

# EVALUATION OF HIV/AIDS EDUCATION INITIATIVES AMONG WOMEN IN NORTHEASTERN THAI VILLAGES

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**Abstract.** A longitudinal, naturalistic experimental design was used in an evaluation of the effects of an HIV/AIDS educational pamphlet controlling for secular trends (most specifically media coverage of HIV/AIDS) in Northeastern Thailand. Nine hundred and fifty-four women from 18 villages completed KAP interviews either in the autumn of 1991 or 1992 with HIV/AIDS education pamphlets distributed to every household in 12 of these villages in the spring of 1992.

Pamphlets influenced women's perceptions of personal risk from casual sources and the degree to which they volunteered that condoms were a means of prevention of HIV transmission. Both results were related to the content and style of presentation of information about sources of risk and about condoms in the pamphlets. Secular trends and an increase in communication between villagers had a significant influence on knowledge, perceived efficacy of self protection, readiness to use condoms, and perception of levels and sources of personal risk.

## INTRODUCTION

Initial health education programs about HIV/AIDS worked from the assumption that once individuals had accurate information about HIV/AIDS they would change their behaviors to reduce their own risk (Aiken, 1987). Increasingly, health educators have recognized that information alone is not sufficient to change behaviors and situations that place people at risk for HIV infection (eg Coates *et al*, 1987). As a consequence, programs have been developed that go beyond conveying information to address motivation, social and personal barriers to behavior change, and the contexts which create risk situations (eg Kirby *et al*, 1991; Kelly, 1992).

However, knowledge-based programs continue to have a prominent place in HIV/AIDS prevention, for knowledge and awareness are necessary prerequisites to more targeted and motivation-based programs (Becker and Joseph, 1988; Becker *et al*, 1989). In addition, information-based programs can easily be implemented on a community-wide basis, unlike social-psychologically based programs which generally require targeted, small groups. Programs targeting various large population groups

and programs based on the transmission of information have been demonstrated to be effective. Evaluations of specific HIV/AIDS television and newspaper campaigns in Australia (Ross *et al*, 1990) and the United Kingdom (Sherr, 1987), and of the every-household pamphlet campaign in the United States (Snyder, 1991; Cline *et al*, 1992) demonstrated the impact of such initiatives on knowledge, attitudes and interpersonal communication. Such initiatives remain a first step in HIV/AIDS programming. Rarely, however, are they evaluated, leaving planners without empirically based guidance for choosing and developing content, style or dissemination vehicles.

This paper reports results of an evaluation of an information-based pamphlet campaign designed to increase awareness and knowledge about HIV/AIDS in Northeast Thailand, a region with no prior targeted HIV/AIDS educational initiatives and with relatively low rates of HIV infection. The impact of the pamphlet is evaluated controlling for secular trends, in particular the effects of coverage of HIV/AIDS in the media. The natural setting for this study is simultaneously a weakness and a strength. Though statistical comparisons are likely to produce weaker results than in a controlled experimen-

tal setting, the results of the analysis are more valid indicators of the effect of programs in community settings, precisely the venue in which, ultimately, they are implemented. Four areas are addressed in this evaluation:

- 1) The effectiveness of the campaign in increasing knowledge.
- 2) The presence of any associated changes in attitudes or behaviors.
- 3) How much of any identified changes can be attributed to the specific pamphlet campaign as distinct from secular trends such as media coverage of HIV/AIDS.
- 4) The influence of both secular trends and the specific campaign on interpersonal communication about AIDS, and the association of such communication, with knowledge, attitudes and preventive actions.

All four areas figure prominently in decisions about future directions in AIDS health promotion, particularly in less developed countries where meagre resources necessitate a careful allocation of funds to the most effective health promotion strategies.

Thailand is one of the focal points of the AIDS epidemic in Asia. At the end of 1992, The Ministry of Public Health estimated the cumulative total of persons with HIV infection in Thailand to be 350,000-500,000. Based on sentinel seroprevalence studies, it is projected that 16,000-30,000 people infected with HIV will develop AIDS annually from 1993-1997. Assuming no significant changes in behavior, the "Thai Working Group", composed of representatives from various government and non-government offices and the World Health Organization, projects 2 to 4 million cumulative HIV infections and 350,000 to 650,000 cumulative cases of AIDS in Thailand by the end of this century (a figures based on AIDS Division, MOPH 1993). To date, the North and Central areas have had the highest rates of infection (Weniger *et al*, 1991). That HIV can spread in the Northeast much as it has in other areas of Thailand is not in question, for the factors which characterize the northeastern region are those which have been shown to facilitate the spread of the virus. Poverty, short-term migration of a large proportion of the adult population to areas with high seroprevalence rates for seasonal labor, a rapid push for economic development which has

disrupted traditional social structures, efforts to promote both domestic and international tourism and trade to the region, and large numbers of establishments where prostitutes are available in both urban and rural settings, are all present in the northeast.

