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Industrialization Stresses, Alcohol Abuse & Substance Dependence: Differential Gender Effects in a Kenyan Rural Farming Community

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Abstract

Developing countries' industrialization and urbanization attempts have been linked to psychological distress and alcohol abuse. We used Hobfoll's COR theory to examine the relationship between gender, perceived resource loss (an indicator of industrialization stress), and alcohol abuse and dependence in a sample of Kenyan rural village men and women ($N = 186$). Regression analyses indicated that both gender and COR loss predicted alcohol abuse and dependence. Additionally, results suggested that gender moderated the relationship between COR loss and alcohol dependence; such that higher COR loss scores predicted higher alcohol dependence for men, but COR loss scores did not predict alcohol dependence for women. Thus, we suggest that gender differences in substance abuse may be due less to actual differences in resource loss, but rather to gender differences in the response to resource loss. Limitations and opportunities for future research are discussed.

Keywords

Conservation of Resources Theory; Alcohol Abuse and Dependence; Gender Roles; Industrialization; Urbanization

The African continent continues to struggle to become a group of modern, industrialized nations, and has lagged behind other countries in terms of economic and structural development. Africa's attempts at modernization focus on the transition from a subsistence based economy, where all members in the community raise crops to support themselves, to a market based economy, where prices for products are dictated by international market systems. The socio-political and structural changes required for this economic transition is often associated with heightened stress and dysfunction at all levels of society, as townships, tribes, families and individuals must adapt to structural and political changes that may profoundly affect their economic well-being and traditional social norms and roles. Furthermore, these changes may be even more stressful for African communities and individuals, since Africans have been forced to contend with the chronic onslaught of other historically prevalent socio-political and natural stressors (e.g. flood, famine, war, corrupt government, widespread poverty, starvation, malnutrition, and communicable disease) (Francis & Amuyunzu-Nyamongo, 2005).

Researchers have suggested that a developing nation's industrialization process requires tremendous flexibility and resiliency on the part of its communities and individuals; and historical research has illustrated that these economic, social, and political changes

associated with industrialization and growth may have profound negative effects on its community members (Dooley & Catalano, 1980; Inkeles, 1975; McKee & Leon, 2005; Pacula, 2011; Unal-Karaguvan, 2009). Specifically, research has linked these changes to many negative social and mental health problems; such as increased criminal activity, depression, anxiety, suicidality and substance abuse (Abbott & Weisner, 1975; Dana & Allen, 2008; Dooley & Catalano, 1980; Francis & Amuyunzu-Nyamongo, 2005; Inkeles, 1975; McKee & Leon, 2005; Pacula, 2011). In addition, other research studies have suggested that substance abuse and dependence is projected to become an increasingly large societal problem for all nations, however, particularly for developing nations (McKee & Leon, 2006; Patel, 2007).

Alcohol abuse has been shown to be a particularly salient social problem in Kenya, where analysts report widespread use and misuse of the local brewed alcohol (NACADA, 2007) and reports indicate that an estimated 70 percent of households have been touched by alcoholism (PanAfrican News Agency, 2001). Widespread alcohol abuse is also evident when one considers that Kenya has the highest road fatality rates in relation to vehicle ownership, and that these fatalities are most often associated with driving while intoxicated charges (Barasa, 2006). In addition, a few studies have indicated a possible spike in other forms of substance abuse in Africa, including an increase in intravenous drug use (Beckerleg, & Lewando-Hundt, 2004; Beckerleg, Telfer & Said, 2006; Siringi, 2001).

There is a paucity of research that investigates the link between urbanization stress, substance abuse and gender. Some social scientists have suggested that substance abuse in Africa may be linked to the stresses of urbanization, and that these stresses may be differentially experienced by men and women (Inkeles, 1975; Weisner, Bradley, & Kilbride, 1997). Furthermore, researchers have noted that African men are more likely to report substance abuse and dependence than African women (Bryceson, 2002; Francis & Amuyunzu-Nyamongo, 2005; Obot, 2006; Willis, 2002); and some social scientists have suggested that men's recent increase in substance abuse and dependence may stem from increased feelings of loss due to the psychological distress related to urbanization and industrialization (Barasa, 2006; Inkeles, 1975; Weisner, Bradley & Kilbride, 1997). There is a need to provide further elucidation on the link between socio-political change and increased negative psychological outcomes, and to better understand any potential gender differences related to these changes. This industrialization and urbanization stress might occur because individuals, particularly rural farming males, perceive greater losses of valuable tangible and intra-personal resources than rural farming females. Consequently, the perception of this resource loss translates into men's increased psychological distress, and may stimulate maladaptive coping behaviors including substance abuse.

