivors. In addition, the unemployed women significantly had a higher level of symptoms of depression (20.0 ± 7.3 vs. 16.9 ± 6.5 , $p < .05$) compared to employed female rape survivors. Interestingly, the female survivors of rape in KZN province experienced a greater PTSD (25.4 ± 13.1) and symptoms of depression (22.4 ± 6.1) compared to other provinces. The use of a weapon during the rape assault significantly increased the symptoms of depression in this group ($p < .05$).

With regard to social support, a positive correlation was observed between social support and symptoms of depression ($r = .37$, $p < .05$), but social support was not statistically associated with PTSD ($r = .12$, $p > .05$).

Additional regression analyses were conducted to further explore the linkage between symptoms of depression and selected demographic variables and social support (Table 3). Symptoms of depression were influenced by region, marital status, and social support. The female survivors of rape in KZN province were seven times more likely to experience symptoms of depression compared to other provinces, while married/cohabiting female rape survivors were six times less likely to report symptoms of depression compared to the unmarried female rape survivors. The model indicates that social support significantly increased symptoms of depression among the female survivors of rape in the present study.

Discussion

This study explored the relation of sociodemographic factors, characteristics of rape, and social support to the development of symptoms of depression and posttraumatic stress disorder among female survivors of rape 6 months following the incident of sexual assault. Overall, the present study supports the notion that survivors of rape face increased risk for development of symptoms of depression and or PTSD. As hypothesized, the results of the current study showed that development of depression and post-traumatic stress disorder was strongly associated with sociodemo-

Table 2
Univariate Analysis of Socio-Demographics With BDI-II and PTSD Score

Demographics & Assault Characteristics	BDI			PTSD		
	Mean \pm SD	Statistics	<i>p</i> -value	Mean \pm SD	Statistics	<i>p</i> -value
Age (years)						
<20	18.7 \pm 7.2	F = .93	.399	19 \pm 9.4	F = .8	.451
20–29	18.4 \pm 7.1			22.2 \pm 11.5		
30+	20.7 \pm 7.3			22.0 \pm 12.4		
Marital status						
Married/live with partner	13.9 \pm 6.6	t = 3.91	.002	16.7 \pm 8.9	t = 2	.048
Not	20.3 \pm 6.7			22.1 \pm 11.3		
Education						
Secondary or less	19.7 \pm 7.3	t = 1.95	.054	21.8 \pm 11.4	t = 1.27	.210
Tertiary	15.9 \pm 5.5			18.0 \pm 9.1		
Employment						
Unemployed	20 \pm 7.3	t = 2.42	.045	21.7 \pm 11.3	t = .51	.610
Employed (full/part-time)	16.9 \pm 6.5			20.5 \pm 11.1		
Province						
Limpopo	19.8 \pm 7.5	F = 8.84	<.001	18.7 \pm 11.7	F = 3.25	.043
Western Cape	14.5 \pm 5.2			22.8 \pm 5.6		
KZN	22.4 \pm 6.1			25.4 \pm 13.1		
Location of assault						
My own home	18.8 \pm 6.8	t = -.09	.932	20.9 \pm 10.9	t = -.06	.950
Outside of my home	19.1 \pm 7.3			21.1 \pm 11.1		
Any childhood abuse history						
No	18.7 \pm 7.3	t = -1.56	.120	21.1 \pm 11	t = -.23	.820
Yes	22.4 \pm 5.8			22 \pm 13.1		
Perpetrator was a stranger						
Yes	20.9 \pm 6.9	t = -1.93	.057	23.4 \pm 14.0	t = -1.45	.152
No	18.1 \pm 7.1			20.1 \pm 9.1		
Severity of Assault						
Punched & kicked	18.2 \pm 6.6	F = 4.94	.0031	21.6 \pm 11.3	.68	.5661
Threatened with weapon	20.9 \pm 6.6			22.3 \pm 12.1		
Used a weapon	22.8 \pm 8.9			17.1 \pm 10.9		
Verbal threat	13.8 \pm 6.8			18.7 \pm 7.6		
Social support		r = .37	.0001		r = .12	.23

Note. BDI = Beck Depression Inventory; PTSD = posttraumatic stress disorder; KZN = KwaZulu-Natal.

graphic context of marital status and unemployment. The results showed that development of the symptoms of depression and PTSD was strongly associated with marital status: Married/cohabiting female survivors of rape had a significantly lower mean score for symptoms of depression and PTSD compared to their counter-

parts. These findings provide support to past research indicating that support from intimate partners of rape survivors reduces PTSD and symptoms of depression (Billette, Guay, & Marchand, 2008). In the current study, the lower likelihood of symptoms of depression among the married/cohabiting female survivors of rape