The Thai Government has been active in fighting the spread of AIDS through education (AIDS Division, MOPH, 1991). In August 1992 the Government announced and accelerated national program with particular emphasis on education of targeted, high risk groups. Given the urgency associated with the high rate of infection found in the North and Central areas, and in identified high risk groups throughout the country, the focus of prevention campaigns, and in particular of specifically targeted campaigns, has been, of necessity, on these geographical regions and segments of the population. Though Northeasterners are exposed to a growing number of mass media campaigns disseminated throughout Thailand, this region, and particularly its predominantly rural village population, had not figured prominently in any targeted campaigns at the time of this study. There is growing recognition, however, that the Northeast cannot be ignored. At the time of this evaluation several AIDS education/prevention programs had been implemented in this region. This evaluation reported here formed part of the baseline work for a large program targeting successive waves of Northeastern villages and segments of the Northeastern population and including an ongoing evaluation and program modification strategy (Maticka-Tyndale *et al*, 1993a, b, 1994, in press; Elkins *et al*, 1993). It provided information on baseline knowledge, attitudes and actions and the potential impact of general mass media campaigns and cognitive based pamphlet campaigns, in this region.

## METHODOLOGY

### Research design

The methodology for this evaluation was a longitudinal naturalistic experimental design. Twenty-four villages were randomly selected from 1,892 villages in Khon Kaen Province, considered a crossroads province in the region. These villages were randomly assigned to control and experimental conditions, 6 villages in each of four conditions:

**Condition 1** - phase 1 (pre-pamphlet distribution) data collection only.

**Condition 2 (a & b)** - pre- and post-pamphlet data collection with pamphlet distribution in between.

**Condition 3** - phase 2 (post-pamphlet) data collection following pamphlet distribution.

**Condition 4** - phase 2 data collection only, with no pamphlet distribution (Fig 1).

	CONDITION			
	1	2	3	4
N of villages	6	6	6	6
Phase 1: Data collection	X	X		
Pamphlet distribution		X	X	
Phase 2: Data collection		X	X	X

Fig 1—Evaluation design.

The Phase 1 (pre-pamphlet distribution), data were collected primarily for use in the design of large-scale HIV/AIDS health promotion initiative targeting, in its first wave, rural women (Maticka-Tyndale *et al*, 1993b; Elkins *et al*, 1993). These data also provided a baseline for use in evaluation of the impact of a Ministry of Health designed educational pamphlet. The pamphlet was distributed as an interim educational effort while awaiting development of the planned campaign. Phase 2 (post-pamphlet) data were collected one year later both to provide a baseline for evaluation of the larger program and to provide post-pamphlet experimental and control groups for the evaluation reported in this paper. Incorporation of this pamphlet into a larger study provided an opportunity for evaluation which is not often available with such educational initiatives.

### Sample collection

Volunteer health-workers and communicators completed an every-household demographic survey in the selected villages. The names of 30-40 married women (from an average of 48 eligible women per village) were randomly selected in each village based on this survey. The selected women were invited to participate in face-to-face structured KAP interviews. The first phase of interviews occurred in 12 villages (conditions 1 and 2) be-

tween October and December 1991. Three hundred and thirty women participated in these interviews. HIV/AIDS educational pamphlets were distributed door-to-door in 12 villages, six condition 2 villages, and six condition 3 during April and May of 1992. The second phase of data collection took place in all villages that had received pamphlets (conditions 2 and 3) and an additional 6 villages (condition 4) that had neither received pamphlets nor participated in the first phase of data collection between September and December, 1992. Six hundred and fifty-four women completed KAP interviews in phase 2.

### Field work procedures

This project was approved by Ethics Committees at Khon Kaen University (Thailand), The University of Windsor (Canada), and Queensland Institute of Medical Research (Australia).