Rural communities represent a large proportion of Africa's population (United Nations Population Division, 2008) and have been particularly negatively affected by Africa's industrialization attempts. Historically, Africa has operated as a subsistence-based economy, where community members raise their own crops and then barter them to provide for other needs. However, as Africa becomes more industrialized and increasingly relies on a market-based form of economy, rural farming townships have found themselves unable to fit into this new economic system. Thus, rural farming communities and families, faced with the inability to use farming as a way to fully provide for themselves, must rely on different types of income generation. Some rural farming community members may find employment opportunities within the burgeoning city centers, either in the service or manufacturing industries. However, for those individuals either unable or unwilling to find work in city centers, this transition may be especially stressful.

Researchers have suggested that the gradual shift towards a modernized national economy has altered the very fabric of African society; and that these changes have transformed all aspects of African community life, including the social and cultural definition of what it means to be an African individual, an African family, and an African community (Brandley & Weisner, 1997). These changes consequently affect whole townships or communities; as Africa's industrialization encourages the development of more westernized and individualized value systems over traditional community minded value systems (Francis & Amuyunzu-Nyamongo, 2005; McKee & Leon, 2005). Thus, with a burgeoning focus on individual needs over the needs of the community, and resulting widespread urbanization, townships have endured the loss of many of its most productive and resourceful community members. Furthermore, socio-political experts suggest that this urbanization weakens rural communities as it diminishes shared intellectual and tangible community resource pools, and places townships at an increased risk for government and community corruption (World Health Organization, 2001; 2004). African industrialization may also have profound negative effects at the family level, including what researchers have suggested is a general devaluation of the family unit (Wiesner, Bradley & Kilbride, 1997). Furthermore, family stress is compounded because urbanization and the resulting family dispersion has created smaller and less stable family units, which result in fewer tangible and emotional support resources for family members (Abott & Weisner, 1975; Francis & Amuyunzu-Nyamongo, 1980; Wiesner, Bradley & Kilbride, 1997).

Finally, these structural, economic, and social changes may profoundly affect a community's individuals, in that socio-political upheaval and urbanization may promote psychological distress and maladaptive coping behaviors, particularly for those most negatively affected (Abott & Weisner, 1975; Dana & Allen, 2008; Dooley & Catalano, 1980). Furthermore, some researchers have suggested that men and women are differently influenced by these changes, in that men (Inkeles, 1975) may be more likely to experience psychological distress than women during periods of rapid industrialization (Abbott & Weisner, 1975; Weisner & Abbott, 1977). Furthermore, past research has suggested that these results may be attributed to rural men's comparative increase in role stress during socio-political upheaval (Barasa, 2006; Weisner & Abbot, 1977). African communities and families most often ascribe to traditional gender roles, where men are seen as the primary provider and the leader of their families and communities. Thus, when men are no longer able to provide the basic resources for their families (food, clothing, shelter), this inability to provide may increase psychological distress and promote negative coping behaviors such as substance abuse.

Hobfoll's Conservation of Resources theory (COR; Hobfoll, 1989; Hobfoll, 1998) can be used to investigate the relationship between social upheaval, perceptions of resource loss, and substance abuse. COR theory is a stress theory that incorporates both the objective and perceived environment in response to stress and has been previously used to predict stress in collectivistic communities as well as developing and stressed countries (Hobfoll, 2001; Unal-Karagüven, 2009; Zamani, , Gorgievski- Duijvesteign, . & Zarafshani, , 2006). CORs basic tenet asserts that people strive to obtain, retain, protect, and nurture resources, and what is threatening to them is the potential or actual loss of these valued resources (Hobfoll, 1989). Thus, individuals experience psychological stress when there is an actual or perceived a) threat of a net loss of resources b) net loss of resources or c) a lack of resource gain following the investment of resources. Resources are defined as those objects, personal characteristics, conditions, or energies that are valued by the individual and the community, or that serve as a means for attainment of these objects, personal characteristics, conditions or energies (Hobfoll, 1989).

