

**UTILIZATION OF COMMUNITY-BASED OUTPATIENT ADDICTION
TREATMENT PROGRAMMES IN KENYA**

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ABSTRACT

This paper examines a number of outpatient addictions treatment programmes developed in various regions of Kenya. The uptake of outpatient services at four sites between 2007 and 2010 has been examined. A field-based follow-up survey was administered to determine abstinence rates among clients who participated in treatment. Factors involved in recovery outcomes are discussed. Utilization of outpatient addictions treatment and retention in services increased over the three-year period, and field-based follow up with clients showed 42% abstinence rates.

KEY WORDS: Outpatient treatment, Alcohol, Drug, Addiction recovery, HIV, Kenya

INTRODUCTION

Alcohol and drug abuse continue to be a significant problem in Kenya as well as other African countries. The Kenya National Campaign Against Drug Abuse Authority (NACADA) reported in their 2007 study that 70% of adults ages 15-64 with multiple partners are likely to be substance abusers. In addition, 50% of alcohol users report ongoing craving for alcohol and 25% need to consume alcohol first thing in the morning (NACADA, 2007). Alcohol abuse in Kenya has also been documented in other studies. According to Shaffer (2004),

54% of patients attending public health clinics in western Kenya reported hazardous drinking behavior, as measured by the World Health Organization (WHO) Alcohol Use Disorders Identification Test (AUDIT). In a study at voluntary counseling and testing (VCT) centers in eight Kenyan districts, Mackenzie and Kiragu (2007) reported that 76% of males and 25% of females who consume alcohol report hazardous drinking behavior, also measured by the AUDIT. Alcohol abuse in Kenya has been identified for some time. In 1989, Nielsen, Resnick & Acuda reported that 54% of the males and 25% of the females attending Kisii

district hospital in Kenya met the DIS (Diagnostic Interview Schedule) criteria for alcohol abuse and/or alcoholism.

Types of substances abused in Kenya are similar to other parts of Africa. The most commonly abused substances in Africa are alcohol, cannabis and khat/miraa (Odejide, 2006), while the most commonly abused substances in Kenya are alcohol, cigarettes, cannabis and khat/miraa (NACADA, 2007; Ndeti et al, 2006). NADACA (2010a) reports that alcohol, followed by khat/miraa, are the most commonly used substance in the coast province of Kenya. Commonly used substances among Kenyan secondary school students are alcohol, tobacco, cannabis and khat/miraa (NACADA, 2007; Ndeti et al, 2009). In another study, alcohol, cannabis, khat/miraa and kuber were considered the most commonly abused substances among Kenyan secondary school students (Ngesu, Ndiku & Masese, 2008).

Substance abuse has many social and health implications. Similar to other African countries, one of the health concerns in Kenya is the rapid spread of HIV. Multiple studies over time have documented the strong relationship between alcohol and high-risk sexual behavior (Assefa, Damen & Alemayehu, 2005; Davis, Hendershot, George, Norris & Heiman, 2007; Geibel et al, 2008; Shuper, Joharchi, Irving & Rehm, 2009; Weiser et al, 2006; WHO, 2005; Zablotska et al, 2006). In Kenya, issues of substance abuse have become an integral part of HIV prevention activities due to the high risk behaviors associated with substance abuse and high HIV prevalence rates among the substance-abusing population.

Outpatient treatment is a relatively new concept in Kenya. Most alcohol and drug treatment programmes developed to date are inpatient/residential programmes. According to NACADA, Kenya has approximately 35 residential rehabilitation centers (NACADA, 2010b). The cost for treatment at these centers can be very expensive, as high as 100 USD per day, typically for two to three month in-patient stays. Most Kenyans cannot afford the cost of residential treatment services, leaving them few treatment options. Outpatient treatment

provides a cost-effective and accessible alternative, and studies support the efficacy of the outpatient treatment services, indicating that there is no notable difference in recovery rate outcomes between outpatient and residential treatment services (Winters, Stinchfield, Opland, Weller & Latimer, 2000).

