

SOLVE: TESTING THE INTERRELATIONSHIPS AMONG EMPLOYEES IN MEDIUM SCALE ENTERPRISES

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The study examined interrelationships of emerging psychosocial problems (stress, tobacco and alcohol use, HIV/AIDS, and violence, as addressed by ILO's SOLVE program) in medium scale enterprises. They constitute major challenges to employees' health and organizational outcomes. Unlike other countries, where strong evidence exists to show the interrelationships, there is paucity of literature involving the Sub-Saharan Africa sample, where attempts to promote the knowledge and application of SOLVE has posed great problems. Based on previous literature, it was hypothesized that there would be significant positive interrelationships among the dimensions in SOLVE. The survey utilized a questionnaire, consisting of 20 items, measuring the dimensions in SOLVE. A sample of 186 respondents was drawn from middle-level supervisors in medium scale enterprises. They are students in a weekend Master's in Managerial Psychology (MMP) program. There were 102 (54.8%) male and 84 (45.2%) female respondents. Their mean age was 36 (sd=3.55). Findings established significant interrelationships among the five psychosocial factors, i.e. SOLVE dimensions, which confirmed the hypothesis. There was no significant difference between males and females in their responses to the measures. Apart from adding to previous literature on the association of the variables, the outcome will enable the promotion of SOLVE among workers as a best practice in creating healthy workplaces.

1. INTRODUCTION

There are emerging psychosocial problems in workplaces that are known to constitute major challenges to employees' health and organizational outcomes. In the greater concern for employees' health and organizational effectiveness,

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stress, tobacco, alcohol, HIV/AIDS, and violence in workplaces have been found to be interrelated. This prompted the International Labour Organisation (ILO) to introduce the concept of SOLVE (each of the letters taken from Stress, tobaccO, alcohOL and drugs, HIV/AIDS, and violencE) as a preventive and control strategy. It was developed to address the specific psychosocial problems in workplaces. In that regard, the ILO embarked on the training of occupational safety and health experts and practitioners from member countries on the SOLVE program. This is with a view to promoting knowledge and the application of SOLVE as part of the best practice strategies to prevent HIV/AIDS among employees in the home country of the participants.

In some countries of Asia, America, Europe, and recently South Africa and Uganda, strong evidence exists to show that the psychosocial problems contained in the SOLVE program are interrelated (Gust & Gust, 2005; President's Emergency Plan For AIDS Relief (PEPFAR) proceedings, 2006; Di Martino, Gold & Schaap, 2002). For instance, a study of the health sector conducted in Europe and parts of Asia reported a strong relationship between stress and violence, as well as other dimensions of psycho-social problems (Di Martino, 2002). In their study of substance abuse and behavior of South African adolescents, King, Flisher, Noubary, Reece, Marais & Lombard (2004) found interrelationships among alcohol, tobacco and use of other drugs, behavioral problems and suicidality - for both boys and girls in a South African high school. Their findings reinforced the importance of multiple factors in sexual risk behavior, among other behavioral problems, in the analyzed South African sample.

According to Tice, Bratslavsky & Baumeister (2001), work-related stress sometimes leads to reduced impulse control or self-indulgence. A reduction in impulse control is commonly associated with sexual risk behavior that has been known to account for the high rate of HIV/AIDS prevalence. They also reported that, as also reported earlier by Cohen & Lichtenstein (1990), apart from engaging in excessive eating, i.e. unhealthy diet, many people also resort to excessive drinking, smoking, drug usage, spending, and so forth. This finding lends credence to the interrelatedness of psychosocial variables under consideration. Similarly, Colder (2001) and Pihl (1999) found a positive relationship between stress and the consumption of alcohol and drugs. These inter-relationships arise as individuals continually seek ways of coping with stress and other challenges in workplaces, thereby increasing the rate of addiction to tobacco, alcohol and drugs, that consequently promote HIV/AIDS risk.

