Optimizing HIV Counseling: Effects of Personalized, Reinforced Key Messages Among Antenatal Clinic Attendees

U.C.Samudyatha[1], Manvendra Singh Rathore[2], J.K.Kosambiya[3]

[1] Senior Resident, [2] Resident, [3] Professor and Head, Department of Community Medicine, Government Medical College, Surat, Gujarat, India

Correspondence : U.C.Samudyatha, Email: ucsamudyatha@gmail.com

Abstract:

Introduction: Antenatal HIV counseling is an opportunity to educate HIV negative women to remain protected from infection. However, it needs to be optimized to achieve the desired effect. **Objective:** To evaluate the effect of reinforcement of key messages during the antenatal HIV counseling. **Method:** In a PPTCT clinic 202 pregnant women who had already received pretest HIV counseling were assessed for retention in knowledge in four key domains of HIV knowledge using an 8 point scoring system (Non-Intervention group Score B). In another 200 newly recruited pregnant women, intervention was interactive group counseling, assessment (Intervention group Score A), personal reinforcement session and reassessment during post counseling (Intervention group Score B). Impact of intervention was determined by comparing the scores between and within groups using factorial and repeated measures ANOVA respectively. **Results:** Non-Intervention group Score B was 4.4 (SD± 1.7), compared to 6.5 (SD± 1.6) in Intervention group, where more than 80% answered all questions correctly in each domain. Women in Intervention group had a mean Score of more than 6/8 even when they returned beyond 3 weeks for post test counseling. Despite the intervention, educated women retained the knowledge better than uneducated counterparts. **Conclusion:** Intervention of key messages reinforcement improved comprehension and retention in knowledge, and sensitized participants for prompt collection of reports. Women with less education would require customized key messages delivery to help them comprehend the information. The 8 point scoring system used in this study can serve as in-house quality check for antenatal counseling in PPTCT clinics.

Key words: ANOVA, Group Counseling, Health education, PPTCT

Introduction:

Mother to Child Transmission of HIV is the most common route of HIV transmission to children and contributes to 3.8% of all new HIV infections in India. Regular antenatal (ANC) HIV screening is offered to all pregnant women in a bid to achieve Elimination of Mother to Child Transmission of HIV.

HIV prevalence among pregnant women in India is as low as 0.24% and hence majority of the pregnant women test negative in HIV screening.[1] However, pregnant women continue to be at risk of acquiring HIV during pregnancy [2] or later in life. While much of the emphasis is on women who test HIV positive, effective pre and post test counseling in other

Quick Response Code	Access this article online	How to cite this article :
	Website : www.healthlinejournal.org	Samudyatha U, Rathore M, Kosambiya J. Optimizing HIV Counseling: Effects of Personalized, Reinforced Key Messages Among Antenatal Clinic Attendees Healthline. 2021; 12(3):37-44 .
	DOI : 10.51957/Healthline_251_2021	

pregnant women is envisaged to provide them comprehensive knowledge of HIV/AIDS, routes of transmission, HIV prevention strategies including condom use and partner testing, benefits of screening and facilitate them to make an informed decision to screen for HIV.[3] Thus, HIV screening with effective pre and post test counseling of pregnant women is an opportunity to educate them regarding HIV/AIDS

More than 95% of pregnant women undergo HIV screening and avail PPTCT (Prevention of Parent to Child Transmission of HIV) counseling services in Gujarat. However, only 28.5% women of reproductive age group have comprehensive knowledge regarding HIV in the state.[4] Thus, it is important to assess the effectiveness of pre and post test counseling in influencing pregnant women's HIV related knowledge and behaviour. Repeated counseling sessions have been reported to have sustained effect on reduction of self reported high risk behaviour among serodiscordant couples.[5] In settings with high turnout of pregnant women, manpower and time constraints may force the health system to provide less importance to counseling of pregnant women who test HIV negative. Hence, it becomes important to optimize the quality of pre and post test counseling sessions, which are regularly conducted during routine antenatal HIV screening.