OUTPATIENT PROGRAMMEME MODELS

This paper examines the utilization of services and outcomes of four outpatient addictions treatment programmes in different geographical regions of Kenya. The programmes were supported by the AED Capable Partners Programme (CAP) Kenya. The organizations were funded to provide HIV risk-reduction interventions among substance abusers as well as addiction recovery treatment services. The four organizations had no significant experience in providing community-based outpatient treatment services prior to the initiation of the CAP-funded intervention (some provided residential rehabilitation services, others provided HIV prevention interventions). All outpatient treatment services were provided at no cost to the client and were primarily geared toward reaching individuals of lower socio-economic status.

The four organizations discussed are the OMARI Project, Reachout Centre Trust, The Raphaelties, and Pandipieri KUAP. Each of the four sites was provided with technical assistance to develop outpatient treatment services. With CAP's technical assistance, each programme:

- established procedures to ensure proper referral into its addictions treatment programme;
- received training to ensure that appropriate client screening and assessment took place, as well as comprehensive treatment and discharge planning as part of routine clinical work;
- established clinical review procedures with the necessary discharge and referral systems in place;

- developed and implemented documentation procedures to ensure all clients had clinical records from assessment through discharge;
- established confidentiality systems along with a review of the ethical management of clinical services; and
- received clinical supervision.

Each organization hired one to three addiction counselors to provide services on-site. The only exception was Pandipieri KUAP, which began by providing one-week addiction recovery workshops for substance abusing individuals and enrolled these individuals in supportive counseling groups located in the catchment area. They subsequently established a full outpatient treatment programme in August 2009.

Outpatient treatment services were the core of each of the programmes. Each site developed an array of outpatient counseling programmes which included comprehensive clinical services with individuals, groups and families. Both regular and intensive outpatient services were also provided. In addition, adjunct services were established such as drop-in centers and after care programmes. A series of counselor-supported recovery groups were part of the ongoing services. Addiction counselors also helped the recovering users to establish 12-step self-help groups. Drop-in centers and different facilities within the organizations served as meeting sites for self-help AA/NA meetings.

One programme (Reachout) received the resources and technical support to develop a halfway/transitional house in order to strengthen the community integration component. Participants in this programme obtained recovery services in the community, such as outpatient and intensive outpatient services, while living at the halfway/transitional house.

Each organization also has an HIV risk-reduction outreach programme specifically targeting the substance abusing population. The outreach programmes are field-based, where outreach workers identify substance abusers in the community at places like drug-using sites and alcohol drinking dens where low-cost local brews and wines are available. The majority of drug users were street-level users,

with limited to no employment. Once they are identified, outreach workers then develop rapport with them and follow them as ongoing outreach clients.

Outreach workers also provide case management services, tracking clients through their recovery process and providing support to maintain abstinence. Outreach workers facilitate referrals to other healthcare services and provide a critical link to addictions treatment programmes. They coordinate services to ensure clients receive necessary treatment to help facilitate their recovery.

METHOD

This paper examines utilization of services in the four outpatient treatment programmes as well as the results of an addiction recovery outcomes survey. Two different samples were used to collect the data. The first sample was the entire population of individuals that participated in an outpatient treatment programme at the four sites from 2007 to the first quarter of 2010. The data collected during the client treatment process included client demographic information, clinical intake assessment information, type of counseling sessions provided, duration of service, counseling site and provider. Data for client participation and retention (presented in Table 1, below) also were derived from this data source.

The second sample was a subset of clients that had participated in the outpatient treatment programme and were asked by outreach workers to complete a treatment outcomes survey. These data were collected for approximately two weeks during the last week in May and first week in June 2010. Data were collected using a survey instrument provided to the outreach workers and completed with their clients. All information was collected through structured one-on-one interview sessions and recorded by the outreach workers. Training was provided for outreach workers in conducting the structured interviews, in order to maintain consistency and minimize interviewer bias. Client selection was based

on outreach workers' ability to locate clients. Outreach workers also assessed the clients' ability to respond to the survey similar to the way they assess client ability to respond to risk-reduction interventions in the field. The survey tool was not administered with individuals who were unable to actively participate due to drug or alcohol impairment. Outreach workers also informed the clients of the study and requested their consent to participate.

