

## **DRINKING AND DEPRESSION AS PREDICTORS OF SOCIAL SUPPORT AND QUALITY OF LIFE AMONGST CIVILIANS AND EX-COMBATANTS IN JUBA, SOUTH SUDAN**

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### **ABSTRACT**

*This paper examined drinking and depression as predictors of social support and quality of life among civilians and ex-combatants in South Sudan. High levels of drinking and depression and rising rates of suicide have been reported as growing matters of public health concern. Some ex-combatants will suffer severe psychological conditions, including Post Traumatic Stress Disorder (PTSD) after the war. Mental health conditions that co-exist with alcohol abuse have a more debilitating effect. Designing effective intervention programs to prevent complications and or to treat those at risk is critical. Several scales were used to measure psychological well-being. Regression, independent samples t-test techniques and standard equation modelling were used to evaluate the hypotheses. Gender and affiliation were found to be significant predictors of social support while education and drinking were significant predictors of quality of life. However, depression was not a significant predictor of either. The research was conducted from April to September 2011. Data was collected from civilians and verified ex-combatants and Women Associated Armed Forces in Western and Northern Bahr El Ghazal. Four trained caseworkers of the South Sudan DDR Commission assisted with data collection.*

**KEY TERMS:** Drinking, depression, ex-combatants, and Sudan.

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## **INTRODUCTION**

The signing of the Comprehensive Peace Agreement (CAP) in January of 2005 between the Sudan's People's Liberation Movement (SPLM) and the Government of Sudan ended Sudan's second civil war which had lasted from 1983 to 2005. This was preceded by the first civil war that had lasted from 1955 to 1972. This agreement marked the end of one of Africa's protracted and bitter civil wars, and raised hopes for long term peace after nearly forty years of war.

The prolonged exposure to war renders many in the population susceptible to possible cumulative emotional trauma and related mental health issues. The reported high rates of trauma and depression may give just a glimpse into the depth and breadth of challenges likely to face service providers. Exposure to trauma often affects every aspect of everyday living and functioning, including but not limited to, how one deals with and or manages change, learns, thinks, works and or relates to others. Trauma survivors are generally more prone to experience mental health and physical health problems.

Intervention strategies focused only on ex-combatants and women associated with armed forces (WAAF) alone, will neglect the majority of civilians exposed to trauma untreated, and vulnerable to developing complications. The adjustment and coping of ex-combatants may be further enhanced by the re-integration socio-economic support packages and skills training they receive. It is well

established that individuals with good emotional social support systems cope better than those without. Ironically, to some degree, war also gave combatants more ‘control’ and ‘self-efficacy’ than civilians over stressful and stress inducing situations.

By understanding the effects of trauma, its sources and impacts, policy and decision makers, as well as other stakeholders can help design and develop appropriate and responsive programs. Along with other developmental priorities, such as reconstruction and development, restoration of safety and security, provision of competent basic mental health support must be a key priority for long term peace and stability in South Sudan.

## **BACKGROUND**

Few studies in South Sudan found depression, drinking and suicide to be growing problems, and possible key issues of public health concern for South Sudan (Nkhoma, 2011; Winkler, 2010; Roberts et al., 2009). The possible co-occurrence of drinking, post-traumatic stress disorder and depression amongst ex-combatants has a potential to amplify the harms associated with each one separately. Roberts reported the existence of disconcertingly high levels of PTSD amongst Southern Sudanese, where 36% of the sampled population (n= 1242) met the criteria for PTSD, existing along with high levels of depressive symptoms at 50% for the sample (Roberts et al., 2009). In their study conducted in northern Uganda and South Sudan, Karunakara et al., (2004) found prevalence of PTSD amongst

South Sudanese in South Sudan was 48% compared to 46% among South Sudanese refugees living in Uganda. When considered together with reports of high levels of drinking, aggression, domestic violence and high rates suicide, these factors will place enormous additional stressors on the mental health of those affected and the public health system. Mental health is recognized as a key public health issue in conflict affected populations (IASC, 2007, Roberts et al., 2009), we believe it must be considered as such too in post-conflict societies, especially in the interests of building peace and stability.