For instance, Karasek's model identified high job demands, low job control and co-workers' support as stressors that bring about a high strain on employees (Karasek & Theorell, 1990). The attendant consequence reflects in the display of emotional outbursts (Houtman, Zuidhof & Heuvel, 1998) and dysfunctional coping methods, such as the increase in tobacco and alcohol use, among others. According to the World Health Organisation (2004), the basic foundation for a healthy workforce requires that employees are motivated, feel safe in their job, are satisfied and perceive to have control over their work. In analyzing the risk factors that follow the failure to prevent stressors, workplace violence and sexual risk behaviors feature prominently. The risk factors expose victims to HIV/AIDS. Speer (2002) previously reported that employers need to switch their focus from a reactive response to a pro-active approach which involves prevention.

Weiten (2004) reported that, when confronted with a high level of stress, people sometimes simply give up, while others respond with fatalism and resignation. This leads to a feeling of helplessness. Carver et al. (1989, 1993) have earlier investigated such a method of coping and described it as *behavioral disengagement*. Previous studies suggest that behavioral disengagement contributes to depression (Seligman & Isaacowitz, 2000). A victim can resort to blaming oneself as a common response or reaction. The employee could be highly self-critical, with a feeling of hopelessness, which is the hallmark of depression. At that stage, intra-personal violence, such as negative self-talk and possibly suicide can occur. In other circumstances, an employee might display aggression when provoked by others in the workplace. For instance, workplace interpersonal violence has been largely attributed to frustration and difficulties in the organization (Marcus-Newhall, 2000). A worker will rather suppress anger than lash out at the boss who is giving difficult assignments or exerting undue control. The victim is likely to bully, insult or harasses a subordinate a less powerful co-worker, customers, family members, etc.

Overly aggressive behavior in the workplace, often taking the form of violence or sexual harassment is becoming a frightening result of work stressors (Kompier & Levi, 1994). Stress and violence, as factors at both ends of the SOLVE continuum, are equally related and exacerbated by the other factors, such as substance abuse and sexual risk behaviors. If levels of stress are excessive, employees are too agitated, aroused or threatened to perform at their best (Xie & Johns, 1995). In the workplace, aggressive behavior causes actual physical and psychological harm to employees. In a previous survey by the American Management Association (Hellriegel, Slocum & Woodman, 2001), a quarter of the responding organizations reported that some of their employees

had been physically attacked, threatened or killed in the workplace by perpetrators, being also members of the organization. In reviewing the level of violence in modern organizations, some scholars have attributed it to work stress, which needs to be understood and managed accordingly (O'Leary-Kelly, Griffin & Glew, 1996).

A further confirmation of the interrelatedness of the dimensions in SOLVE is reported in several publications that have considered the behavioral consequences of work-related stress. In a previous study, Kortum (2007) examined work-related stress and psychosocial risks in developing and newly industrialized countries. Findings supported association between stress and alcohol/drug abuse, among other factors, with applicability of results beyond a specific sample of workers from Sub-Saharan Africa. Hellriegel et al. (2001) identified higher alcohol and other drug abuses, and impulsive behavior as possible behavioral outcomes of the high level of work stress among workers in both Western and developed countries. Similarly, Ekore (2005) reported that the introduction of the global system of mobile telecommunications, as a part of information technology development in Nigeria, has promoted aggression employees' aggression toward bank customers and co-workers. This has been attributed to the high level of stress which the employees experience from the work overload. This study was one of the first to provide empirical evidence on a possible relationship between stress and some form of violence in Nigerian workplaces. In the study, 284 (89.6%), in a sample of 316 bank workers, reported a high level of work-related stress. These results provided a better explanation of employee behavior in banks and other service organizations in Nigeria, where it is common to find workers yelling and insulting clients. Despite such an observation, there have been no deliberate actions or policies, addressing the work-related stress, experienced by employees. There is rarely any analysis conducted to examine why workers sometimes relate poorly to clients and what are the possible ways to improve work performance and organizational effectiveness.

Unlike other countries, where stress management practice is considered a major factor of performance, medium scale enterprises in Nigeria do not pay attention to work-related stress, as a potential obstacle to effective performance and productivity. This might be an explanation for the frequent change of patronage by bank clients in Nigeria, which has been known to record a high mobility of customers. In other words, customers are known to frequently change their patronage from one bank to another. Apart from the banking industry, the consequence of stress can be also reflected in lower product and

service quality. Even worse, it can bring about life styles that promote HIV/AIDS infections.