COR theory also states that stress appraisals are culturally scripted in that the values of the social group dictate the value of individual resources, thus certain resources are deemed more necessary for specific cultures (e.g., the ability to be an effective head of one's household without the aid of one's spouse). Furthermore, COR theory suggests that the experience of tangible resource loss may beget future loss in other non-tangible resources, such as intra-individual resources (e.g., self-esteem, self-efficacy, mastery, belief that one can maintain successful intimate relationships with important others). Thus, when individuals simultaneously encounter several tangible resource losses, this negative experience may translate into several intra-individual personal losses, creating a resource loss spiral (Hobfoll, 1989). Consequently, the experience of resource loss spirals often have tremendous negative effects on one's ability to regulate their emotions or behavior and may result in ineffective coping behaviors such as avoidance or substance abuse. We hypothesize that gender differences in reports of substance abuse and dependence in a rural Kenyan township may be at least partially explained by differences in the experience of resource loss, as conceptualized by Hobfoll's Conservation of Resource Losses measure. This study was designed to be exploratory in nature, and is the first empirical investigation in Kenya that has explored the links between gender, resource loss and reports of substance abuse.

Method

Research participants

The relationship between gender, reported COR loss, and alcohol abuse was investigated using a sample of individuals from a rural African population living near the Eastern Province of Kenya, in the township of Meru. Two hundred and nineteen participants were recruited via snowballing or chain sampling. Specifically, the researcher used his community connections to compile a list of potential participants that were thought to have substance abuse histories. Members of this community typically understand and speak Kiswahili; and the majority of the population understands English as well. However, many community members preferred to communicate in Kiswahili rather than English.

Procedure

Once potential participants were identified, they were asked to meet with the researcher in small groups for further briefing at nearby community settings (e.g. family center, school, shopping center, car wash, religious center). At this time, the interviewer presented the project, answered any questions and obtained informed consent. The Informed Consent and all study materials were available in both English and Kiswahili; participants were able to choose which language they preferred. Those participants that were able to read the survey filled the survey out on their own (in either English or Kiswahili). The researcher administered the surveys to participants that were either unable to read, or had difficulties reading the surveys. The researcher was also available for clarification or translation of any unfamiliar terms in the surveys. Surveys took approximately 50 minutes to complete. After survey completion, participants were thanked for their participation in the project and then received an incentive payment of 100 Kenyan shillings (approximately \$1 US).

Measures

All measures were available in both Kiswahili and English. Very little applied social research has been conducted in Africa, thus, most of the measures used in this project were developed in the United States, but have been previously used in cross-cultural research. In order to ensure that the English and Kiswahili measures were identical, all Kiswahili measures were translated and then back translated from English to Kiswahili and then back to Kiswahili by an independent bilingual researcher.

Demographic Questionnaire- assessed age, gender, educational attainment, and employment status.

Substance Abuse Assessment—We used two indicators of substance abuse; both indicators were drawn from The *Kenya National Agency for Campaign Against Drug Abuse (NACADA)* measurement tool. The Kenya National Agency for the Campaign Against Drug Use measurement tool was developed to evaluate the exposure, use and misuse, and the potential dependence of locally available used legal and illegal drugs in rural Kenyan areas. The first indicator asked participants, “How often do you consume alcohol?” This question was asked twice to measure locally brewed alcohol consumption and bottled beer alcohol consumption and was originally based on a 5 point scale (0 – Never, to 5 Every Day). However, we dichotomized the answers to 0 –no drinking through casual drinking (as defined as 0–4 on previous scale) and 1, substance abuse (as defined as 5 “Every Day” on previous scale). The second indicator assessed substance dependency using a ten item scale (e.g. “Have you ever suffered any problems associated with alcohol?”; “Have you ever felt the need to reduce your alcohol intake?”; “Have you ever drank alcohol in the morning to get rid of a hangover?”). Items were coded as yes/no; and were summed to create a Substance Abuse Dependence score. Higher scores indicated greater alcohol (either brewed or bottled beer) dependence.