There are currently no studies conducted in South Sudan to compare the mental health effects of war between the civilian, and the ex-combatant populations. In a recent focus group discussion with ex-combatants and WAAF, my findings indicated that they experience serious mental health concerns including high levels of depression, post-traumatic stress, increased alcohol use, domestic violence and suicidal ideation.

Depression is one of the most common affective disorders with a life time prevalence of between 10 to 16%, and an estimated life time occurrence of between 8 to 18% in the general population (Alaadin & Ansul, 2008). Prevalence rates for depression and post-traumatic stress disorder in South Sudan are significantly high. Post-traumatic stress disorder is likely to be co-morbid with other mental health disorders, including with depression. Further, substance abuse is a well-documented co-morbid factor in many psychological disorders, including for both depression and post-traumatic stress disorder.

Considering the potential risks posed by the possible co-occurrence of drinking and depression in conditions of prolonged exposure to war such as is the case in South Sudan, can lead to elevated levels of depression, drinking and PTSD, this study investigated their ability to predict perceived social support and quality of life amongst ex-combatants and civilians.

There are currently no studies related to drinking and depression as predictors of social support and quality of life comparing ex-combatants and civilians. This study uses Structural Equation Modeling (SEM), to address this gap. The objective is realized through literature review, evaluation of the research hypotheses using SEM. Key findings are reported, limitations and implications discussed, and suggestions for future research are offered.

## **LITERATURE REVIEW**

### *Theoretical framework*

Theories of social behaviour, in particular social learning theory (Bandura, 1977) and normative theory (Paton-Simpson, 2001), contend that perceived or real social norms exert a strong influence on social behaviour, where social norms refer to the expected behaviours in specific situations (Hagman, Clifford, Noel, 2007). According to social learning theory, drinking including heavy drinking can be influenced by observing peers, imitation and or modeling (Bandura, 1977). In this context therefore drinking both within ex-combatants and civilians is likely to be influenced by

dominant local cultures, as most will imitate, exhibit and maintain socially desirable and acceptable drinking behaviours. Larimer et al., (2009) found that the influence of perceived approved behaviours of peers was one of the strongest influences on personal drinking amongst college students. I believe that this will be the case with ex-combatants and civilians, in keeping with social learning theory. In view of the above discussion, I hypothesized as follows:

*H1: Drinking will be negatively correlated to Social Support and Quality of Life.*

#### *Drinking and Depression*

Few studies investigated the effects of alcohol use on the relationship between stress and depression, and found that light to moderate drinkers had less depression when compared to non-drinkers and or heavy drinkers (Lipton, 1994). Depression has been correlated with poor health, overall task performance (Ameresekere et al., 2012) and elevated substance abuse and anxiety (Andrew and Wilding, 2004). Arthur (2004) found that depressed individuals lacked many necessary interpersonal skills, and made unrealistic demands on themselves and others. Research shows that mental health conditions that co-exist with substance use and or abuse have a far more debilitating psychological effect than those that do not (Ayazi et al., 2012). I posited therefore that, many ex-combatants will have difficulties with relationships during the re-integration

period leading to poor social support and depression. In view of the foregoing discussion the following was hypothesized.

*H2: Depression will be negatively correlated to Social Support and Quality of Life.*

### *Social Support and Suicide*

Social support research emphasizes the importance of external factors and availability of social support for coping with challenging life events. The process of re-integration is going to place enormous adjustment demands (social, physical, emotional, financial and otherwise) on the ex-combatants, their families and the communities which they are to become part of, which additional stressors do not necessarily arise for civilians. Without the right levels of social support, ex-combatants may experience painful social isolation which may impact negatively on their health and psychological wellbeing. Social isolation and loneliness have been related to chronic illness and poor health status, with links to increased alcohol use, depression and suicidal ideation (Swami et al., 2001) On the other hand, social support has been shown to act as a psychological buffer against stress and has been associated with lower levels of stress, (Negga and Applewhite, 2007) and is positively correlated with high levels of social coping; (Zimet, 1998). Other studies show that deterioration in the quality of the relationship, regardless of whether one drinks or does not, tends to lead to depression and also that there is a positive correlation between depression and suicide