Prior to entering each village, the nature and purpose of the study were explained to the village headman who was also asked for permission to conduct research in the village. None of the chosen villages declined participation. A research team member met with each woman selected to explain the purpose and procedures of the research and to solicit the woman's agreement to participate. Each woman was given a date, time and place for her KAP interview. To preserve anonymity, KAP interviewers did not have the names of the women who were expected to participate. Women who appeared at their appointed times were considered to have agreed to participate, those who did not were considered to have chosen not to participate. Records were kept of the reasons the women did not appear. The majority were related to family and work responsibilities - *eg* a sick child, being needed in the field, a prior appointment at the regional health center. Eighty-four percent of the women selected for interviews appeared at the appointed time. There were no statistically significant differences in response rates between villages or in demographic characteristics of women who did and did not participate.

Eight nurses from the nursing faculty at Khon Kaen University (all women), experienced in village-based research in this region and trained for this project conducted KAP interviews. Data collection required one or two days in each village.

### KAP interview

The KAP interview was a modified version of the survey used by Middlestat *et al* (1991) in the Caribbean. Four broad areas were addressed: knowledge, perception of own risk, self protection strategies, condom use, and communication with others about AIDS and about condoms. The survey was administered as a structured face-to-face interview consisting primarily of open-ended, free response questions. Open-ended questions were used to minimize guessing and response acquiescence. Respondents were prodded for more than one answer to each question, with all answers recorded. Such open-ended questioning facilitates identification of beliefs, norms and constructs most likely to influence behavior, and the way in which the phenomenon under study is conceptualized in the thinking of respondents (Ajzen and Fishbein, 1980; Higgins and King, 1981; Bargh, 1984).

The KAP was designed in English and translated to the Isan (Northeastern) dialect by bilingual members of the research staff. The Isan version was reviewed and compared to the English version by other staff members and then piloted with twelve women attending out-patient clinics at the Khon Kaen University hospital.

### Pamphlet description

The single page, tri-fold pamphlet conveyed information about HIV transmission, symptoms, and consequences primarily with pictures, using brief captions and a very limited number of words to supplement the visual displays. It was designed to be appropriate for an audience with minimal reading skills. The messages and pamphlet space devoted to each were:

- 1) "AIDS is deadly"
- 2) There is no cure.
- 3) Symptoms include weakness, weight loss and skin disorders.
- 4) Symptoms may not appear for 5-10 years.

One to four covered 1/6 of the message side of the page.

- 5) HIV is conveyed through
  - sex - portrayed by a man and woman sitting in bed.
  - needles - portrayed by two males "injecting.
  - mother to unborn child - portrayed by a pregnant woman.

Five covered 1/6 of the message side of the page.

- 6) HIV is not transmitted through eating together, living in the same house, public toilets, telephones, coughing, shaking hands, swimming pools, insects, kissing (each portrayed pictorially).

Six covered 2/3 of the message side of the page.

- 7) "First line of defense - condoms" and "be safe" accompanied by humanoid cartoon condoms dancing across the back of the pamphlet.

Seven was the back cover of the pamphlet. Pamphlets were distributed by village health workers and research team members to every household in participating villages.

### Data analysis

**Measurement:** All volunteered responses on open-ended questions were coded in a dichotomous format indicating whether each potential response was or was not offered. Answers on the KAP were examined for contradictory patterns to assess the reliability of responses. Fewer than 1% of responses in comparisons across 8 pairs of questions contained potentially contradictory responses (*eg* reporting condom use but responding that condoms have never been seen).

Summative scales were created to assess knowledge (KNOWLEDGE), efficacy of self-protection on the part of a married woman who suspected her husband might have been exposed to HIV/AIDS (EFFICACY), and readiness to use condoms (CONDOM READINESS). The knowledge scale was formed based on 37 potential responses to questions on mode of transmission, availability of a cure, modes of prevention, diagnosis, and appearance of a person infected with HIV. The efficacy scale was formed based on 10 potential responses to questions on whether and how a wife who suspected her husband might be infected could protect herself from infection. The readiness to use condoms scale was formed based on 23 potential responses to questions about personal contact with condoms, practical knowledge about obtaining and using condoms, purpose of condoms, embarrassment, and

talk about condoms with others. For items in all three scales, each correct response, or response which facilitated preventive action was scored "1" while incorrect responses, or responses which might produce ineffective preventive actions were scored "-1". The knowledge scale contained 12 negatively scored items, while the efficacy and condom readiness scales contained 2 and 5 respectively.

**Establishing groups for analysis:** The evaluation data analysis involved comparison of responses of experimental and control group members. Prior to the evaluation analysis, a series of comparisons tested for village effects and the effect of prior data collection on responses. Fig 2 portrays these comparisons.