Conservation of Resources- Loss—A 45-item, modified version of the Conservation of Resources (COR; Hobfoll, 1998) loss measure evaluated the level of recent loss across several domains (Interpersonal, Personal, Material, Work, Health, Children, Time, Meaning). Participants were instructed to think back over the past year, and to consider the degree to which they lost (or had a threat of loss) for each of 45 different resources. Each item was scored on a 5 point Likert scale that ranged from 0 to 4 (0 = Not At All/Not Applicable to 4 to a Great Degree). It is important to note that the scale and item wording were slightly modified to make them easier to understand for a Kenyan population. However, since this particular scale was designed to capture the unique cultural and social importance of different resources, and has often been used in several cross cultural studies, we suggest that this is a reliable and valid measure for our purposes. Furthermore, this measure has illustrated relatively strong reliabilities in another non-domestic sample ($\alpha = .89$; Unal-Karaguvan, 2009).

Statistical Analyses

All analyses were performed using PASW 18 software. Since previous research has suggested a relationship between gender and substance abuse, *t* tests were performed to determine whether men and women differed significantly on the variables of interest (COR loss, substance abuse dependency, everyday use of local brew and bottled beer in past 30 days (Y/N). Next, we performed two logistic regressions to assess the effects of gender and COR loss on alcohol abuse of bottled beer and locally brewed beer (defined as drinking every day for the past 30 days). Finally we performed one hierarchical linear regression to investigate the effects of gender and COR loss on substance dependence scores. For all regressions, Gender was entered into the first step (as the covariate), COR Loss was entered into the second step, and the interaction of Gender x COR Loss was entered as the third step of the regression equation. Significant condition (Gender) x moderator (COR Loss) interactions were interpreted following the recommendations of Aiken and West (1991).

Results

The sample ($N = 186$), included 175 men (91.9%) and 15 women (8.1%). Participants' ages ranged from 18 to 73 years old, with a mean age of 34.17 years ($SD = 12.90$). Significant

gender differences were found related to all three dependent variables (drinking every day for past thirty days for both local brew and bottled beer, substance dependence scale). Specifically, men were significantly more likely to report everyday use of local brew (13.3% of men, 2.6% of women): $\chi^2(1, N=167) = 33.44, p < .05$ and bottled beer (13.5% of men, 2.6% of women) $\chi^2(1, N=175) = 35.64, p < .05$ within the past 30 days. In addition, as compared to women ($M = 1.12, SD = 2.10$), men ($M = 4.32, SD = 2.62$) also reported significantly higher substance dependency scores: ($t = 8.342, df = 100.78, p < .00$). Finally, even though it men ($M = 64.72, SD = 40.05$) reported directionally higher COR loss scores than women ($M = 56.80, SD = 36.99$); these differences were not statistically significant ($p > .05$). Because of these significant differences on several variables, gender was included in the first step as a covariate.

Tables 1 and 2 provide the odds ratios, beta weights and confidence intervals for the logistic regression for each of the outcome variables (drinking locally brewed beer every day for the past thirty days Y/N, drinking bottled beer every day past thirty days Y/N) using gender and COR Loss as predictors. In order to determine the additive power of COR Loss after controlling for gender, these variables were entered into the equation hierarchically. Thus, Step 1 added Gender, Step 2 added Gender and COR Loss, and Step 3 added the Gender x COR Loss interaction term. Both logistic regressions were significant at the first two steps, suggesting a main effect of both Gender and COR Loss. In Step 1, Gender predicted better than the constant only model for both local 30 day everyday brewed beer drinking ($\chi^2(1, N = 186) = 6.46, p < .01$) and bottled beer drinking ($\chi^2(1, N = 186) = 6.44, p < .01$). The addition of the second step (Gender, COR Loss) also yielded significant effects for both brewed ($\chi^2(1, N = 186) = 11.81, p < .01$) and bottled beer drinking ($\chi^2(1, N = 186) = 13.52, p < .01$); suggesting a main effect for COR Loss even after controlling for gender. There were no significant interaction effects noted in Step 3.

Analysis of individual predictors at each step also yielded interesting results for both locally brewed and bottled beer, in that for both steps, Gender marginally predicted group membership (See Tables 1 and 2). Furthermore, COR loss also significantly predicted everyday drinking in the past thirty days for both bottled beer and brewed beer (See Tables 1 and 2), even after controlling for gender. Specifically, each additional point in the COR Loss scale translated to a 1% increase in the likelihood that the participant would be in be assigned to the everyday drinking group for both bottled and brewed beers. Thus, a one standard deviation increase in COR Loss ($SD = 39.18$) would increase the chances of a participant being in the drinking every day group by 39%.