(Kashbeck and Christensen, 1995). In view of above discussion I hypothesized as follows:

*H3: Suicidal Ideation will be negatively correlated to Social Support and Quality of Life.*

#### *Domestic Violence and PTSD*

Domestic violence is defined as ‘any means of establishing power and control over the victims by both physical and psychological methods of coercion’ (Pence and Paymar, 1993; Shephard, 1992). Radford and Russell (1992) observe that domestic violence is used to protest a setback in power relations regarding women in society, and often allows men to get away with such violent behaviour towards women. While Londt (2004) notes that domestic violence is progressive in its debilitation and often lethal. Current research findings indicate that domestic violence is a problem in South Sudan. It is complicated by social, cultural traditions and institutional practices that seem to condone it. Individuals who suffer from post-traumatic stress disorder may have difficulties controlling their impulse and or coping with elevated levels of stress, which may render them vulnerable to committing increased acts of domestic violence as they attempt to regain control in a situation. In view of the above discussion I hypothesized the following:

*H4: Post Traumatic Stress Disorder will be negatively correlated to Social Support and Quality of Life.*



## **METHODOLOGY**

### *Procedures*

The data was collected from verified ex-combatants and civilians in Northern Bahr El Ghazal (NBEG) and Western Bahr El Ghazal (WBEG). Several instruments were utilized to collect data: A Background Information Form (BIF), Clinically Administered Post Traumatic Stress Scale (CAPS), Social Support Scale (SS), Quality of Life Scale (QOL) and several scales to measure Depression, Alcohol consumption, Domestic Violence and Suicidal Ideation. The BIF was used to record information pertaining to area, affiliation, ethnicity, age, gender, rank, years of service, type of vocational training and employment status.

### *Participants*

The sample consisted of 238 respondents, made up of 108 (45.4%) ex-combatants and 130 (54.6%) civilians aged 18-79 years. The sample was made up of 129 (54.2%) (77 NBEG & 52 WBEG) male and 109 (45.8%) (50 NBEG & 59 WBEG) females of whom 55 males and 53 females were ex-combatants. With 127(53.4%) participants from NBEG and 111(46.6%) coming from WBEG. Most research participants (37.4%) were between the ages of 35-49 years, with: 10.9% (18-24), 28.6% (25-34), 10.1% (50-59), and 13% (60-79). Ethnic composition of the sample was 63.4% Dinka, 16.4% Jur/Nueri, 12.6% Balanda, and 2.5% each for Mundari and Zande, with 1.7% Falata and 0.8% Magayai. Only 5.5% of participants were

employed full-time, 8.4% part-time with the remainder, 86.1% identifying as 'not-working'. Sixty-five percent (65.1%) had no formal schooling with 24.4% attending primary school but not literate, while only 10.5% can be regarded as literate.

### *Measures*

To measure quality of life, the Quality of Life (QOL) scale was administered to participants, the 13-item questionnaire like all other questionnaires is anchored from 1 ("Strongly Disagree") to 5 ("Strongly Disagree") and was developed by Lee, Bobko, Earley, Lokke et al., (1991). The scale was reverse coded so that lower values reflect higher scores and the Cronbach Alpha for this scale was .912. I developed the scales for Suicidal Ideation (3-items), Drinking (8-items) and Domestic Violence (6-items), all the scales had a high and excellent reliability ranging from .873 to a high of .978 which is better than .70 required for such research (Hair, 1998, Nunnally, 1978).

## **RESULTS**

The proposed quality of life model presented in Figure 1 was tested using latent variable structural equation modelling (SEM) to evaluate research hypotheses by using the LISREL computer program (version 8.30, Joreskog & Sorbom, 1996). A major strength of using structural equation modelling (SEM) is that it uses latent variables which allow for the estimation of relationships among theoretically interesting constructs that are free of the effects

of measurement unreliability. The covariance matrix was used as the input for all models, and the maximum likelihood estimation procedure was employed to produce the model parameters. To examine model fit, measures of absolute fit were employed, incremental fit, and parsimonious fit in order to determine how well the data fit the hypothesized model (Hair, Anderson, Tatham, & Black, 1998; Mueller, 1996). The means, standard deviations and zero-order correlations for the model were calculated.