The survey tool included questions about the type and number of addictions recovery treatment services clients had attended in the past, the end date of their most recent treatment episode, if they were currently using substances and the date of their most recent relapse. The survey tool also asked if they had participated in self-help support groups, when they last attended, and any other programmes they may have attended in the past.

RESULTS

A total of 1,847 clients (1,421 males and 426 females) took part in outpatient addictions

treatment services at the four sites during the three-year period. The table below provides a breakdown for each of the outpatient treatment sites.

Data in Table 1 indicate an increase in client participation in addictions treatment programmes over time, especially when looking at the number of clients participating in treatment and the number of client sessions provided for OMARI and Reachout. Client sessions represent the total number of sessions provided to clients. The number of intake/assessments did not increase significantly as compared to the number of clients participating in treatment and the number of client sessions provided. Clients who were already enrolled in treatment attended more sessions over time, indicating a higher level of engagement and retention in services.

Figure 1 is a graphic representation of the data presented in Table 1. It presents combined data for OMARI, Reachout and Raphaelites of the number of new intake/assessments, number of clients participating in treatment and the number of client sessions provided. Data reported for the KUAP programme are not

Table 1. Participation in Outpatient Addictions Treatment by Site

	OMARI			Reachout			Raphaelites			KUAP
	New intake assessments	Clients participating in Tx	Sessions provided	New intake assessments	Clients participating in Tx	Sessions provided	New intake assessments	Clients participating in Tx	Sessions provided	Clients participating in workshop
2007 Q1&2	46	20	25	88	15	15	--	--	--	36
2007 Q3&4	17	21	43	130	13	13	--	--	--	81
2008 Q1&2	48	42	74	93	101	147	99	91	159	0
2008 Q3&4	35	66	111	64	99	399	20	--	--	0
2009 Q1&2	80	157	691	126	197	1223	66	84	288	150
2009 Q3&4	83	187	543	71	164	2064	29	46	147	325
2010 Q1&2	45	188	644	47	180	2350	68	111	291	0

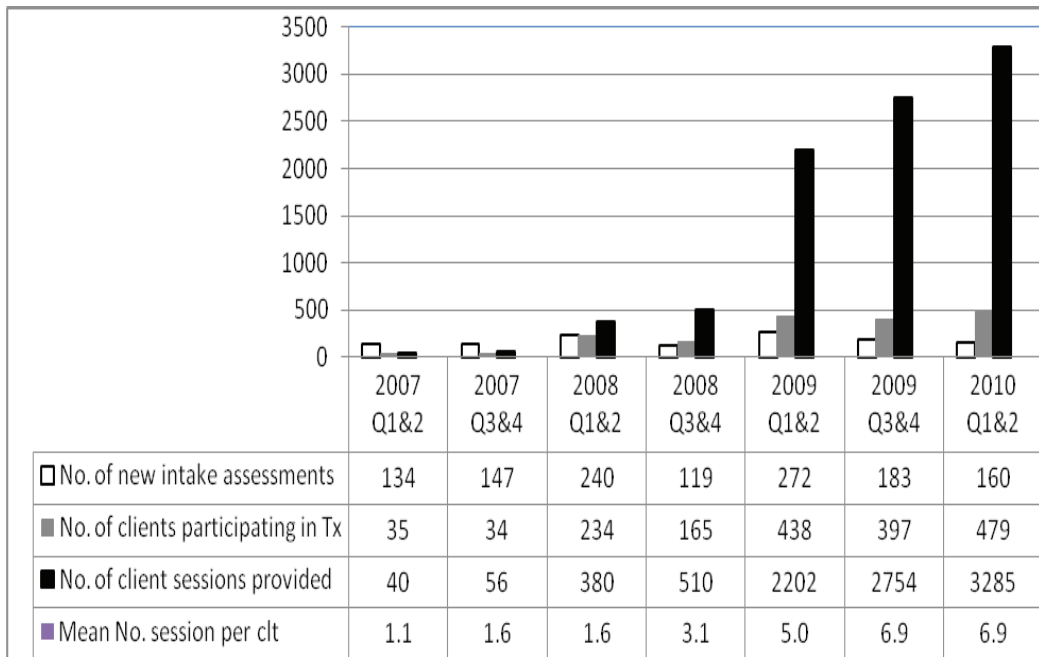


Figure 1. OMARI, Reachout and Raphaelites Client Participation in Addictions Treatment

presented in the graph, since their programme was initially based on workshop interventions coupled with support groups.