Table 3 provides the standardized β coefficient estimates and standard errors from the hierarchical regression in which substance dependence scores were predicted using a three step model. A main effect of Gender was found when it was entered at Step 1 of the model, ($R^2 = .25, F(1, 175) = 58.96, p < .01$), such that men evidenced significantly higher substance dependency scores ($\beta = 0.50, t(175) = 7.68, p < .01, CI = 2.41, 4.08$). Thus, gender accounted for 25% of the variability in substance abuse scores. A main effect for COR Loss was also found, even after controlling for Gender in Step 2, ($R^2 = .30, F(1, 175) = 12.26, p < .01$), such that COR Loss accounted for an additional 5% of total variability in substance dependency scores. Thus, a one standard deviation increase in COR Loss would predict a .22 increase in substance dependency scores ($\beta = 0.22, t(175) = 3.50, p < .01, CI = .01, p < .05$).

The third step in the model was also found to be significant, ($R^2 = .33, F(1,175) = 7.50, p < .01$) and accounted for an additional 2.9% of total variability of substance dependence scores. A significant Gender x COR Loss interaction effect was also noted ($\beta = .46, t(175) = 2.74, p < .01, CI = .01, .05$). The interaction effect was interpreted using Aiken and West's (1991)

guidelines. Specifically, we conducted two separate regressions (one for each gender) using the centered COR loss variable to parse apart the interaction, and we plotted the lowest and highest COR loss scores (Range = 0–167) against substance dependency scores for men and women. Figure 1 illustrates this interaction. Results indicate that gender moderates the relationship between COR loss and substance abuse dependence scores. Specifically, results suggest that men that reported COR loss scores at the highest range were more likely to have higher alcohol dependence scores than men that reported COR loss scores closer to the lowest range. In contrast, women's COR loss scores were not found to predict substance dependence scores.

Discussion

The current project aimed to empirically explore the effects of gender and resource loss on alcohol abuse and dependence in Kenya, since both anecdotal and popular press reports have highlighted a pattern of men's continued and increasing alcohol abuse (Barasa, 2001; Beckerling, 2006; Beckerling, Telfer & Said, 2006; Bryceson, 2002; PanAfrican News Agency, 2001). Furthermore, these reports of increased alcohol abuse have been linked to other societal problems including increased domestic violence and alcohol related vehicular accidents (Beckerling, 2006; Beckerling, Telfer & Said, 2006; Bryceson, 2002), and have stimulated governmental policy changes to discourage alcohol abuse and drunk driving such as widespread breathalyzer testing and stricter regulations governing establishments that serve alcohol (Barasa, 2001; PanAfrican News, 2001).

Initial findings mirrored African associated press and anecdotal reports (NACADA, 2004, 2007; Obot, 2006; PanAfrican News Agency, 2001; Willis, 2002), in that we found men to be more likely to report alcohol abuse and dependence as compared to women. Interestingly, we found no statistical difference between men and women's reports of COR Loss; thus, it appears that men and women seem to perceive similar amounts of resource loss. Our first series of regressions attempted to predict whether or not individuals had abused locally brewed or bottled beer (defined as drinking every day in the past 30 days). As expected, gender predicted 30 day abuse of local brew and bottled beers; men were marginally more likely to abuse alcohol than women. Furthermore, COR Loss predicted 30 day alcohol abuse for both local and bottled beer, even after controlling for gender. These findings suggest a positive relationship between current alcohol abuse and perceptions of resource loss for both genders, such that those individuals that perceive higher amounts of resource loss are more likely to report alcohol abuse.

Our second series of regressions attempted to predict alcohol dependence scores, as indicated by Kenya's National Campaign Against Drug Abuse's (NACADA) measures. Results indicated a main effect for both gender and COR Loss at Steps 1 and 2 of the model. Specifically, our findings illustrated that men's alcohol dependence scores were higher than women's in Step 1; Step 2 analysis illustrated that resource loss predicted alcohol dependence scores, even after controlling for the effects of gender. More complicated analyses revealed an interaction effect of Gender x COR Loss in Step 3; where gender was found to moderate the relationship between COR Loss and alcohol dependence scores. Specifically, analyses revealed that COR Loss scores predicted alcohol dependence scores for men, but not for women. Thus, higher reports of COR Loss predicted men's increased likelihood for alcohol dependence, but higher COR Loss scores did not predict increased likelihood of women's alcohol dependence.