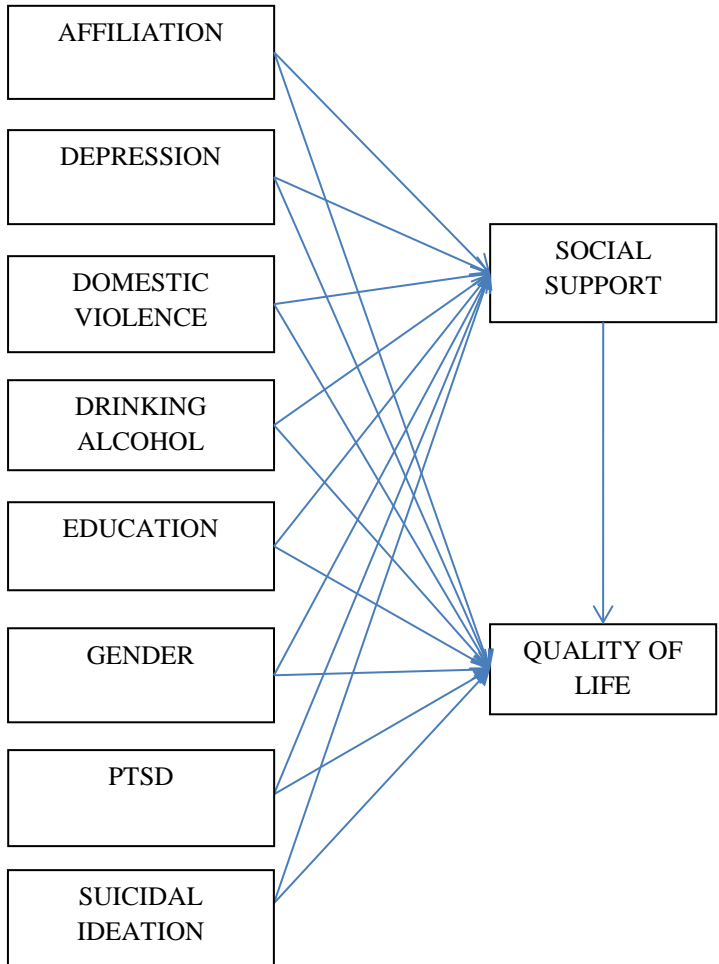
#### *Common Method Variance Tests*

Since all constructs were measured using self-report measures, we examined whether common method variance was a serious issue. As recommended by Podsakoff and Organ (1986), Harman's one-factor test analysis was conducted. In this test, all variables were entered together into an unrotated factor analysis and the results were examined. If substantial common method variance is present, then either a single factor would emerge or one general factor would account for most of the total variance explained in the items (Podsakoff & Organ, 1986). After entering all the items into the factor analysis model four factors emerged from the analysis, and the first factor accounted for 19 percent of total variance, however, no general factor emerged from the factor analysis. Thus, common method variance was not considered to be a serious issue in this study.

#### *Model Fit Indicators*

The following fit indices were used to assess the fit of the nomological network developed in Figure 1. The goodness-of-fit index (GFI) is a measure of absolute fit of the model by comparing the fitted model with the actual data, and ranges from 0 to 1. Values that are greater than 0.90 demonstrate that the model fits the data well (Hair et al, 1998). The absolute fit measures, maximum likelihood ratio chi-square ( $\chi^2$ ) and goodness-of-fit index (GFI), provide a measure of the extent to which the covariance matrix estimated by the hypothesized model reproduces the observed covariance matrix. In addition the root mean square error of approximation (RMSEA) was considered as it provides an estimate of the measurement error. Another fit index, the non-normed Fit Index (NNFI), was used to assess model fit; the NNFI assess the penalty for adding additional parameters to the model. The normed fit index (NFI) provides information about how much better the model fits than a baseline model, rather than as a sole function of the difference between the reproduced and observed covariance matrices (Mueller, 1996; Bentler & Bonnett, 1980). In NFI and NNFI the nested models have a chi-square closer to zero, in which case it can be said that the model is parsimonious (Mueller, 1996; Marsh et al., 1988). The comparative fit index (CFI) has similar attributes to the NFI and compares predicted covariance matrix to the observed covariance matrix and is least affected by sample size.