Table 3
Multivariate Regression Analysis of BDI and Socio-Demographics

Socio Demographics and Social Support	Coeff	SE	<i>t</i> -value	<i>p</i> -value
Marital status				
Unmarried	Ref			
Married/live with partner	-6.04	1.59	-3.78	.0003
Employment				
Unemployed	Ref			
Employed (full/part-time)	-1.58	1.34	-1.18	.2406
Region				
Western Cape	Ref			
KZN	7.37	1.76	4.19	<.0001
Limpopo	4.89	1.52	3.23	.0017
Social support	.31	.10	2.93	.0043

Note. KZN = KwaZulu-Natal. R-square = .397; Adj R-square = .3643; VIF (variance inflation factor) values are all less than 2.

is most likely explained by the available support and empathy from the partner subsequent to the rape incident. It is possible that being married provides female survivors of rape with a safe environment to work through the sexual trauma in a manner that lessens the risk of developing increased symptoms of depression. More studies are required to expand on these findings to understand the specific contribution and support of intimate partners in predicting female survivors of rapes' psychological adjustment.

The second finding in our study relates to employment status. The unemployed female survivors of rape in this study showed significant symptoms of depression post rape. Given the widespread belief that unemployment leads to psychological depression, it is possible that sexual assault may reflect a cumulative effect in increasing the risk to the development of the symptoms of depression among the unemployed female survivors of rape in the current study. The findings in this study provide support to previous research indicating that unemployment increases the risk and likelihood for depression among survivors of rape (Abrahams et al., 2013; Möller et al., 2014).

While there may be support for the health-damaging effects of unemployment, very few studies have provided the causal link between unemployment among rape survivors and symptoms of depression. In the current study, we did not control for preexisting depression or psychological trauma. The findings present an opportunity for future studies to understand the causal link between unemployment and symptoms of depression post rape victimization.

As predicted, the psychological response to rape victimization was differentiated across the regions in the current study. The present study observed regional differences on symptoms of depression and PTSD with female survivors of rape, with KZN province significantly reporting more symptoms of depression and PTSD compared to other provinces. Perhaps the explanation for the difference could be explained by the fact that a higher proportion of female survivors of rape in KZN province also reported a history of child sexual abuse. Specific examinations of childhood and adult revictimization suggest that women who are revictimized face increased risk of trauma-related symptoms and in particular depression and posttraumatic stress disorder (Saunders, Villepontoux, Lipovsky, Kilpatrick, & Veronen, 1992). The cumulative effect of sexual assault experience may potentially explain the observed greater risk in the development of symptoms of depression and posttraumatic stress disorder in this region of KZN.

It is also likely that the, heightened levels of PTSD and symptoms of depression among KZN survivors of rape could be a function of survivors' response to the rape trauma but also a result of exposure to multiple traumatic experiences within the neighboring environments. KZN, the province with the largest population in SA and high levels of poverty, is also ranked as the country's murder capital (South African Police Services, 2015). The exposure to high levels of crime may have a latent effect on survivors' mental health post rape victimization.

Concurrently exposure to poverty may increase vulnerability to depression and stress post rape. In the present study, the female survivors of rape from KZN had the lowest levels of education and were largely unemployed. These stressors (poverty and exposure to crime and trauma) may be associated with increased risk for depression and stress for survivors of rape. For this reason, there is a great need for research on lifetime exposure to adversities and

trauma that include community samples of female survivors from diverse ethnic backgrounds within the various South African provinces.

These findings may also be attributed to the fact that a greater proportion of women in KZN were raped in their own home and by a stranger and were punched and kicked, and thus may have experienced a more extreme sense of violation than the other survivors in the Western Cape and Limpopo, resulting into exacerbated PTSD symptomatology and depression.

Furthermore, these findings highlight the importance of the location of where rape occurred as a possible predictor of symptoms of depression. There is limited research on the relation of the location of the incident to the psychological response post rape victimization. This finding can help inform prevention strategies.

As hypothesized, the severity of sexual assault was significantly associated with symptoms of depression; female rape survivors who were threatened with a weapon and had a weapon used during the assault reported a greater mean score for depression. These findings are consistent and in line with the emergent body of research highlighting the relationship between assault severity during rape and post rape depression symptomatology (Möller et al., 2014). In the present study, it is evident that different aspects and/or forms of the severity of assault during rape include different forms of risk for PTSD and depression. The question therefore becomes what specific elements and/or aspects of assault severity during rape victimization increases the risk of and PTSD and symptom of depression. Our results may differ from other previous findings because different measures of assault severity during rape have been used across studies.