A common management practice in Nigeria is the assumption that workers' concern is mainly salary, thereby undermining the stressors associated with the work. The lack of concern for the psychosocial hazards from work-related stress is evident in the lack of policies, addressing psychosocial problems in most medium scale enterprises. This has been reported in the W.H.O. GOHNET (Ekore, 2007). However, consideration of association between stress and psychosocial problems should also address other relevant factors, such as increase in substance abuse and impulsive behavior that could promote sexual risk behavior and violence. These can occur as a result of the excess level of stress and inability to cope with the challenges posed by work-related stress. It is an indication that a relationship might exist between stress and aggressive behavior toward others at work.

Much of what is known in the literature about the interrelatedness of stress, substance abuse, sexual risk behavior promoting HIV/AIDS and violence in workplace has been analyzed in the context of developed countries. Although there are similar studies of developing countries, such research has not been conducted in Nigeria, being the most populous black nation in the world. Workplace policies and actions on HIV/AIDS in Nigeria have not been known to consider stress and other dimensions of SOLVE as possibly related. This paucity of literature has affected the popularity and acceptance of SOLVE as an effective prevention and control program in addressing psychosocial problems. The lack of empirical evidence has also posed problems during training on the SOLVE program.

Training participants (both male and female) had sometimes questioned the rationale behind the content of the program, which they consider as too western and foreign to Sub-Saharan Africa. The vacuum created by the lack of awareness requires empirical research of the degree and direction of a interrelationship among the emerging psychosocial problems, in order to promote SOLVE as a best practice in workplaces. It is also aimed at presenting SOLVE as an evidence-based intervention program, that can be promoted in Nigeria, as a part of the overall goal of ILO to promote healthy workplaces globally. Based on the report of findings in some African countries and elsewhere, with an attempt to locally examine occupational stress, it was hypothesized that there is a significant inter-correlation of the five factors of SOLVE among the workers in Nigeria. Due to gender bias in tasks and opportunities in Nigerian workplaces (Ekore, 2005), it was hypothesized that

male employees would significantly differ from female in scores on the SOLVE dimensions.

2. METHOD

2.1. Participants

A survey has been conducted on a sample of 186 respondents, drawn from students who are undergoing the weekend Master's program in Managerial Psychology (MMP) at the University of Ibadan. The participants are middle level supervisors in banks and other medium scale organizations in the south-western part of Nigeria (comprising six states). The group of respondents was based on Karasek's model, which identified middle level supervisors as the most vulnerable to work-related stress, because of high demands and limited decision opportunities (Karasek & Theorell, 1990). There were 102 (54.8%) male and 84 (45.2%) female respondents. The oldest respondent was 52 years old, while the youngest was 26. The mean age was 36 (SD = 3.55). They had all served at least three years in their organizations at the time they participated in the study. Students who work in multinational enterprises were deliberately excluded from the study. Those may have been exposed to the SOLVE program, as a part of their workplace policies addressing the psychosocial problems, which have been derived from practices in developed countries.

2.2. Research instrument

The survey utilized a questionnaire, consisting of measures of work-related stress, tobacco and alcohol use, sexual risk behavior and dimensions of interpersonal violence among medium scale enterprise employees in Nigeria. It has 20 items drawn from the original SOLVE survey, developed by the ILO and standardized for this study. Out of the initial 26 items, 20 were retained, following item analysis to ensure content validation. Some of the items were reworded for cultural adaptation, as to ensure easy comprehension by the respondents.

Work-related stress was assessed with six items, including: job characterized by high work load, uncertainty in job security, high job demand with low control over work methods and pace. Three items each were used to assess tobacco and alcohol (substance) use. Some of the items concerned the degree and frequency and readiness to use each substance since the last six months on the job. Sexual risk behavior was described by four items, asking respondents to indicate their desire to engage in sex-related activities during and

after work without appropriate and safe practices. Violence was addressed by four items, which included showing disruptive behavior in the workplace, such as: verbal abuse, intimidation/bullying, shouting at others and use of obscene language and minimal threats. Respondents were asked to indicate the extent to which they consider each item as a major problem in their workplaces. The entire scale was scored on a 5-point response option from strongly agree (1) to strongly disagree (5). Their Cronbach alpha values ranged between 0.56 and 0.61. The data collection lasted two weekends. The second part of the measure required respondents to provide information concerning their demographic characteristics such as age and gender, position and duration in the organization.