Figure 1: *Conceptual Model for Quality of Life*



### *Test of the Model*

The two step approach to Structural Equation Modeling was employed (Anderson & Gerbing, 1988) First, the measurement model was inspected for satisfactory fit indices. After establishing satisfactory model fit, the structural coefficients were interpreted.

### *Model Measurement*

The measurement model had acceptable fit indices (see Table 1). That is, the Chi-square statistic was at its minimum, and the p-value was non-significant. The GFI was above its recommended threshold of 0.90 (Hair et al., 1998), and the root mean square error of approximation (RMSEA) was less than 0.08, indicative of an acceptable model (Steiger & Lind, 1980). The Chi-square divided by degrees of freedom co-efficient was less than three, which indicates an acceptable model fit (Marsh et al., 1988). The CFI, NFI and NNFI all indicated an acceptable fit of the model to the data.

Table 1: Fit Indices for the Quality of Life Measurement Model

Model	$\chi^2$ (df)	p- value	$\chi^2$ (df)	RMSEA	GFI	NNF I	NF I	CF I
Base- line	0.00 (1)	1.00	0.00	0.0	1	1.10	1	1
Statistics are based on a sample of 205 respondents. Degrees of freedom are in parentheses after the Chi-square value. RMSEA = Root mean square error of approximation. GFI = Goodness-of-fit index. NNFI = Non-Normed Fit Index. NFI = Normed Fit Index. CFI = Comparative Fit Index. df = Degrees of Freedom.								

### *Interpretation of Structural Equation Modelling*

Table 2 displays significant structural coefficients for the quality of life model. *Drinking* was found to be a statistically significant and negatively correlated predictor of quality of life, which seemed to indicate that the more one drank; the worse their quality of life was likely to be. Contrary to expectations, *depression* was not found to be a significant predictor of quality of life in this model. However, *affiliation* and *gender* emerged as statistically significant and negatively correlated to social support, which seems to suggest that women and those who were not ex-combatants, were likely to

experience poor social support than men. *Education* emerged as a statistically significant and positive predictor of quality of life.

Table 2: *Unstandardized Structural Coefficients for the Quality of Life Model*

Parameter	Path Coefficient	T-value	SMC
SOCIAL SUPPORT			19%
Affiliation	-6.85	-2.77*	
Gender	-6.87	-2.68*	
QUALITY OF LIFE			14%
Alcohol use/ Drinking	-0.44	-2.95*	
Education	0.28	2.75*	
Statistics are based on a sample of 238 respondents. These are the endogenous variables in the model; the exogenous variables are listed underneath. *Significant at the 0.05 level. SMC=Squared Multiple Correlation.			



Overall, four factors *affiliation, gender, drinking (alcohol use) and education* were significant predictors of quality of life for the hypothesized quality of life model.

Partial support was established for H1, which stated that ‘drinking will be negatively correlated to social support and quality of life’. Drinking was found to be statistically significant and negatively correlated with quality of life, but not to social support. Contrary to expectation, partial support was established for H2, which stated that ‘depression will be negatively correlated to social support and quality of life’. As hypothesized, depression was found to be negatively correlated with social support, but unexpectedly positively correlated with quality of life, though both relationships were statistically insignificant.

The third set of hypotheses, H3 predicted ‘suicidal ideation will be negatively correlated to social support and quality of life’. This was partially rejected when it was established that suicidal ideation was positively correlated with social support, but negatively correlated with quality of life, however both relationships were statistically insignificant as well. The last set of hypotheses, H4 stated that ‘post-traumatic stress disorder will be negatively correlated with social support and quality of life’. This was partially affirmed, when PTSD was found to be negatively correlated to quality of life, but rejected when contrary to expectation it was shown to be positively correlated to social support, both associations were however, shown to be statistically insignificant.