Figure 1 shows that client intake/assessment remained fairly consistent over time with some slight increases. The significant changes are in the number of clients participating in treatment and the number of client sessions provided. The mean number of sessions also increased over time. The Raphaelites programme experienced disruptions in their addictions treatment programme due to staffing issues. When the Raphaelites data is removed, the mean number of sessions per client increases more significantly, with 8.1 sessions per client in Q1&2 2010.

Table 2 provides outcome data based on client self-report during the survey contacts with the outreach workers. Data collected and reported were based on an abstinence model; therefore, clients who reduced alcohol consumption were still identified as having relapsed if they consumed at all. Similarly, if a client used another substance, other than his/her drug of choice, he/she would also be identified as having relapsed.

The data in Table 2 show that 42% of all the clients surveyed (155 out of 372) in all four programmes, reported they had stopped using substances (abstinence).

OMARI and Reachout serve primarily alcohol, cannabis and heroin users; their respondents reported using these substances. Raphaelites and KUAP only had alcohol and cannabis users in their respondent pool, which is also their primary population. Only one survey respondent reported using benzodiazepines, and that data was removed from the sample.

Data reported for the KUAP programme were based on the workshop interventions coupled with the support groups, since its comprehensive addictions treatment programme did not begin until the latter part of 2009. The list of clients that participated in the survey was compared to the list of individuals who had participated in the outpatient programme that began in August 2009. Out of the 93 clients who responded to the KUAP survey, only 6 clients had participated in the outpatient addictions treatment programme. Therefore, the recovery workshops along with the counseling groups were the primary intervention for this

Table 2. Recovery/relapse Among Clients Attending Outpatient Addictions Treatment

Programmes			No. clients participated in survey	No. clients Relapsed	No. clients abstinent	No. months since terminated Tx	% abstinence	Abstinent clients receiving residential Tx	% abstinent clients who received residential Tx
OMARI	Alcohol and Cannabis	Male	15	9	6	1 to 11	40%	0	0%
		Female	9	4	5	1 to 16	56%	0	0%
	Heroin	Male	38	19	19	0 to 36	50%	13	68%
		Female	5	3	2	2 to 24	40%	1	50%
	Total		67	35	32		48%	14	44%
Reachout	Alcohol and Cannabis	Male	51	28	23	0 to 18	45%	3	13%
		Female	10	5	5	0 to 27	50%	0	0%
	Heroin	Male	67	39	28	0 to 24	42%	8	29%
		Female	7	3	4	3 to 16	57%	1	25%
	Total		135	75	60		44%	12	20%
Raphaelites	Alcohol and Cannabis	Male	35	20	15	0 to 26	43%	0	0%
		Female	42	25	17	0 to 15	40%	0	0%
	Total		77	45	32		42%	0	0%
KUAP	Alcohol and Cannabis	Male	68	47	21	3 to 18	31%	–	–
		Female	25	15	10	3 to 18	40%	–	–
	Total		93	62	31		33%	–	–
All Organizations			372	217	155		42%	26	12%

population. In addition, KUAP did not obtain information about past residential treatment because there are no residential rehabilitation services in their catchment area and very few clients, if any, have participated in residential rehabilitation programmes outside the area. Furthermore, these programmes are not affordable for most clients.

Table 2 also provides information about clients who attended residential treatment services in addition to outpatient treatment. Of the four organizations in the study, OMARI had the highest overall abstinence rate at 48% (32/67) and highest abstinence rate among heroin users at 49% (21/43). OMARI also has the highest percentage of abstaining clients who attended residential rehabilitation in addition to

outpatient treatment services at 63% (14/22). Their abstinence rate for alcohol/cannabis users was 46% (11/24), but none of these clients attended residential treatment (all were treated with outpatient treatment services).