This study aimed at assessing the effectiveness of existing methods of pretest counseling in imparting HIV related information to pregnant women. The study also determined how adding an intervention, in the form of interactive group counseling followed by individual counseling with key messages reinforcement improved the comprehension and retention of knowledge regarding HIV among pregnant women.

Method:

The study was conducted in the PPTCT clinic attached to the antenatal clinic Government Medical College, Surat, a tertiary care hospital in South Gujarat, which receives pregnant women from urban and rural areas of South Gujarat. Routine activities in the PPTCT clinic include pre test group counseling, registration and blood collection for HIV screening and other routine antenatal blood tests. The screening test result is provided from the next day onwards in the PPTCT clinic itself, followed by individual post test counseling.

In the first phase of the study, the PPTCT counselors were informally interviewed regarding HIV screening uptake by the pregnant women. The impact of counseling was planned to be assessed in two aspects: a) Knowledge regarding HIV, using an 8 point scoring system, (Table 1) and b) Number of days after which the pregnant women returned to collect their report and post test counseling. The 8 point scoring system (maximum score achievable is 8) was designed to assess whether the key messages in four broad topics viz., Routes of transmission of HIV, myths about HIV, methods to prevent HIV and benefits of HIV screening in pregnancy were communicated to and comprehended by pregnant women effectively. The instrument was face validated before use.

In second phase, over five days, a total of 202 beneficiaries who had already received pre test counseling through existing techniques and had returned to PPTCT clinic for post test counseling were interviewed (here after referred to as Non-Intervention group). They were recruited consecutively, after written informed consent. Their demographic profile and educational status were collected. The score they achieved in the 8 point scoring system was recorded as "Non- Intervention group Score B".

In third phase, 200 new PPTCT clinic attendees were recruited in a similar manner after written informed consent (hereafter designated as Intervention group). Steps of intervention included:

a. Group counseling with the investigator addressing the participants in groups of 7-10 in local language with aid of a PowerPoint presentation. PowerPoint presentation consisted of pictorial and written description about HIV, routes of transmission, misconceptions,

Table 1 : Scoring system to assess the knowledge of the pregnant women

A.	Can you name some routes of HIV transmission that you know of? (0.5 points for each for correct answer, total = 2) 1. Sexual route 2. Mother to Child (pregnancy and lactation) 3. Unsafe blood transfusion 4. Unsafe injection practice
B.	Do you think HIV spreads by the following routes? (0.5 points for each for correct answer, total =2) 1. By touching 2. By having food together 3. Through insect bites 4. By using common toilets
C.	How do you prevent acquiring HIV? (1 point for mentioning each, total = 2) 1. Use of condoms 2. Having an uninfected sexual partner and knowing partner's HIV status
D.	What is the need of HIV screening in pregnancy? (1 point for each, total =2) 1. To know HIV status of self and start treatment if required 2. To prevent mother to child transmission of HIV Maximum score = 8 (2 in each domain)

prevention and need of HIV screening in pregnancy. The participants were invited to interact with the investigator.

b. Personal interview to collect their demographic profile and educational status. Knowledge of participants immediately after the pretest counseling was assessed using the 8 point scoring system and documented as "Intervention group Score A". Evaluation using 8 point scoring system was done by an independent investigator who was not involved in the counseling.

c. Personalized key message reinforcement by showing the participants the PowerPoint presentation again and asking them to repeat the key messages that were displayed, as they understood them. They were assisted and encouraged by the researcher to get the key messages right, in case of any difficulties. The participants were encouraged to collect their reports the next day onwards.

d. When the participants returned for their reports, they were interviewed and retention of knowledge was assessed using the same 8 point scoring system and documented as "Intervention group Score B". The number of days after which they returned for the post test counseling was also recorded. They were then given the test report with post test counseling.

It was hypothesized that knowledge regarding HIV would be influenced by the Intervention. Additionally, the educational level of the participants and the gap between the pre and post test counseling could also have an effect on the retention of knowledge. In order to test these hypotheses, Score B of Non- Intervention group was compared with Score B of Intervention group, with Intervention as main effect and education and time gap between pre and post test counseling as interaction effects, using factorial ANOVA. Further, Score A of Intervention group was compared with Score B of the same group, with educational level and time gap between pre and post test counseling as interaction effects, using repeated measures ANOVA.