None of the paths, in H1<sub>a</sub>, H2<sub>a,b</sub>, H3<sub>a,b</sub> and H4<sub>a,b</sub> were statistically significant, and only part of H1<sub>b</sub> (drinking will be negatively correlated to quality of life) was statistically significant, but not H1<sub>a</sub> (drinking will be negatively correlated to social support). The squared multiple correlations for Social Support and Quality of Life were 19% and 14% respectively.

## **DISCUSSION**

The current research investigated the relationship between drinking and depression as predictors of social support and quality of life amongst ex-combatants and civilians in South Sudan. Using structural equation modelling techniques to evaluate the hypothesis, we found that *affiliation* and *gender* were significant predictors of social support, while *drinking* and *education* were significant predictors of quality of life. Drinking was found to be positively associated with social support, which may indicate that drinking is widely socially accepted as a norm and thus positively associated. Surprisingly, however, depression was not found to be as significant predictor of either. The significant negative association between gender and affiliation suggests that men and women who are not in the army may experience poor social support and thus overall poor quality of life. As it is, studies show that women exhibit high levels of depression and post-traumatic stress disorder. We note a curious positive association between suicide and social support, which may suggest that high social support, comes with high expectations especially for ex-combatants, thus putting pressure on them, and

leaving them probably more vulnerable to depression and suicide, which may explain why studies find high suicide rates, even though depression and suicidal ideation are not found to be significant predictors of either. With limited opportunities for socio-economic advancement, many would be likely to fulfil the high expectations that come with having served one's country. On the other hand, 'too much' social support may also be experienced as infantilizing, and produce additional stressors, rather than buffer against stress and depression.

Considering the low literacy rate of the sample (10.5%), and the low rate of gainful employment of individuals (13.9%), the challenges for providing opportunities for self-actualization through work are desperately needed. Ayazi observed that exposure to traumatic events coupled with socio-economic disadvantage were significantly associated with PTSD or conditions where PTSD was often comorbid with depression. Importantly they note that individuals with socio-economic disadvantage were most likely to have comorbid conditions, and to have experienced more traumatic experiences demonstrated by elevated by high levels of psychological distress, than individuals with only PTSD and or those with depression alone (Ayazi et al., 2012).

With few mental health professionals South Sudan may wish to emulate intervention programs introduced by the Centre for Victims of Torture in Liberia and Sierra Leone to help survivors in the community. The programs build lasting and continually improving

local peer counselling capabilities, support advocacy initiatives and educate the local population about mental health issues, reduce distress and increasing appropriate referrals and contribute toward professional development.

The study provides additional evidence of factors that are predictors of social support and quality of life; that may be important in the design of relevant and effective mental health intervention programs to educate, identify, provide supportive counselling and treat those most at risk in the affected population segments.

#### *Contributions*

The findings from this study have important practical implications for decision makers and policy makers in government departments and for implementing partners. In considering different strategies to provide mental health resources, including basic training and capacity development (e.g. peer counseling) and advance training (e.g. Juba University), coupled with community based psycho-education programs, so as to provide appropriate intervention and support to those at risk. These capacity development strategies may help prevent complications, improve daily functioning, and help reduce depression and the indicated high rates of suicide and suicidal ideation. Identifying some of the determinant factors of social support and quality of life can make an important contribution to the design of the mental health intervention protocol.

#### *Limitations*

This study was the first to investigate factors that predict social support and quality of life amongst civilians and combatants, and as such, literature was found to be limited. Second, the cross sectional design of the study does not allow for causal inferences. Third, the research used trained research assistants who had to translate and interpret questions into local languages. Fourth, another limitation of the study is that all data were collected using self-report measures, which may lead to the problem of common method bias. However, Harmon's one-factor test did not indicate a problem with common method variance.

## **CONCLUSION**

The results of the study demonstrate significant predictors of the hypothesized quality of life model amongst ex-combatants and civilians, and point to possible areas of intervention to ameliorate the suffering. A future research would be able to use a well-established trauma scale and depression scale to test the latent variable model. Specifically, studies are needed to compare and contrast robust samples of ethnic group members in other states with more diverse ethnic groups and verified ex-combatants and areas of intense war and or prolonged skirmishes.

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