As we began our investigation, our first inclination was to suggest that alcohol abuse and dependence would be explained by gender and perceptions of resource loss, such that we reasoned that men's increased alcohol abuse and dependence was due to men's comparative

greater resource loss. However, our findings did not support this initial inclination; as no significant difference was found between men and women's resource loss reports. After these analyses, we believe that our sample's gender differences in alcohol abuse and dependence may be due less to an actual difference in resource losses, but rather to gender differences in the response to resource loss. Furthermore, we suggest that one possible explanation for rural men's increased alcohol abuse and dependence during socio-political upheaval may be that men experience greater psychological distress as a result of perceived resource loss, and consequently, this increased psychological distress manifests itself as a faulty coping mechanism: alcohol abuse.

One possible reason that men may experience greater psychological distress as a result of resource loss may be linked to men's heightened negative experience to the changing social norms and gender roles associated with urbanization and their country's economic development. African cultures typically ascribe to strict gender roles; where men, by virtue of their biological sex, have occupied positions of power and status. This power is reflected in the strict division of labor and accepted norms and social roles for men and women. Historically, African men have been regarded as the primary providers for the family unit and are considered the decision makers and leaders of families and communities. However, periods of rapid urbanization and development may undermine these traditional gender roles and norms, and begin to reframe the traditional division of labor in industrializing countries. Historical research has illustrated that industrialization and change from a subsistence based economy to a market based economy may necessitate changes in the workforce, such that women may be required to work outside the home in order to provide for their families, and that both men and women may have to obtain employment in urban areas (McKee & Leon, 2005; Pacula, 2011, Weisner, Bradley & Kilbride, 1997). These unpredictable social changes to social norms and division of labor may fundamentally change the perceptions of power in the family unit and may have lasting effects on both males and females.

For women, these changes may be especially empowering as they may provide opportunities for expansion of permissible roles, which may translate into increased political and social power. Previous research has provided support for our findings; Abott and Weisner (1977) investigated modernization, urbanization and reported stress in three different samples of women living in rural, urban or mixed rural/urban residences in Kenya. Results indicated that women that reported high levels of autonomy and flexibility to make family and homestead decisions, as well as a balance in husband wife reciprocity (the belief that both husband and wife are equally providing what they can for the home and family) reported the lowest levels of stress (Abott & Weisner, 1977). Interestingly, this study found women's stress reports to be deeply intertwined with men's reaction to changing social norms, and their resulting coping mechanisms as well. As previously noted, results indicated that those women who reported non-reciprocal husband family relationships reported the highest amounts of stress. More specifically, women reported the highest amounts of stress when they felt an imbalance between the level of autonomy their husbands allowed them in decision making and management of the homestead as compared to the relative reciprocity in the amount of material support generated for the care of family and homestead. Women reported that urban residing husbands, on average, sent home only approximately 20 percent of their earnings. Thus, the highest stressed women often espoused the belief that their husbands were using the remainder of their earned monies to fund drinking habits and to pay for sexual favors, rather than to provide the family and homestead with needed material resources.

Conversely, modernization may serve to restrict male social and political power by restructuring these culturally defined social norms and roles. Inkeles (1975) investigated the difficulties that men in several developing nations (Argentina, Chile, India, Israel, Nigeria,

Bangladesh) face in their quest to become “modern men,” and suggested that this process was hastened when individuals possessed a few key traits (e.g., openness to new experience, strong sense of personal efficacy, high degree of autonomy dealing with family, clan and religious authority, a value for education and technical competence, positive attitudes towards family limitation and birth control, desire to grant women some equality of rights in basic social, legal and economic matters). Inkeles (1977) also noted that rural farming men had the hardest time with the “becoming modern men” process, possibly because their exposure to “modernizing” influences such as media, are extremely limited. Both Inkeles (1977) and Abott and Weisner’s (1977) work provides an interesting interpretation of the complicated relationship between biological sex, changing gender roles and expectations, psychological distress and substance abuse that we did not begin to consider until our study revealed no difference in perceived resource losses between men and women. Our findings suggest that men interpret their own resource losses as more threatening to them, and that this threat may stimulate the negative coping response of substance abuse.

