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HEALTH COMMUNICATION STRATEGIES AND TREATMENT CONTINUITY AMONG "TEST AND START" ANTIRETROVIRAL THERAPY CLIENTS IN ZOMBA, MALAWI

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Abstract: Malawi adopted test-and-start, a strategy for initiating clients to antiretroviral therapy (ART) within 7 days of being diagnosed HIV positive regardless of CD4 count, in 2016. Despite notable improvements in ART coverage, adherence remains suboptimal. A cross-sectional convergent parallel mixed methods study was conducted between May and August 2022 to assess health communication strategies associated with ART continuity among test-and-start clients in Zomba District, southern Malawi. Random sampling was used to select 8 health facilities and 325 test-and-start clients from clinic registers to collect quantitative data. Key variables were client knowledge of test-and-start, media of accessing information about test-and-start and HIV status disclosure. Qualitative data were collected amongst 68 health workers and expert clients, positive deviants in ART adherence and mentors of fellow clients. Eight focus group discussions and eight key informant interviews were conducted. Logistic regression and thematic analysis were used to analyze quantitative and qualitative data respectively. Trans theoretical Model (TTM) was used to conceptualize results. Results showed that only Follow-up calls by health worker was significantly associated with adherence (OR=1.787, 95% CI: 1.41-2.51). Client knowledge, status disclosure and quality of counselling did not influence ART adherence. Qualitative results showed that intrapersonal level strategies such as prior knowledge about test-and-start influenced adherence while one's perceived health status and negative attitude towards test-and-start potentially influenced non-adherence. Interpersonal level strategies such as disclosure, perceived quality counselling had potential to influence adherence. For effective adherence, health communication strategies should target at empowering ART clients' agency to adopt a healthy behaviour at various stages of health behaviour change process. Appropriate determination of ART clients' stages in the behaviour change process is critical if health communication strategies are to be used effectively in promoting treatment continuity.

Keywords: health communication strategies, antiretroviral therapy, ART adherence, test and start, Zomba, Malawi

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Introduction

Malawi has one of the highest HIV prevalence in the world, 8.9%, despite the impressive progress the country has made in controlling its HIV epidemic in recent years (MPHIA 2020) The Malawi spectrum estimates 2021 show that there are 982, 470 PLHIV in Malawi and an estimated 21 ,000 new HIV cases (UNAIDS, 2021). Adoption of test and start approach to ART initiation has significantly increased coverage of ART in Sub-Saharan Africa (Forhan et al., 2017). Since August 2016, Malawi adopted test and start strategy for initiating HIV diagnosed clients on ART in HIV management that has led to substantial increases in number of people started on ART. A review of MoH ART utilisation data from 2016 to 2019 indicates that despite rapid increase in number of people initiating ART, there are high rates of non-adherence to ART among test and start clients in Zomba District, Malawi (MoH, 2019). Of 83, 450 clients registered on ART in Zomba District, 24.9% were reported to have defaulted on ART as of July 2019 leaving 75.1% as current on ART (MoH, 2019).

Previous studies have found that at intrapersonal level, individual perceptions, beliefs or emotions affect decision-making towards behaviour change (Ngigi & Busolo, 2018). A few studies found that having knowledge about ART benefits increases adherence(Boateng et al., 2013;Cane et al., 2017), while lack of it influences nonadherence (Wast et al., 2012). Percieved health and other personal beliefs have also been shown to influence nonadherence(Mukumbang et al., 2017;Kumwenda, 2011) and Self-efficacy (Martos-Mendez, 2015;Chen et al., 2013).

Interpersonal level strategies such as family influences like social support and relationship have also been shown to affect individual decision-making (Milgrom, 2015). Particularly, disclosure of HIV status has been seen to have a positive correlation with treatment continuity (Annies, 2015). Fear of HIV status disclosure or being seen taking medication has also been identified as a barrier to adherence in previous studies (Nachega et al., 2006). Others have found provider and client interaction as another important element in that ART patients who experience negative attitudes from health workers are reluctant to return for follow-up appointments (Tobias, 2008). In another study, Sanjobo et al (2008) found that lack of counselling skills and patient follow up influence non adherence. Furthermore, studies in Uganda and Tanzania reported that sociocultural factors such as transportation costs are serious obstacles to taking ART (Sanjobo et al., 2008; Reda et al., 2011). Other researchers documented distance to a health facility (Paterson, 2010) and privacy (Wasti et al., 2012). However, there is limited research on ART adherence focusing on health communication related strategies and with emphasis on ART test and start. We sought to assess health communication strategies associated with treatment continuity among test-and-start ART clients in Zomba District, Malawi.