Contrary to our hypothesis and the well posited association between social support and lessened risk of development of PTSD symptomatology and depression, the current findings revealed that social support was not associated with PTSD, but significantly increased symptoms of depression among female survivors of rape. This pattern of relationship suggests that not all of the support available to rape victims following from rape victimization may act as a buffer against greater likelihood of symptoms of depression post rape victimization. It is possible that availability of social support may further weaken the victims' emotional strength and thus prolong recovery from rape trauma. Furthermore, it may be informative to explore the aspects of social support that offer the stress buffering effect among the female survivors of rape, taking into account cumulative experience of interpersonal traumas and socio demographic factors.

The current study has a number of strengths. First, the operationalization of the model of combined predictors (sociodemographic variables, assault characteristics, and social support) of PTSD and depression symptoms allows our findings to be applied within the context of understanding the relationship between predisposing variables and the occurrence of PTSD symptomatology and depression after rape. With the knowledge of the factors that potentially increase the risk for PTSD and depression, researchers and clinicians and others providing care for survivors of rape can more easily identify those female survivors at greater risk, and appropriate resources could be directed to assist the women. Second, the current study specifically examined female survivors of rape from ethnically diverse samples in both urban and rural communities in South Africa. Given that the majority of the sample was Black female survivors of rape living in poverty, this

study extends the understanding of women who are under-researched but are at greater risk for traumatic experiences.

There are several limitations of the current study design. As with all cross-sectional research, we cannot conclude on the causal and or predictive relationships. Therefore, future studies should seek to examine the impact of the predictor variables in a longitudinal design and test for the cumulative traumatic experiences. The sample size in the current study is limited by its nonrepresentative sample. While it is an advantage for our purposes, the participants in this study were all Black female survivors from predominantly Black communities and therefore limits the generalizability of these findings to other ethnic groups in South Africa and moreso to representatively sampled survivors. Because most women were recruited through the hospital and victim empowerment centers (a convenient sample), it is not known if the relationship found here would be replicated in representatively sampled victims, who should be studied in future research. The sample of female survivors in the current study were those that reported their experience to police and the empowerment centers, thus it may likely be over representing the severity of assault, and the proportion of stranger-perpetrated sexual assault.

Despite these limitations, there is an opportunity in the future to test the model on a representative sample. These findings also reinforce the need for more consistent consideration of social context variables in studies of mental health impacts of sexual assault. Given the high likelihood for victimization of women by male perpetrators in South African townships, PTSD assessment and trauma treatment should focus on understanding further both existing and rape-related factors that increase the risk of stress and depression for sexual assault victims. More attention should also be given to the persistent poverty and other sociodemographic factors and impact on the mental health well-being of female rape survivors especially in the rural areas of South Africa that are plagued by high levels of poverty and inequality—a contributor to limited health care and other services.

The current study controlled for previous sexual assault, but given the reported levels of crime and trauma in the communities of the sampled group, further studies are required in understanding the relation of cumulative exposure to trauma to the mental health outcomes in female survivors of rape. In particular, there is a need to understand whether exposure to other forms of interpersonal violence is related to depression and posttraumatic stress disorder in survivors of rape from these communities. Assessment and treatment focusing on isolated incidents of rape can underestimate the impact of individual occurrences of trauma over a lifetime for victims, and how these events shape their responses and emotional well-being over time. In this way, understanding the interwoven nature of trauma over time is critical in the way in which stress and depression is understood and how treatment is approached.

Moreover, while progress has been made since 2007 by introducing sexual offense courts, the Family Violence Child Protection and Sexual Offenses (FCS) units, and the Thuthuzela Care centers based in health facilities, the specialized responses to sexual violence remain a challenge. In combatting sexual violence it is necessary to alter the social conditions that facilitate the risk of rape in the communities, which includes ensuring the widespread availability and access to services that support victims of rape posttrauma victimization for longer periods. In addition, this also calls for a culturally inclusive ecological model of sexual assault

recovery that integrates and extends existing models to better examine the complex factors leading to differential post rape adjustment. This has an impact on both the judicial system and mental health system processes when dealing with rape victims. The findings herein highlight the need for sexual violence prevention programs to be comprehensive and community based to address the multiple levels of risk influences identified in this study.

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