The data collection was performed with the assistance of two undergraduate students after gaining the adequate approvals. Instructions attached to each questionnaire were clear and precise. Respondents were assured of confidentiality of all information supplied and encouraged to participate voluntarily. Their names and other forms of personal identity were not required. Nine respondents that collected the questionnaires did not complete them, but rather returned the plain copies.

2.3. Results

To test the hypothesis on significant inter-correlations between stress and other dimensions in SOLVE, correlation analysis was performed, results presented in the following table.

Table 1. Pearson coefficients of inter-correlations among SOLVE dimensions

	1	2	3	4	5
1. Stress	1.000				
2. Tobacco use	0.59**	1.000			
3. Alcohol use	0.63**	0.72**	1.000		
4. Sexual risk behavior	0.56*	0.41*	0.73**	1.000	
5. Violence	0.67**	0.52*	0.63**	0.31*	1.000

Note: * p<.05; ** p<.01; N = 186

As shown in Table 1, there is a high positive correlation between stress and all the other factors in SOLVE. For instance, stress showed a significant positive correlation with tobacco and alcohol use (r=0.59, p<.01; r=0.63, p<.01), sexual risk behavior (r=0.56, p<.05), and violence (r=0.67, p<.01). In all cases, stress inter-correlated well with tobacco and alcohol use, tendency to

engage in sexual risk behavior, and very high on forms of violence in workplaces.

Tobacco use also correlated significantly with alcohol use ($r=0.72$, $p<.01$), sexual risk behavior ($r=0.41$, $p<.05$), and violence ($r=0.52$, $p<.05$). The results indicate a significant positive relationship with alcohol, that is slightly stronger than its correlation with sexual risk behavior and violence. Alcohol use had the highest positive significant correlation with the sexual risk behavior ($r=0.73$, $p<.01$), while it yielded a correlation coefficient of $r=0.63$, $p<.01$ with violence. Finally, sexual risk behavior inter-correlated positively with workplace violence ($r =0.31$, $p<.01$).

The bar chart (see Figure 1) illustrates male respondents' mean score of 81.2 and the females' mean score of 79.7 on the SOLVE scale. The t-test indicates that there are no significant difference between male and female respondents ($t=0.41$, $df=184$, $p>.05$). The second hypothesis that predicted otherwise was, thus, rejected.

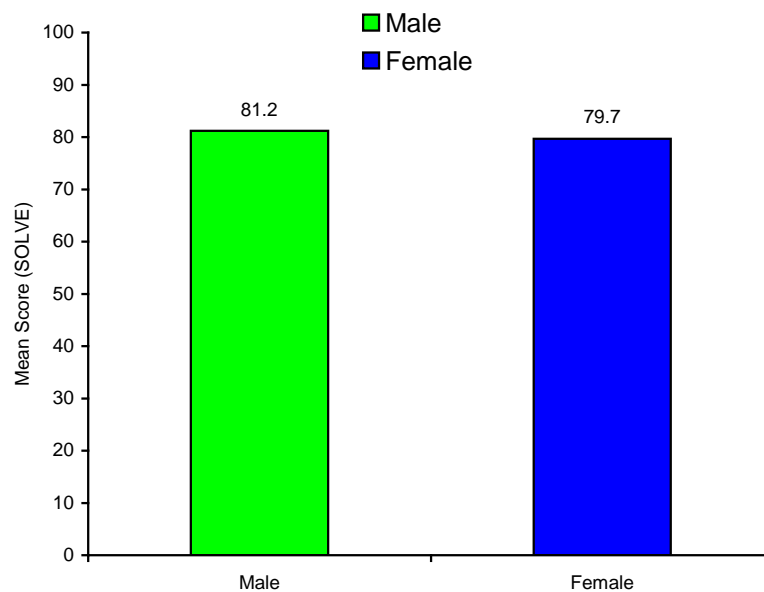


Figure 1. Mean scores of male and female respondents on the SOLVE dimensions.