Conceptual Framework

Public health experts recognize health communication as vital to public health programs that address disease prevention, health promotion, and quality of life. It can make important contributions to promote and improve the health of individuals, communities, and society. Health communication can enlighten people on health matters. In addition to increasing awareness about a health issue or solution, it can also shift social norms by influencing attitudes. For example, health communication campaigns have helped to reduce the stigma around HIV and AIDS, making it easier to convince people to get tested. The study deployed the intrapersonal and interpersonal communication strategies to understand how health communication affected ART adherence among test-and-start ART clients.

The study further used the Trans theoretical Model of Change (TTM) to appreciate the role of health communication strategies on influencing ART adherence among test and start clients. It is a cyclic model developed by Prochaska and Diclemente in 1983 (Corcoran, 2007). The model is based on the premise that people are at different levels of readiness to change, and during the change process they move through a series of stages. According to Prochaska and Diclemente, people move from *pre-contemplation* where the client may not see a need for a lifestyle or behaviour change, *contemplation* where one may consider a change but has not decided yet, *preparation* where one has decided to make changes and is considering how to make them, *action* where one is actively doing something to change, *maintenance* where one is working to maintain the change or new lifestyle- temptations and lapses are common; and lastly r*elapse* stage where one is no longer practicing the behaviour. During these incremental stages, they consider whether or not to make changes to their behaviour. A person may start at any of these stages and may move between stages (Corcoran, 2007). Summary of the model is as shown in Figure 1 and 2.

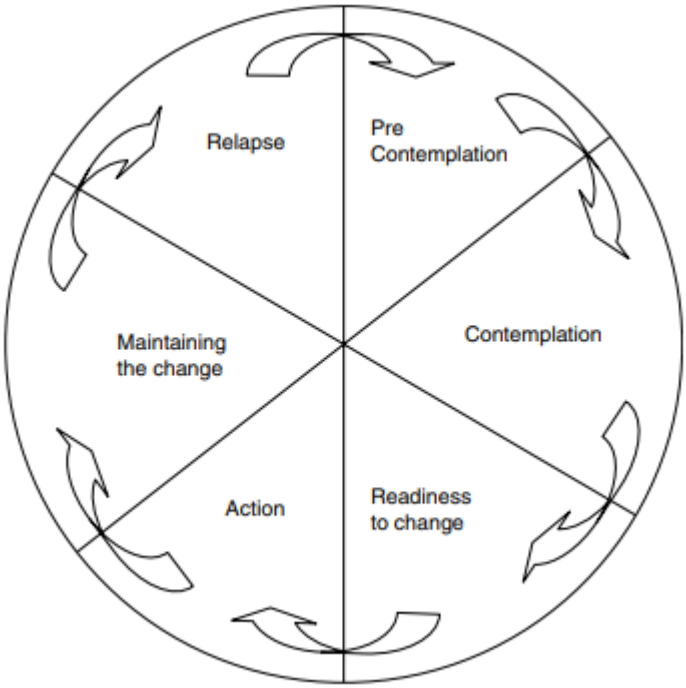

Figure 1: The Trans theoretical model, adapted from Prochaska & Diclemente (1983)