DISCUSSION

Data from Table 1 show an increased utilization of outpatient services. OMARI and Reachout showed significant increases in the number of client sessions provided. OMARI provided 68 client sessions in 2007 and 1165 in 2009, and Reachout provided 32 client sessions in 2007 and 2394 in 2009. This may be due to increased knowledge of the availability

of addiction treatment services and/or increased understanding of the addiction recovery process, specifically that ongoing participation in a recovery programme is essential to achieve sobriety. Staff posited that initially clients were less engaged in an ongoing recovery programme, perceiving addictions treatment as a short-term curative intervention, but that after experiencing multiple relapses, they began to understand that addiction counseling requires active participation and personal commitment in order to achieve sobriety. Additional study would be needed to examine this hypothesis.

Data from the outcome survey in Table 2 provide important information about the role of outpatient treatment services in helping substance-abusing clients address their addictions to achieve abstinence. These data report notable abstinence among all the programmes, although some programmes identified higher abstinence rates than others. Programmes that provided more comprehensive services in addiction recovery also reported more favorable recovery outcomes. OMARI and Reachout offer the most expansive recovery services; this is also reflected in the number of services that each client receives in their addiction treatment programme. More counseling sessions were provided per client as compared to other organizations (Table 1). OMARI and Reachout had the highest recovery rates, 48% and 44%, respectively, with Raphaelites just slightly less at 42%. Conversely, KUAP, which provided the least clinical interventions, had the lowest abstinence rate at 33%. KUAP's programme was primarily based on recovery workshops and support groups led by outreach staff.

The Raphaelites' survey data revealed the second lowest abstinence rates. Although the Raphaelites' programme is developing, it is the only site with only one addictions counselor. The Raphaelites also experienced challenges with staff turnover and the need to train a new addictions counselor, which affected programme implementation. The Raphaelites maintained an intensive outpatient programme for substance abusing female sex workers that kept operating despite staff turnover. The intensive outpatient component appears to have

played an important role in facilitating abstinence recovery for those clients.

As indicated earlier, data presented reflect a 42% overall abstinence rate among all four sites. A 45% abstinence rate was reported for the two more established sites of OMARI and Reachout, with broader and deeper clinical services. Some studies have published abstinence rates following addictions treatment services. Bottlender & Soyka (2005) reported a 43% abstinence rate after a three-year follow up among a selection of clients who successfully completed an intensive outpatient treatment programme. Winters, Stinchfield, Opland, Weller & Latimer (2000) reported that 53% of adolescent clients who completed treatment maintained abstinence, or had minor lapse episodes, when assessed one year after completing their programme. Completion of treatment was a significant indicator for treatment outcome. Of the adolescents who did not complete treatment, only 15% were able to maintain abstinence. According to the study, there were also no differences in recovery outcomes between residential and outpatient treatment groups. Completion of treatment was also not measured in this study with the four outpatient sites, but only the criterion of discharge from services was used, regardless of whether he/she had successfully completed treatment.

It is difficult to draw comparisons between these studies and the results of the CAP study since significant information is not available, thereby making comparisons very difficult. The studies do provide a frame of reference in terms of potential outcomes from outpatient treatment services. There is a need for a more comprehensive study to better understand the relationship between abstinence and the outpatient treatment intervention provided. A more controlled study following a cohort of clients who have successfully completed treatment programmes would allow us to better understand the contribution of outpatient treatment intervention to client abstinence.

Since the CAP study utilized complete abstinence as the measurement for successful treatment outcome, reduction in the amount of substance used was not measured. Therefore, it is

possible that a reduction in amount or type of substances abused could have been achieved. Assessing duration of abstinence was also not easily obtained in the study, as some clients were unable to clearly identify relapse dates. A more accurate duration of abstinence would also be a critical component to assess in any further studies. Although, which outcome(s) to measure (e.g., sobriety and abstinence duration, quality of life, relapse) as an indicator of successful treatment is still under discussion in the field of addiction (Erickson, 2007).