Privacy was ensured during the individual counseling. Time taken for each activity was also recorded.

Table 2 : Educational profile and gap between pre and post test counseling in Non-intervention and Intervention group

Variables		Non-intervention group (%) n=200	Intervention group (%) n=202	Total n=402
Educational level	Illiterate	27 (13.4)	28 (14.0)	55 (13.7)
	Primary school	93 (46.0)	88 (44.0)	181 (45.0)
	Secondary school	64 (31.7)	67 (33.5)	131 (32.6)
	Higher secondary and above	18 (8.9)	17 (8.5)	35 (8.7)
Gap between pre and post test counseling	1 week	57 (28.2)	156(78.0)	213 (52.9)
	2 weeks	34 (16.8)	20 (10.0)	54 (13.4)
	3 weeks or more	111 (55.0)	24 (12.0)	135 (33.5)

In the Non-Intervention group, the score at the time of post test counseling (Score B) was 4.4 (SD± 1.7), compared to 6.5 (SD± 1.6) in Intervention group.

Table 3 : Score B in participants who returned for post test counseling in Non- Intervention and Intervention groups

Gap between pre and post test counselling	Score B (Mean± SD)	
	Non- Intervention group (N=202)	Intervention group (N=200)
1 week	4 ± 1.5	6.5 ± 1.6
2 weeks	3.9 ± 1.3	6.2 ± 1.5
3 weeks or more	3.2 ± 1.5	6.1 ± 1.7
	F = 7.755, p=0.001	F= 0.988, p=0.374

Results:

Majority of the participants had primary school education in both the groups. There was no significant difference in proportions of different educational levels (Table 2) among the participants in the two groups (Chi Square=0.244, df=3, p=0.97).

Informal interview of PPTCT counsellors revealed that while there was nearly no refusal for HIV screening among pregnant women, there was a delay in them returning to collect their report. This was evidenced by the fact that in the Non-intervention group, the majority of participants returned for post test counselling three weeks or later. In the intervention group, however, the majority of participants returned within a week for post test counselling. (Table 2)

In the Non-Intervention group, the score at the time of post test counseling (Score B) was 4.4 (SD± 1.7), compared to 6.5 (SD± 1.6) in Intervention group.

There was a significant difference between the mean Score B of the two groups (F=134.354, p=0.000) which was not affected by the interaction of the Intervention with Educational level (F= 0.293, p=0.830) or with gap between pre and post test counseling (F= 0.080, p=0.924). Thus, the retention of knowledge was higher in intervention group than

Figure 1: Scores of participants with different educational status in Non- Intervention and Intervention groups.