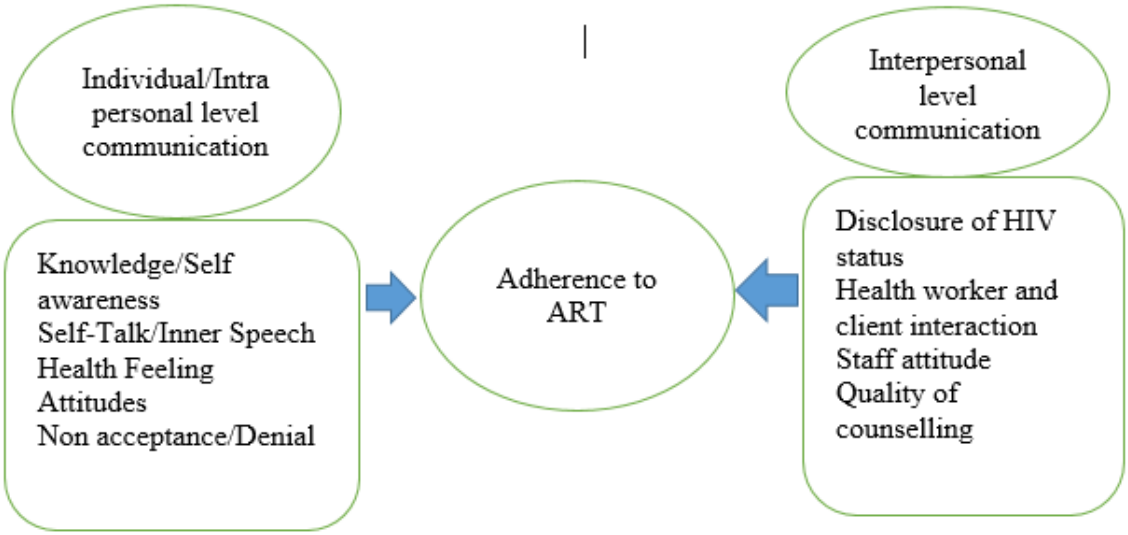

Figure 2: Conceptual framework of possible intrapersonal and interpersonal level communications vs ART Adherence

Materials and Methods

The study used the Convergent Parallel Mixed Methods (CPMM) design. In this method, the researcher collects both quantitative and qualitative data, analyse it separately and compare the results to confirm if findings are in agreement with each other (Cresswel, 2014).

Data Sources

The study was conducted from May to August 2022. The study population was all PLHIV that started ART on test and start approach between August 2016 and March 2021 in Zomba District located in the south eastern region of Malawi. Further, ART expert clients and health workers that included nurses and clinicians constituted sample frame for Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). Simple random sampling was used to select 8 health facilities out of a total of 42 ART clinics in the district. Respondents were sampled using ART registers to collect quantitative data. Qualitative sample was obtained using convenience sampling to recruit participants for FGDs and purposive sampling for KIIs.

Measurement of Variables

A structured questionnaire in hardcopy paper-based format was administered orally to study participants (n=325) in Chichewa language to collect quantitative data. This was done by visiting and meeting clients at their ART service facility. The questionnaire focused on assessing client knowledge of test and start, media through which they accessed information about it, self-reported adherence, HIV status disclosure, quality of counselling and freely talking about ART. Qualitative data was collected through 8 sessions of FGDs (n=60) from health workers and expert clients as well as 8 sessions of KIIs (n=8) from health workers. Health workers were interviewed to provide insights on how they viewed test and start clients in relation to adherence, based on their experience and interaction with them. Expert clients were interviewed to obtain information on their experiences as ART clients, challenges they face, how they manage to overcome them and how other ART clients can learn from their adherent behavior.

Statistical Analysis

Quantitative data was entered in SPSS version 20. Multivariate logistic regression model was used to identify communication factors associated with non-adherence (Wasti et al., 2012). Crude Odds ratio (COR) and Adjusted Odds ratio (AOR) from univariate and multivariate logistic regression estimations were conducted respectively and were reported at 95% confidence interval. The level of significance for all tests of association was set at $p<0.05$. The outcome variable of interest was adherence to ART analysed against several health communications related independent variables. Qualitative data analysis was done using thematic analysis of the interview transcripts. These were transcribed verbatim from audio recorders. Transcripts were reviewed for completeness and accuracy

by reviewing audio recordings. Data was coded according to themes predetermined by the topic guides and those emanating from the responses.

Ethical consideration

The study was approved by the Ministry of Health through the National Health Sciences Research Committee (NHSRC) who provided ethical clearance to conduct the study (ethics approval number 2193). Respondents were not asked names and their identification details were not documented in any way or published at any site. The general ethical issues included research participants' consent, no incentives, keeping sensitive information private and ensuring no harm to participants. Verbal consent was used to acknowledge their willingness to participate in the study. Participants were asked to use pseudonyms, during FGD and KII sessions to preserve their anonymity.