3. DISCUSSION

The main purpose of this study was to test for the interrelationships among stress, tobacco and alcohol use, sexual risk behavior, and violence in a Sub-Saharan African country, in order to justify the use of SOLVE as a relevant practice in the Nigerian workplaces. Previous studies, conducted in both developed and some developing countries, had established the existence of significant relationships among the dimensions. The introduction of SOLVE by the ILO to address emerging psychosocial problems at work have been followed by studies to justify it as an evidence-based intervention program. None of the studies involved a Nigerian sample. Given that all the indices of work-related stress (low level of participation and control of work decisions, poor working conditions, high job insecurity and conflicting work-family demands, including lack of policies that address the problems in workplaces) and their associated problems prevail in Nigeria, it became necessary to perform such a study. It is expected to further the global objective of promoting SOLVE as a culturally relevant workplace intervention program, which specifically addresses the identified psychosocial problems. Apart from contributing to the body of knowledge that already exists about SOLVE, it was necessary to provide an empirical basis that will facilitate its implementation and popularity in Nigeria and other parts of Sub-Saharan Africa.

Findings from the current study have established significant interrelationships among stress, tobacco and alcohol use, sexual risk behavior that could lead to HIV/AIDS, and violence – all being dimensions of the SOLVE program. This outcome has confirmed the hypothesis that the psychosocial issues contained in SOLVE are interrelated. For instance, it was found that stress is significantly positively correlated with tobacco and alcohol use, sexual risk behavior and violence in workplaces. This means that, as the level of work-related stress is increasing, other psychosocial problems increase in same direction. None of them showed a negative correlation with stress. For example, this finding is an indication that work-related stress can be associated with behavior promoting HIV/AIDS among workers in Nigeria. This has not been an emphasis in discussions of HIV/AIDS prevention and control by the management of enterprises and human resources practitioners in Nigeria.

The findings are in line with earlier studies, carried out in other countries. For example, Kortum (2007) reported a link between work-related stress and alcohol and drug abuse in developing and newly industrialized countries. Hellriegel et al. (2001) identified higher alcohol and other drug abuses and impulsive behaviors as possible behavioral outcomes from the high level of

work stress among workers in Western and developed countries. Similarly, Cohen and Lichtenstein (1990) linked work-stress to increases in smoking. Colder (2001) and Pihl (1999) found a positive relationship between stress and the consumption of alcohol and drugs. Ekore (2005) associated work stress to workers' aggression toward customers in banks.

As established by the previously mentioned studies, the present finding may be explained by individuals' continuous quest to cope with increasing work-related stress and challenges. Attempts to cope in a country where all the indices of work-related stress abound, with no policies to address them, probably explain the current findings involving workers in medium scale enterprises.

Another possible explanation for the results that found no difference between male and female respondents on the entire scale may be due to the common experiences in medium scale enterprises in Nigeria, where there is a low level of workers' participation in work decisions and control. For instance, most medium scale organizations, including banks, do not allow workers' unions to play active roles in work process decisions. Another possible factor may be due to the harsh economic reality, characterized by low wages and high job insecurity, arising from factory closures and recent bank restructuring that reduced employment by as much as 50% in the sector. Those retained (both male and female) are given unrealistic targets to attract deposits from clients, without any employee participation in setting such targets.

Despite the interesting results of this study, there are some limitations that should be addressed by future research. The sample did not cover employees of medium and small scale enterprises across the geographical zones in Nigeria and other Sub-Saharan African countries. There are cultural and socio-economic differentials between the regions and countries. These might alter the results, if the research scope was broader. Therefore, the conclusions should be drawn with caution and limited to employees of medium scale enterprises. Again, the informal sector with artisans that are not protected by any legal coverage, in both traditional and psychosocial hazard, needs to be considered in future research. They constitute the majority among the working population in Nigeria, yet they are rarely covered by any intervention program. Their own evaluation of the dimensions in SOLVE needs to be incorporated, in order to have a 'big picture' position that could guide policies and intervention.