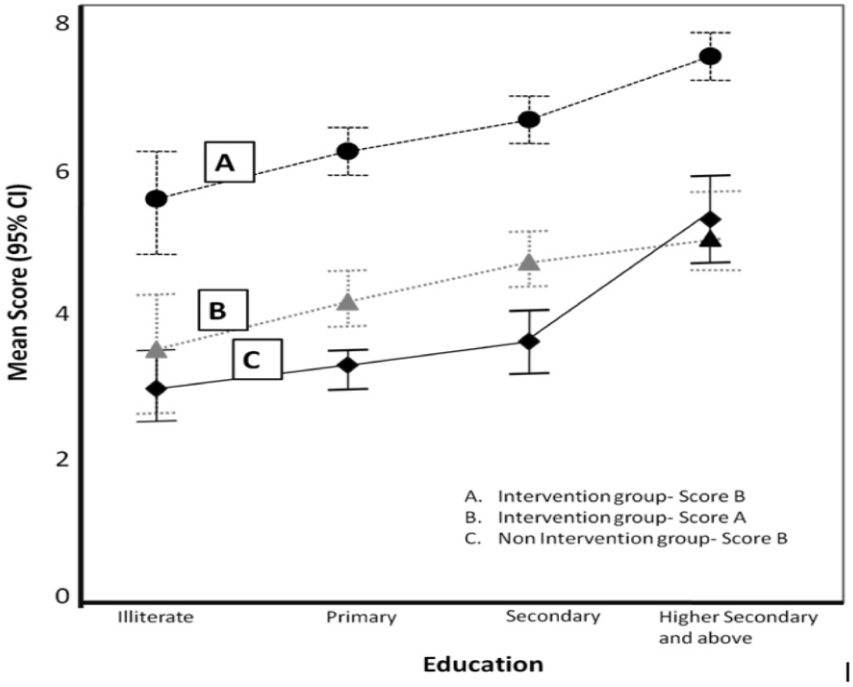

Table 4 : Participants answering all the questions correctly in four key domains at various points of assessment

Domain	Non-Intervention Group Score B	Intervention Group Score A, (immediately after intervention)	Group Score B (after reinforcement sessions, during post test counselling)
Routes of transmission of HIV	101 (50%)	134 (67%)	164 (82%)
Reject myths about HIV	99 (49%)	148 (74%)	160 (80%)
Measures for prevention of HIV infection	67 (33%)	132 (66%)	176 (88%)
Benefits of HIV testing	71 (35%)	140 (70%)	184 (92%)

the Non-intervention group, regardless of the educational level of participants or gap between pre and post test counseling.

In Non-Intervention group, post hoc test of one way ANOVA showed that, the retention in knowledge (Score B) was significantly lower among participants who came three weeks or beyond for post test counseling, compared to those who came within a week or two. On other hand, in Intervention group, the mean score B of those who returned in one week, two weeks and three weeks or later, did not differ significantly (Table 3).

In Intervention group, it was observed that the mean score B (6.5±1.6) was higher than mean Score A (4.5± 1.8), (F= 163.92, p=0.000) and this was not affected by the interaction terms- educational level

(F=2.031, p=0.111) or gap between pre and post test counseling (F= 1.664, p=0.192). Thus, an increase in mean score was seen in participants of all educational groups and regardless of the gap between pre and post test counseling. However, score B was higher among those with a higher level of education (F=7.073, p= 0.000). (Figure 1)

The percentage of participants answering all the questions correctly in four key domains at various levels of assessment is given in Table 4.

Discussion:

The first of the four prongs of Prevention of Parent to child transmission is primary prevention of HIV among women of reproductive age group. [6] WHO notes that in usual research constrained settings, much of the focus during antenatal HIV counseling sessions is on those who test HIV positive.[7] Acceptance of HIV screening by pregnant women is influenced by several factors such as the effective health education and communication they receive. [8] Interestingly, while the uptake of HIV screening among pregnant women ranges between 65%-100% in India, [9] there exists a missed opportunity, to capacitate HIV negative women to remain HIV uninfected during pregnancy and later in life.

In this study, the educational tool was designed in a PowerPoint presentation, with pictorial and written descriptions along with the narrative by the investigators. The intervention was designed in such a manner that the participants had an opportunity to interact with the researcher at three different points – firstly, as a part of interactive session during the group counseling, secondly, during the individual reinforcement session and thirdly, during post test counseling. While the group counseling lasted for 8-10 minutes, the average extra time required for the knowledge assessment, individual counseling and reinforcement of messages was 5-6 minutes per participant. On the second visit, post test counseling for HIV negative women with re assessment lasted for about 5-8 minutes. The time given to the pregnant women to clear their queries can be a constraint in resource limited settings[10], but our experience in this study showed that in the presence of two counsellors and one lab technician, careful planning and integration of other antenatal services, such as other routine blood tests with HIV screening can be done to avoid delays in a centre that caters to nearly 140-150 clients per day.

In a study from Tamil Nadu, the authors opined that group counseling achieved "small gains" in HIV knowledge. [11] In a study assessing the counseling services for pregnant women in tertiary hospitals of Delhi, it was noted that 58% of HIV negative women who received group pre test counseling felt that it was useful. In the mean time, 94% felt that individual counseling was useful but only 57% of HIV negative clients had received it. [10] In this study it was noted that during the group counseling, very few women came up with questions. However, during the individual counseling and reinforcement that followed, 25% of the women discussed their doubts and apprehensions regarding HIV. In the intervention group, there was an increase in scores from a mean of 4.5/8 immediately after the group counseling to 6.5/8 after reinforcement session (assessed on a later date when the participants returned for post test counseling). Thus the individual counseling sessions with reinforcement of key messages improved the comprehension and retention of knowledge.