Results

Characteristics of Study participants

A total of 325 ART clients participated in the study. The mean age of sample was 43(SD= 11.8) years (range 18 to 79). On gender distribution, 69% were female while 31% were male. Many of the respondents were married (60.3%) to either one wife or husband. Some (2.8%) were in a polygamous marriage. The majority attended education up to only primary school level (85.8%), while only a few (< 2%) completed tertiary education. The majority (70.1%) were either farmers or doing small scale businesses. More than half of the respondents (56%, n=325) lived a minimum distance of 4km or more away from the health facility where they access ART service. Despite this being the case, the majority of the respondents (62.8%) reported walking to their health facility as mode of travelling used to access ART service. The rest used kabaza (push bicycle) (27.1%), public transport such as minibus (7.7%) and motorcycle (1.8%). Many respondents (84.1%) reported that they spent a minimum of 2 hours at a health facility on a clinic day as shown in table 1.

Table 1: Demographic Characteristics of sample

Variable	ART Patients		Health Workers	
	N	%	N	%
Sex				
Male	97	30.1	22	37.1
Female	228	69.9	38	62.9
Respondent Age category				
18-25	25	8.4	6	9.9
26-35	61	8.8	24	39.9
36-45	120	36.9	14	23.3
46-55	67	20.6	12	20.1

56+	51	15.7	4	6.7
Level of Education				
Primary	279	85.8	0	0.0
Secondary	39	12	0	0.0
Technical	1	0.3	0	0.0
College/University	3	0.9	68	100.0
Never attended	3	0.9	0	
Religion				
Christian	261	80.3	59	86.7
Muslim	63	19.4	9	13.3
None	1	0.3		
Marital Status				
Single	14	4.3	4	6.7
Monogamous marriage	196	60.3	49	81.7
Polygamous marriage	9	2.8	0	0
Widowed	52	16	3	5.1
Divorced/separated	54	16.6	4	6.7
Occupation				
Farming	123	37.8	-	-
Self employed	105	22.3	-	-
Permanent employment	19	5.8	-	-
Piecework(maganyu)	33	10.2	-	-
None	20	6.2	-	-
Other	25	7.7	-	-

Adherence to ART and Health Communication Strategies

Adherence among test and start ART clients was suboptimal in Zomba District. The study showed that 20.3% (N=325) of ART clients were non-adherent to ART. The findings are consistent with other studies such as in Ghana where 27% of ART clients were non-adherent to ART (Prah et al., 2018), in China where 28% were reported non-adherent (Kipsang,et al, 2018) and in Brazil where the prevalence of non-adherence was found to be 25% (Silva et al., 2015)

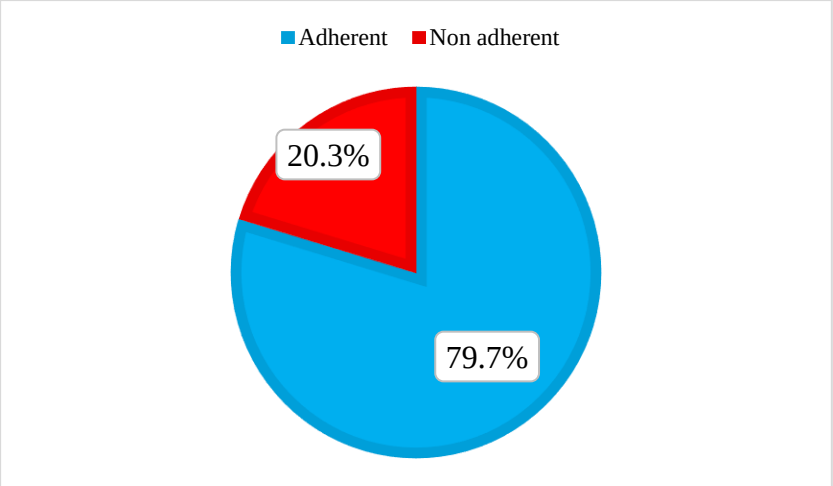

Figure 3: Adherence status among test and start ART clients in Zomba District at time of study 2022.