As noted, clients for the second data set were selected by the outreach workers based on accessibility. The pre-existing relationships between the outreach workers and clients may have impacted the quality of the data gathered. One of the limitations of using the outreach workers was that the outreach teams tended to concentrate their efforts in locations where substance abusers are found, such as drinking dens. This may have skewed the sample population in favor of relapsed (currently using) substance abusers. Consequently, relapse rates from this sample population may be higher than actual relapse rates for the entire population of individuals who participated in outpatient treatment. An additional limitation is that outreach workers may not have had access to clients who have achieved a level of sobriety and are no longer going to drinking establishments.

The case management intervention used by outreach workers is another factor that may favorably influence recovery/abstinence rates. Studies indicate that the inclusion of case management within substance abuse programmes improve client recovery outcomes (McLellan, Hagan, Levine, Meyers, Gould, F., Benciven-go, et al., 1999 & McLellan, Hagan, Levine, Gould, Meyers, Benciven-go, et al., 2002). Thus, case management by the outreach workers could have played a role in facilitating client abstinence/recovery.

The comparatively smaller number of women who participated in outpatient treatment is another factor requiring further examination. According to anecdotal reports from each of the programmes, women are extremely reluctant to engage in addictions recovery services,

primarily because of shame and feeling labeled in the community. Women are less likely to seek treatment and when they do, find it difficult to remain in services. Studies also support that social stigma, labeling and guilt are considered significant barriers preventing women from accessing addictions treatment services (Ashley, Marsden & Brady, 2003; Copeland, 1997). In terms of abstinence rates among gender, women appear to have better abstinence rates than men. At the same time, the data for women in this study is very limited and it is difficult to draw any notable conclusions.

Another consideration vis-à-vis abstinence rates is the extent to which outpatient services have been combined with other addiction treatment interventions, such as residential treatment. Table 2 identifies some of the individuals that also received residential treatment services. Comparing the number of interventions provided to individuals would also be an important consideration when looking at recovery and relapse rates.

CONCLUSION

Measuring client outcomes in addictions treatment programmes involves many factors and is not easily attributed to one intervention. Despite these complexities, this paper provides data from which we can draw some limited conclusions. Outpatient addictions treatment services can be an effective, accessible intervention in the community. These data show a positive uptake of services after programmes have been established in the community, and treatment outcomes had notable recovery rates, with clients reporting abstinence from alcohol and drugs.

Outpatient addictions treatment services is a viable option for Kenyans, especially with a growing demand for the services as indicated by the increasing numbers of substance abusers accessing outpatient services among the sites identified in the study. The demand for such outpatient treatment services, as a first-line treatment option, could be a critical tool for the recovery process for Kenyans dealing with substance abuse and addiction.