Further, it was noted that women with less education did not comprehend the messages given in group counseling as good as the other participants, evidenced by their lower Score A, assessed immediately after the group counseling. After they received the reinforcement session, their knowledge assessed through score B when they returned for post test counseling had increased significantly, but remained lower than other educational levels.

Reinforcement sessions with individual counseling ensured that higher proportions of participants comprehended the information, and could recollect the information when they came for post test counseling at varying points in time. In other studies in India, 48-62% of pregnant women did not

know any means of preventing mother to child transmission of HIV. [12,13] In this study, it was noticed that most participants in Non- intervention group could not satisfactorily explain how HIV screening could "help their baby". In the intervention group, the benefits of HIV screening were stressed upon during the group counseling and individual reinforcement sessions. The proportion of women confidently explaining the benefits of HIV screening rose from 70% immediately after group counseling to 92% after having received the individual counseling and reinforcement sessions. Among these participants, nearly 78% collected the reports and attended the post test counseling within one week. Moreover, regardless of when they returned for post test counseling, the participants had a mean score B of more than 6/8. This was unlike the Non-intervention group, where more than half the participants returned 3 weeks later or beyond to receive their test reports and post test counseling. The mean score B was lower (3.2/8) in such participants.

Though couple counseling for HIV is considered acceptable,[14,15] counseling and HIV screening of male partners have not been widely adopted as a strategy in regular antenatal screening in India. In this study also, the researchers felt that much more emphasis and reinforcement on partner testing would be required to actually translate knowledge to action.

It is important to promote condoms as measures to prevent HIV and not merely as contraceptives among heterosexual couples. [16] In this study, after reinforcement sessions, 88% participants could name consistent condom use and partner testing as means to protect them from HIV.

In this study, other factors that may have an influence on knowledge of HIV such as parity, years of marital life or access to social and mass media were not considered, because this tertiary care hospital receives a heterogeneous group of antenatal women, and hence studying too many different factors could not have helped in decision making. Limitation of the study was that the behavioural change in these participants could not be assessed or documented. Such studies are warranted in future.

Conclusion:

The 8 point scoring system used in the study evaluated whether the clients understood the key messages provided by the counsellor and retained them. The benefits of meaningful counselling were not evidenced in pregnant women receiving counselling through existing methods. The intervention of key messages reinforcement, which took an extra time of 5-6 minutes per participant, improved the comprehension and retention in knowledge in the Intervention group. Nevertheless, even in the Intervention group, comprehension was lower among those with less education. Reinforcement sessions must concentrate on partner testing, condom promotion and allying fears about HIV transmission. It is important to gauge the quality of counseling activities that are provided through PPTCT units and periodically measure its efficacy through such in house evaluation strategies.

Acknowledgement:

We thank the Department of Obstetrics and Gynecology of Government Medical College, Surat for giving us permission to carry out the study in PPTCT Clinic attached to the Department OPD. We are grateful to the cooperation of the staff at PPTCT Clinic. We also thank Dr Rajesh Gopal, Additional Project Director, Gujarat State AIDS Control Society for giving permission for the study.