Intra-personal health communication Strategies

Knowledge and Self Awareness

Despite lack of quantitative evidence of statistical association between having knowledge about test and start and adherence to ART, qualitative results showed that it does, in fact, influence adherence. Health workers reported that knowledge of test and start concept had potential to influence adherence than lack of it. Majority of health workers reported that most clients get surprised when they are counselled to start ART immediately after testing HIV positive as a result most of them do not feel prepared to start and were considered to be in the pre contemplation stage of change. On the other hand, it was noted that clients who tested positive and had some knowledge about test and start were easily convinced to initiate ART on the same day probably because they had already contemplated and convinced about it before it was time to make their own decision. One newly tested positive client said when informed of the new test and start policy.

"At first I was afraid that I will die, but when I was counselled about benefits of starting ART immediately, I was determined to start" (ART Client, IDI 07, Matiya)

Results therefore support the Trans theoretical model where increased awareness of test and start is likely to raise consciousness and self-re-evaluation in a client to realize the importance of treatment continuity and consequently act and maintain the positive behavior.

Perceived Health

Perceived health was mostly mentioned as a potential element of intrapersonal communication influencing non- adherence to ART. The main reason as mentioned by ART clients was that many

people are asked to start ART when they are asymptomatic hence many do not feel ready and therefore lack the determination to commit themselves to lifelong medication.

"When I was diagnosed HIV positive, I was counselled and told to start ARVs the same day. However, I felt reluctant to start since I was not feeling any signs of illness in my body." (ART Client, IDI03, Matiya HF)

Health workers also reported that clients feel unconvinced and unprepared to start ART on same day of being diagnosed with HIV because of their perceived health status. Thus, clients have conflict occurring within themselves on whether to start treatment when they perceive themselves to be health. Since some clients did not believe that they were indeed HIV positive due to perceived health, they did not feel ready to start ART due to the feeling of being physically fit. These clients might have needed more time to contemplate about staring ART in order to develop the stimuli and the appropriate level of readiness to change. Summary is as shown in table 2.

Table 2: Personal strategies and adherence

							Univariate			Multivariate		
Variable		Non-Adhere N=259(79.7%)		Adhere N=66(20.3%)		Totals n=325	Exp(β) COR	95% CI	*ρ*	Exp(β) AOR	95% CI	*ρ*
		N	%	N	%							
Knowledge of Test & Treat												
	No	11	22.4%	55	19.9%	66	1.163	0.559-2.421	0.686			
	Yes	38	77.6%	221	80.1%	259						
Mode of Communication												
	Radio	8	30.8	18	69.2	26	1.701	0.149-3.293	0.658	0.673	0.140-3.231	0.621
	Newspaper			1		1						
	Posters	1		1		2						
	At Hospital	44	18.5	194	81.5	238	1.19	0.319-4.446	0.796	1.133	0.298-4.305	0.854
	Community Mobilisation	3	21.4	11	78.6	14						
Attitude to Test & Treat												
	Was ready to start	51	20.9	193	79.1	244						
	Not ready	15	18.6	66	81.4	81	1.035	0.511-2.065	0.924	0.596	0.219-1.625	0.312

Non-Acceptance/Denial

Results also showed that lack of preparedness about hearing certain condition affected clients to stance on test and start policy when diagnosed with HIV. Health workers reported that many clients especially those tested through provider-initiated testing and counseling (PITC) when they visited the health facility for other illnesses only to get tested for HIV and diagnosed HIV positive disaffirmed their HIV positive results. Many of them did not feel prepared to start ART immediately as one client narrated:

"I came here because I have malaria, so what I need is antimalarial drugs". (ART Client, IDI 08, Namikango HF).

In this case, contemplation about starting ART only led to denial and influenced them against initiating treatment on the day they were tested HIV positive. Health workers also mentioned that sometimes denial comes because the client has been overwhelmed or taken by surprise with the outcome of the result. The clients need some time to ponder about the diagnosis and make their decision considering the decision will be life long and may not be in a position to listen to any form of counseling immediately.