REFERENCES

- Ashley, O.S., Marsden, M.E. & Brady, T. (2003). Effectiveness of substance abuse treatment programming for women: A review. *The American Journal of Drug and Alcohol Abuse*, 29(1), 19–53.
- Assefa, S., Damen, M.H. & Alemayehu, W. (2005). The association between substance abuse and HIV infection among people visiting HIV counseling and testing centers in Addis Ababa, Ethiopia. *The Ethiopian Journal of Health Development*, 19(2), 116-125.
- Bottlender, M. & Soyka, M. (2005). Outpatient alcoholism treatment: Predictors of outcome after 3 years. *Drug and Alcohol Dependence* 80(1), 83-89. doi:10.1016/j.drugalcdep.2005.03.011
- Copeland, J. (1997). A qualitative study of barriers to formal treatment among women who self-managed change in addictive behaviours. *Journal of Substance Abuse Treatment*, 14(2), 183-190.
- Davis, K.C., Hendershot, C.S., George, W.H., Norris, J. & Heiman, J.R. (2007). Alcohol's effects on sexual decision making: An integration of alcohol myopia and individual differences. *Journal of Studies on Alcohol and Drugs*, 68(6), 843-851.
- Erickson, C. K. (2007). *The science of addiction: from neurobiology to treatment*. New York: W.W. Norton & Company, Inc.
- Geibel, S., Luchters, S., King'ola, N., Esu-Williams, E., Rinyiru, A., et al. (2008). Factors associated with self-reported unprotected anal sex among male sex workers in Mombasa, Kenya. *Sexually Transmitted Diseases*, 35(8), 746–752. doi:10.1097/OLQ.0b013e318170589d
- Mackenzie, C. & Kiragu, K. (2007, January). Should voluntary counseling and testing counselors address alcohol use with clients? Findings from an operations research study in Kenya. *Horizons Research Update*. Nairobi: Population Council.
- McLellan, A.T., Hagan, T. A., Levine, M., Meyers, K., Gould, F., Bencivengo, M., et al. (1999). Does clinical case management improve outpatient addiction treatment. *Drug and Alcohol Dependence*, 55(1-2), 91-103. doi:10.1016/S0376-8716(98)00183-5
- McLellan, A.T., Hagan, T.A., Levine, M., Gould, F., Meyers, K., Bencivengo, M., et al. (2002). Supplemental social services improve outcomes in public addiction treatment. *Addiction*, 93(10), 1489-1499. doi:10.1046/j.1360-0443.1998.931014895.x
- NACADAa (2010). Report of survey on drugs and substance abuse in coast province Kenya. National Campaign Against Drug Abuse Authority, Nairobi, Kenya.
- NACADAb (2010). Addiction rehabilitation centres list. National Campaign Against Drug Abuse Authority, Nairobi, Kenya.
- NACADA (2007). Rapid situation assessment of drug and substance abuse in Kenya. National Campaign Against Drug Abuse Authority, Nairobi, Kenya.
- Ndetei, D.M., Khasakhala, L.I., Mutiso, V., Ongecha-Owuor, F.A. & Kokonya, D.A., (2009). Patterns of drug abuse in public secondary schools in Kenya. *Substance Abuse*, 30, 69-78.
- Ndetei, D.M., Ongecha, F.A., Malow, R.M., Onyancha, J., Mutiso, V., Kokonya, D.D., et al. (2006). Next priorities for Intervention in Kenya: Results from a cohort study of drug use, HIV and HCV patterns in five urban areas. *International Psychology Reporter*, 10(1), 16-19.
- Nielsen, M.F., Resnick, C.A. & Acuda, S.W. (1989). Alcoholism among outpatients of a rural district general hospital in Kenya. *British Journal of Addiction*, 84(11), 1343 – 1351. doi:10.1111/j.1360-0443.1989.tb00736.x
- Ngesu, L.M., Ndiku, J. & Masese, A. (2008). Drug dependence and abuse in Kenyan secondary schools: Strategies for intervention. *Educational Research and Review*, 3(10), 304-308.
- Odejide, A.O. (2006). Status of drug use/abuse in Africa: A review. *Journal International Journal of Mental Health and Addiction*, 4(2), 87-102.

- Shaffer, D.N., Njeri, R., Justice, A.C., Odero, W.W. & Tierney, W.M. (2004). Alcohol abuse among patients with and without HIV infection attending public clinics in western Kenya. *East African Medical Journal*, 81(11): 594–599.
- Shuper, P.A., Joharchi, N., Irving H. & Rehm J. (2009). Alcohol as a correlate of unprotected sexual behavior among people living with HIV/AIDS: Review and meta-analysis. *AIDS and Behavior*, 13(6), 1021-1036.
- Weiser, S.D., Leiter, K., Heisler, M., McFarland, W., Percy-de Korte, F., et al. (2006). A population-based study on alcohol and high-risk sexual behaviors in Botswana. *PLoS Medicine*, 3(10): e392: 1940-1948. doi:10.1371/journal.pmed.0030392
- WHO Report (2005). Alcohol use and sexual risk behaviour: A cross-cultural study in eight countries. Geneva: World Health Organization.
- Winters K.C., Stinchfield R. D., Opland E., Weller C. & Latimer W. W. (2000). The effectiveness of the Minnesota Model approach in the treatment of adolescent drug abusers. *Addiction*, 95(1), 601-612.
- Zablotskaa, I.B., Graya, R.H., Serwaddab, D., Nalugodab, F., Kigozib, G., Sewankambob, N., et al. (2006). Alcohol use before sex and HIV acquisition: A longitudinal study in Rakai Uganda. *AIDS* 20(8), 1191–1196.