This study had several limitations. Our study relied on a relatively small sample size, and utilized only self-report data. Our study also has limitations that are very common in social science research that involves stigmatized subject matter. We encountered small base rates of reported alcohol abuse (10%) even though we specifically aimed to find individuals that had been known to abuse alcohol in the past. Given that Kenya’s NACADA (2004, 2007) reports such a high rate of alcohol abuse nationwide, it is reasonable to expect that our sample may have underreported their alcohol abuse. One possible reason for these low reports on alcohol abuse may be due to the fact that our main researcher was a Catholic priest, and his stature in the community may have precluded some individuals from reporting the truth. Future studies should capture larger, more at-risk sample sizes and perhaps concentrate on ways to encourage truthful reporting.

An additional limitation may be that our project investigated only a subset of those affected by urbanization; and consisted entirely of individuals living exclusively in rural farming areas. Thus, these findings may not be generalizable to other individuals living in urban areas, or those individuals that split their time between rural and city environments. Furthermore, our sample was drawn from an East African country that is relatively highly involved in the international economy relative to other African countries, so these results may not be generalizable to other African nations. Future research should include individuals that reside in rural, urban and split residences, as well as individuals that reside in other countries that may be less economically developed such as Somalia, Sudan, Tanzania, or Uganda.

Our study was based on previous research that was conducted in the early 1970’s; as there is a dearth of current empirical research that investigates how changing social norms and roles may influence interpersonal relationships and health in developing countries. Our findings suggest an interesting relationship between gender, perceived resource loss and alcohol abuse/dependence such that men may be more powerfully affected by resource loss than women, and thus, may engage in alcohol abuse as maladaptive coping strategy. We suggest that, based on fairly recent anecdotal, popular press and governmental reports of increased alcoholism in Kenya and other developing African countries, it is important to parse apart the contributing factors related to men’s increased risk for alcoholism and other negative social and health outcomes. These findings illustrate that gender differences related to the interaction between rapid economic and social role changes and substance abuse is quite complicated and requires further study. Future projects may choose to target substance abusing samples, use longitudinal analysis, and add assessments of African specific gender role adherence as well as other culturally pertinent psychosocial variables that may begin to explain this relationship. Findings from this study may provide insight into how developing

nations may better assist their communities, families and individual members in this drastic socio-cultural change so that urbanization does not necessitate social and health crises.

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Figure 1.
Gender x COR Loss Interaction Predicts Substance Dependency Scores.

Table 1

Hierarchical Logistic Regression Used to Predict Everyday Drinking in Past 30 Days for Bottled Beer.

	β	OR	CI
Step 1			
Gender	2.02~	7.52	.97, 58.40
Step 2			
Gender	1.85~	6.33	.80, 1.03
COR Loss	.02*	1.02	1.00, 1.03
Step 3			
Gender	1.34	3.83	.04, 346.42
COR Loss	.01	1.01	.96, 1.07
Gender X COR Loss	.01	1.00	.95, 1.06

Note. N = 186,

~ <.10.

* <.05.

Table 2

Hierarchical Logistic Regression Used to Predict Everyday Drinking in Past 30 days for Locally Brewed Beer.

	β	OR	CI
Step 1			
Gender	2.02~	7.52	.97, 58.44
Step 2			
Gender	1.91~	6.72	.86, 52.76
COR Loss	.02*	1.02	1.00, 1.03
Step 3			
Gender	1.50	4.46	.05, 414.31
COR Loss	.010	1.01	.96, 1.07
Gender X COR Loss	.01	.03	.95, 1.06

Note. N = ,

~ <.10.

* <.05.

Table 3

Hierarchical Regression Used to Predict Substance Dependence Scores.

Predictor	B	SE	β
Step 1			
Gender	3.25	.42	.50*
Step 2			
Gender	3.12	.41	.49*
COR Loss	.016	.01	.22*
Step 3			
Gender	3.21	.41	.50*
COR Loss	-.01	.01	-.08
Gender x COR Loss	.03	.01	.35*

Note. N = 175,

*
p < .01