Interpersonal Strategies

Follow up Reminders to ART Clients

From descriptive analysis results, most clients (89.1%) never received a phone call nor a home visit from a health worker while at home. Further analysis showed that phone call was significantly associated with adherence (OR=1.787, 95% C.I:1.410-2.513) as shown in table 3. This means that receiving phone calls from health workers is more likely to contribute to adherence than clients who are not called. The findings agree with qualitative results where health workers also reported that most clients who were not reminded about the day of their next appointment visit through home visits or using phones calls had problems with adherence.

"We don't do home visits or call clients to remind them of their next clinic visit mostly due to lack of airtime. We only tell them verbally, and we also write the date in their health passport book. (Clinical Officer, FGD06, Chingale HF)"

Client follow-up through home visits or phone communication for instance, is important as it may act as a reminder to clients as well as a motivation factor for a client to show up on the next scheduled appointment date. A related study in Coastal South India, found that PLHIV who were contacted personally by health workers through phone calls to remind them of their next clinic appointment reported better adherence that those that were hardly contacted through phone (Yathiraj, et al., 2016). Therefore, patient follow up systems such as home visits or calling clients through phones need to be

strengthened in ART programs as they may likely work not only to remind them of their next clinic appointments, but also makes them feel valued and a sense of involvement leading to adherence.

Disclosure of HIV Status

Descriptive analysis revealed that 62.8 %(n=202) of respondents who were married had disclosed their ART status to spouse and /or family member. This is lower than what Sasaki et al (2012) found in a Zambia study where over 80% disclosed their status to their spouse. Despite lack of quantitative evidence of association between disclosure of HIV status and adherence to ART, qualitative findings suggest that disclosure has potential to influence adherence to ART. Health workers reported that disclosure particularly to the spouse was a challenge amongst those that are non-adherent than among adherent clients. This was the case especially on the part of women. It was mentioned that if a woman is tested HIV positive and started on ART on same day, they were afraid to disclose to their husband about it as a result they would not continue taking drugs for fear of marriage termination.

"On the part of women, they find it difficult to disclose to their husbands as a result they don't start medication immediately or if they start, they don't continue due to fear that their husbands may abandon them. (Expert Client, FGD02, Domasi Rural HF)

The qualitative results were consistent with Bijker, et al, (2017) who also found that disclosure of one's HIV status to friends, family and neighbors was a facilitator of adherence. Mukumbang (2017) also found self-disclosure of one's HIV status to close and loved ones as a critical facilitator to ART adherence. Disclosure therefore as an interpersonal health communication strategy, can promote and improve the health of individuals as spouse or relative is likely to encourage and remind the client to consistently take ART.

Table 3: Interpersonal health Communication strategies and adherence

Variable		Non-Adhere N=259(79.7 %)		Adhere N=66(20.3%)		Totals n=325	**Univariate** Exp(β) COR	95% CI	ρ	**Multivariate** Exp(β) AOR	95% CI	ρ
		N	**%**	**N**	**%**							
Disclosure (Sexual Partiner)	Yes	43	21.1	161	78.9	204	0.879	0.499-1.546	0.654	0.833	0.435-1.595	0.582
	No	23	23.5	98	76.5	121						
Perceived Quality of Counseling	Average	39	19.2	164	80.7	203	1.705	0.197-14.783	0.628	1.264	0.658-2.426	0.482
	Very good	27	22.1	95	77.9	122	1.182	0.678-2.059	0.555			
Freely talk about ART	Yes	45	18.9	193	81.1	238	1.365	0.758-2.458	0.301	1.544	0.759-3.143	0.231
	No	21	24.1	66	75.9	87						
Frequency of Talking about ART	All the times	15	33.3	45	66.7	60	3.0	0.177-50.9796	0.447			
	Rarely/Never	30	16.8	149	83.2	179	3.2	0.192-54.156	0.416			
Follow up call by HealthWorker	Yes	52	21.2	193	78.8	245	0.7	0.410-0.91	0.04	1.787	1.41-2.53	0.03
	No	14	17.5	66	82.5	80						

Openness and frequency of talking about ART

Openness in the context of this study refers to one's willingness to talk and discuss about HIV and ART with peers either at workplace or in any other group settings. Despite lack of quantitative evidence that openness and frequency of talking about ART influences adherence, health workers reported that it, in fact, does. Health workers reported that clients who were open to talk to their peers about HIV and ART found it easy to adhere than clients who did not feel comfortable to do it. Results suggest that being open and free to talk about the subject of HIV and ART to peers and frequently doing it has potential to reduce stress, increase moral and psychological stamina and hence minimise incidences of missing drugs thereby increasing adherence. Discussing about the ART has potential to build social support and relationship that also affects individual decision-making. It is therefore one source of social support and plays an important role in helping clients cope with HIV/AIDS.