Declaration:

Funding: Nil

Conflict of Interest: Nil

References :

1. National AIDS Control Organization. Sankalak: Status of National AIDS response Second edition (2020) [Internet]. New Delhi; 2020. Available from: http://naco.gov.in/sites/default/files/Sankalak Status of National AIDS Response%2C Second Edition %282020%29_0.pdf
2. Gray RH, Li X, Kigozi G, Serwadda D, Brahmbhatt H, Wabwire-Mangen F, et al. Increased risk of incident HIV during pregnancy in Rakai, Uganda: a prospective study. The Lancet [Internet]. 2005 Oct 1 [cited 2018 Jul 24];366(9492):1182–8. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)67481-8/fulltext#.W1c9j6aLcFc.mendeley
3. National AIDS Control Organization. National HIV Counseling

and Testing Services (HCTS) Guidelines [Internet]. New Delhi; 2016. Available from: http://naco.gov.in/sites/default/files/National HIV Counseling & Testing Services Guideline, Dec 2016_0.pdf

4. International Institute of Population Sciences. National Family Health Survey - 5 State Fact Sheet Gujarat [Internet]. Mumbai, India; 2020. Available from: http://rchiips.org/nfhs/NFHS-5_FCTS/FactSheet_BR.pdf
5. Wall KM, Kilembe W, Vwalika B, Haddad LB, Lakhi S, Onwubiko U, et al. Sustained effect of couples' HIV counseling and testing on risk reduction among Zambian HIV serodiscordant couples. Sexually Transmitted Infections. 2017;93(4):259–66.
6. National AIDS Control Organization. Prevention of Parent to Child Transmission (PPTCT) of HIV using Multi Drug Anti-retroviral Regimen in India. New Delhi, India; 2013.
7. World Health Organization. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings: Towards Universal access. Recommendations for a public health approach [Internet]. Geneva; 2006. Available from: http://www.who.int/hiv/pub/mtct/en/ Strategic Approaches E.pdf
8. Kwapong GD, Boateng D, Agyei-Baffour P, Addy EA. Health service barriers to HIV testing and counseling among pregnant women attending Antenatal Clinic; A cross-sectional study. BMC Health Services Research. 2014;14(1):1–10.
9. Darak S, Panditrao M, Parchure R, Kulkarni V, Kulkarni S, Janssen F. Systematic review of public health research on prevention of mother-to-child transmission of HIV in India with focus on provision and utilization of cascade of PMTCT services. BMC Public Health. 2012;12(1).
10. Kumar A, Singh B, Kusuma YS. Counseling services in prevention of mother-to-child transmission (PMTCT) in Delhi, India: An assessment through a modified version of UNICEF-PPTCT tool. Journal of Epidemiology and Global Health. 2015;5(1):3–13.
11. Gupta D, Lhewa D, Viswanath R, Jacob SM, Parameshwari S, Radhakrishnan R, et al. Effectiveness of Antenatal Group HIV Voluntary Counseling and Testing Services in Rural India. AIDS Education and Prevention [Internet]. 2007 Jun 1;19(3):187–97. Available from: https://doi.org/10.1521/aeap.2007.19.3.187
12. Rogers A, Meundi A, Amma A, Rao A, Shetty P, Antony J, et al. HIV-Related Knowledge, Attitudes, Perceived Benefits, and Risks of HIV Testing Among Pregnant Women in Rural Southern India. AIDS Patient Care and STDs [Internet]. 2006 Nov 1;20(11):803–11. Available from: https://doi.org/10.1089/apc.2006.20.803
13. Rahbar T, Garg S, Singh MM, Malhotra S, Gupta VK, Tripathi R. Effectiveness of HIV counseling services on knowledge, attitude, behavior and practice (KABP) among pregnant women attending PPTCT program. The Journal of communicable diseases. 2009 Sep;41(3):175–82.
14. Tiendrebeogo T, Plazy M, Darak S, Miric M, Perez-then E, Butsashvili M, et al. Couples HIV counseling and couple relationships in India , Georgia and the Dominican Republic. BMC Public Health. 2017;17(901):1–13.
15. Orne-Gliemann J, Tchendjou PT, Miric M, Gadgil M, Butsashvili M, Eboko F, et al. Couple-oriented prenatal HIV counseling for HIV primary prevention: An acceptability study. BMC Public Health. 2010;10.
16. Bhattacharya G. Sociocultural and Behavioral Contexts of Condom Use in Heterosexual Married Couples in India: Challenges to the HIV Prevention Program. Health Education & Behavior [Internet]. 2004 Feb 1;31(1):101–17. Available from: https://doi.org/10.1177/1090198103259204