Nevertheless, findings of this study are believed to have expanded the literature on the association of the psychosocial factors that are known to impact employees' health and organizational outcomes. The confirmation of the

predicted hypothesis by the results from data collected among male and female workers is an indication that SOLVE can be effectively promoted and implemented in Nigeria as part of the global strategy to address the psychosocial problems.

A salient conclusion from this study is that the current findings are in line with those carried out in other countries. Thus, it fulfils the suggestion from a previous conclusion, drawn by O'Leary-Kelly, Griffin & Glew (1996), that the level of violence in organizations is primarily linked to work-related stress, which needs to be understood and managed. This study has linked work-related stress with other psychosocial problems and provided empirical justification for the promotion of SOLVE as an evidence-based intervention strategy. It might help overcome the skepticism received during previous training attempts among workers in Nigeria, as a country with a lack of policies that address psychosocial hazards from work-related stress. This would enable the promotion of SOLVE as a best practice in creating healthy workplaces in Nigeria, as in some other countries, where it is popular as an effective prevention and control program. Additionally, it implies that when SOLVE is effectively implemented, the program can be a desirable pro-active strategy in combating HIV/AIDS among workers.

A major limitation of the study was the negative attitude toward the questionnaire by some respondents. Some of the questionnaires were returned without completion. In addition, a much larger sample from different organizations outside the south-western part of Nigeria would have enhanced the generalization of findings in the study. Nonetheless, the respondents were from different organizations and also from different parts of Nigeria.

It is, therefore, recommended that policies and programs that have been designed to address the HIV/AIDS pandemic need to consider addressing the psychosocial problems of work-related stress, substance abuse, sexual risk behaviors and violence as contained in the ILO's SOLVE document. This is due to the strong association between the factors. A major problem in the fight against HIV/AIDS in Sub-Saharan Africa might be due to the isolation of the other associated factors that were considered in this study. SOLVE can be a major complementary program to help in the prevention and control of HIV/AIDS in Africa when much emphasis is placed on addressing work-related stress which has been found to correlate highly with all the workplace factors that promote HIV/AIDS.

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**PROGRAM SOLVE: TESTIRANJE MEĐUOVISNOSTI IZMEĐU
ZAPOSLENIKA U PODUZEĆIMA SREDNJE VELIČINE**

Sažetak

U ovoj se studiji istražuju međuovisnosti pojave psiho-socijalnih problema (stresa, konzumiranja duhana i alkohola, HIV/AIDS-a i nasilja, kojima se bavi program SOLVE Međunarodne organizacije rada – ILO), i to u poduzećima srednje veličine. Navedeni problemi predstavljaju temeljne izazove očuvanju zdravlja i postizanju organizacijskog učinka. Za razliku od drugih zemalja, u kojima postoje snažni dokazi o međuovisnosti, postoji vrlo mala količina literature o situaciji u sub-saharskoj Africi, gdje su poznavanje i primjena programa SOLVE prouzročila velike probleme. Na temelju prethodnih istraživanja, postavljena je hipoteza o visokoj međuovisnosti dimenzija (psiho-socijalnih problema), sadržanih u SOLVE programu. Za anketiranje je korišten upitnik od 20 čestica, koje mjere SOLVE dimenzije. Anketirano je 186 ispitanika – menadžera srednje razine, zaposlenih u poduzećima srednje veličine. Radi se o studentima poslijediplomskog studija menadžerske psihologije, koji studiraju uz rad. Ukupno je anketirano 102 (54,8%) ispitanika i 84 (45,2%) ispitanica, uz srednju vrijednost dobi ispitanika od 36 godina (SD=3,55). Rezultati ukazuju na značajnu međuovisnost između pet psiho-socijalnih čimbenika, odnosno SOLVE dimenzija, čime se potvrđuje postavljena hipoteza. Međutim, nije bilo značajnih razlika između ispitanika i ispitanica. Osim proširenju postojećih spoznaja o povezanosti varijabli, rezultati istraživanja bi mogli doprinijeti promociji programa SOLVE među zaposlenicima, i to kao primjera najbolje prakse u stvaranju zdravog radnog okruženja.