Perceived Quality of Counselling and Staff Attitude.

Despite lack of quantitative evidence perceived that quality of counselling influences adherence, health workers reported that, it does, in fact influence non-adherence. Health workers reported that clients that perceived to have received adequate counselling about test and start concept were more likely to start ART almost immediately and adhere to treatment as opposed to those perceived to have received inadequate counselling.

"Sometimes it depends on the skills of the one counseling the patient which determines whether client starts and adhere to treatment or not." (ART Nurse, FGD03, Matiya HF).

Health workers also reported that sometimes quality of counseling depends on the attitude of staff towards ART clients. Attitude refers to a complex state involving beliefs, values and dispositions to act in certain ways (Kagendo, 2017). In this context, it is the disposition of health workers who provide ART services to clients on ART. Health workers reported that, staff negative attitude influenced non-adherence to ART among test and start clients.

"Most of the times counsellors come to the ART clinic late and when we complain about it, mostly they don't politely talk to us" (Expert Client, FGD 08, Namikango HF)

Staff attitude has a communication effect and sends a rather strong message to ART clients about health workers feelings towards them and affects how a health worker can provide a service to a client. Clients interpreting it as a negative attitude may not feel motivated to report on the next scheduled appointment visit, hence contributing to non-adherence. ART clients mentioned that sometimes the attitude of nurses and clinicians when talking and assisting clients puts the clients at a disadvantage. In the event of test and start, quality or adequate counseling is one that leads to convincing a newly diagnosed HIV positive client to start ART and ultimately facilitates adherence behaviour on the client.

Discussion

Qualitative results have shown that at intrapersonal level, knowledge about test and start is a potential key driver of adherence. Clients with prior and adequate knowledge about the importance and benefits of starting ART at an early stage are more likely to start and continue treatment. Thus, knowledge leads to self-awareness that triggers self-talk leading to self-regulation and therefore motivation to continue medication. The quantitative results on client knowledge were inconsistent with Amon et al, (2018), Boateng et al, (2013) who found that clients with inadequate knowledge about ART were more likely to be non-adherent. The findings are also in contrast with Glanz et al, (2008) who found that lack of knowledge is a potential barrier to adherence behaviour. However qualitative results were in agreement that lack of knowledge on severity or consequence of non-adherence could deter one from adopting adherence behaviour (Glanz et al., 2008)

The perception of health feeling may influence ART non continuity as client feels that they are health and don't need medication. Similarly with HIV positive status denial and negative attitude towards ART. This is consistent with Mukumbang et al, (2017), who found that patients could start taking ART but once they felt that they were better, they believed that there was no need for continuing medication. Other studies also found that the belief that ART is effective (Shubber, et al., 2016) and prolongs life (Treffrey-Goatley et al., 2016) and a recognition that poor adherence may result in treatment failure (Lucas & Bengsberg:, 2009)have influence on a person's adherence behaviour. On denial of HIV positive status, the qualitative findings are consistent with Ross et al, (2011), who also found that patients acknowledged that for them to be adherent to ART, it was essential for them to come to terms with the fact that they were HIV positive and that they needed to take medication for the rest of their life. Based on the Trans theoretical model and as noted from the results, ART clients who are in the pre-contemplation stage may not see a need for a behaviour change, is unlikely to adopt a different behaviour regardless of its importance. As such promotion of intrapersonal communication whereby one's reflection of own knowledge or attitude would push him/her to change is important. In this case, health communicator must try to work with the client's uncertainty if the client has to adopt new behaviour (World Vision 2018). If the communication strategies do not strongly influence the client to adopt new behaviour, the clients may not consider changing the behaviour.

At interpersonal communication level, promoting client disclosure to spouse or relative is an effective strategy for achieving maintenance of treatment continuity behaviour. This is because people who don't disclose their HIV positive status/ART status to spouse or relative can easily discontinue medication because they have no one to encourage them or follow them up. Mukumbang et al (2017) also documented that patients who disclosed their HIV status to relatives and close friends did not fear stigma and discrimination to obtain and take drugs; hence they were more likely to continue

treatment. Other studies found that clients who had not disclosed had significant challenges with ART adherence (Obiri-Yeboah et al., 2016; Shabalala et al.,2018).

Similarly, perceived quality counseling is a potential key driver of treatment continuity. If one perceives to have received inadequate counseling concerning ART importance, they are likely to discontinue as they may not appreciate the value of continuing medication. Groh, et al (2011) and Schoenthaler, et al(2008), agree that quality of provider's counseling techniques has positive influence on adherence. They found that clients that received adequate and quality counselling were more likely to start ART almost immediately and continue treatment relative to those that received inadequate counselling.

Follow up calls is also a useful strategy because communication between ART client and health worker encourages adherence as it reminds clients of next appointment dates. Most clients were not adherent due to lack of communication between health workers and clients to remind them about their next clinic visits. Related studies found that inadequate client follow up systems that includes lack of phone calls by health workers to clients are barrier to adherence (Penn, 2011; Yathiraj et al., 2016). These interpersonal communications stimulate clients into the contemplation stage, health communication should therefore aim at strengthening ART clients' decision to change. In this case, the health communicator should aim to encourage the client and build their trust that to ensure the planned behaviour must be adopted (World Vision 2018).

Similarly, as a client is at preparation stage, health communicator needs to help the client in planning the change. Instead of just encouraging behaviour change, health workers need to sit down with the clients to help them plan the intended change and how they can operationalize the change (World Vision Uganda 2014). This would facilitate the behaviour change process.

When clients are at action stage, health communication should aim at supporting the action. During this stage, health workers may discuss with the clients on strategies that can be used to support the behaviour to reach maintenance stage. This may include assigning one of the client's close allies to remind the clients to take ARV drugs when time is due or setting an alarm to remind the clients to take ARVs. The health communicator may also discuss with the clients' barriers that the clients may think might get in the way of that working for them. This advance planning can act as a preventive measure for any emerging barriers to treatment continuity. The health communicator may also need to appreciate the clients for the new behaviours adopted. This would help the clients to have a positive feeling about their behaviour hence may increase chances of containing with the behaviour. At maintenance stage therefore, health communicators should aim to maintain the behaviour that has been adopted.

Strengths and Limitations

The study had notable strength in that the research assistants were trained on how to effectively implement the study protocol during data collection phase to avoid information bias.

Social desirability was an inherent limitation of the survey design in the quantitative part. The study followed self-reported measure of adherence to ART only, which might overestimate the level of adherence. Hence there was a possibility of ART clients giving false responses due to the sensitive nature of the study. However, this was minimized by repeatedly asking the question during the course of interviewing to check consistency of response given.

Another limitation was over reliance on health workers to report on client behaviour which might to some extent be subjective. In addition, the cross-sectional nature of the design, may mean the information is only true for that particular time of data collection and cannot speak to causality. However, use of mixed methods and collecting data from various units such as ART clients, health workers, and expert clients provided opportunity for data triangulation which has a possibility of providing a true and elongated picture of the population.

Conclusion and Recommendations

When working with ART clients, it is important to understand where their behaviours fall in the model of change. Depending on the stage ART clients are in in the Trans theoretical model of change, health communication should focus to work through the model of change with patients to ensure that they are prepared and equipped to change and maintain the new behaviour. Thus, timed and targeted communication is crucial to facilitate behaviour change. It is hence important that health communicators keep in mind that behaviour change rarely happens all at once, but rather with starts, delays, and stops, and this understanding would make it easier to stay connected and support people who are about to adopt have adopted new behaviours through the process. For effective adherence, health communication strategies should target at empowering ART clients' agency to adopt a healthy behaviour at various stages of health behaviour change process. Appropriate determination of ART clients' stages in the behaviour change process is critical if health communication strategies are to be used effectively in promoting treatment continuity. Communication strategies should therefore facilitate one's agency to act towards adoption of positive behaviour, in this case treatment continuity.

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Conflict of Interest

The authors declare no conflict of interest.interests.

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