Comparison of responses between condition 1 and 2 villages using data collected in the first phase (Fig 2, row A) demonstrated no significant differences across conditions or between villages within each condition. This, together with the random sampling design supported the aggregation of village data. Thus, all data collected at time 1 (conditions 1 and 2a in Fig 2) were aggregated to provide the control for testing the effect of time and associated general media coverage of HIV/AIDS. These villages are referred to as **time 1** in further analyses.

	CONDITION				
	1	2a	2b	3	4
Village effect	X	X			
Data collection effect (DC)			X	X	

Fig 2—Comparisons to establish analysis groups.

The comparison of item responses at time 2 in condition 2b villages with condition 3 villages (Fig 2, row B) produced only 4 of 87 tested comparisons which were statistically significant. In each case, the differences were less than 8%, suggesting substantively weak though stable associations. This supported the conclusion that the process of data collection itself did not have a significant impact. Based on this conclusion, time 2 data from condition 2b and 3 villages were aggregated to provide the experimental group for testing the effect of the pamphlet campaign. These villages are referred to as **pamphlet** villages in further analysis.

To establish whether condition 4 villages could be used as a control for evaluating the effect of the pamphlet, all participants in these villages were

asked if they had seen the educational pamphlet; none had, suggesting contamination from the experimental to the control villages was unlikely. Condition 4 villages comprised the control group for isolating the effect of pamphlet distribution from that of secular trends. Fig 3 portrays the groups compared in the evaluation.

TIME 1 (pre-test) 12 villages Condition 1 & 2a	TIME 2 (control) 12 villages Condition 2b & 3	PAMPHLET (post-test) 6 villages Condition 4
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Fig 3—Analysis groups used in evaluation.

**Evaluation analysis procedures:** Responses to questions addressing knowledge, efficacy, condom readiness, perception of personal risk and its sources, and communication with others about AIDS were compared across the time 1, pamphlet and time 2 groups. Analyses of variance were used for evaluating significance of differences between scale scores. Chi-square procedures for testing a no-effect model were used to test for significance of differences in responses to nominal measures.

## RESULTS

### Sample profile

The 24 villages in which data were collected ranged in total population from 250 to 900 with a mean of 706 (standard deviation = 201). Villages were an average of 73 km from the provincial capitol, included a mean 144 households with 5 people and, on average 67% of households in each village had a television. KAPs were completed by 24 to 38 married women per village with a mean response rate of 84% across all villages. Chi-square analysis of response rates demonstrated no significant differences in response rates across villages. Women ranged in age from 16 to 50 with a mean age of 31 years. Most (90%) had completed four to six years of schooling and reported their occupation as "farmer" (91%).

### Knowledge and attitudes in villages at time 1

Though no specific educational campaigns had been brought to these villages prior to the first phase of data collection, responses to KAP ques-

tions demonstrated that some information had reached the villages. Virtually all the women had heard of AIDS (98%). Very few, however, actually knew someone with AIDS (3 of 330 women). Most women were aware that appearance was not indicative of HIV status (80%) and that one could look healthy and still be infectious (75%). Specifics regarding transmission, persons at risk, the potential sources of personal risk, and the efficacy of protection for married women, particularly when husbands were thought to be the source of risk, were areas in which fewer women provided accurate responses in the first phase of data collection.

### Sources of information and communication about HIV/AIDS

The major sources of information identified by participants were television or radio (89% in Table 1). This did not change significantly over the course of this study. Even in villages where educational pamphlets were delivered to every household, the main source of information reported by the women was television or radio.

Few women reported that they had engaged in conversation with anyone about AIDS at time 1.

Table 1  
Percentage reporting of various sources of information and communication about HIV/AIDS.

	Percentage volunteering each response		
	Time 1%	Time 2%	Pamphlet%
<b>What are your main sources of information about AIDS?</b>			
television and radio	89	83	83
pamphlets and brochures	5	5	12
village leaders	24	30	29
friends	23	30	26
<b>To whom have you talked about HIV/AIDS?</b>			
other women	8	47	41
chi-square		106.675	1.818
p		0.000	0.718
relatives	1	10	8
chi-square		21.543	0.291
p		0.000	0.591
other villagers	1	3	5
chi-square		2.027	1.881
p		0.155	0.170
doctor	7	13	8
chi-square		4.961	4.373
p		0.026	0.037
husband	31	43	44
chi-square		8.402	0.051
p		0.004	0.820
<b>Total who talked to anyone</b>	<b>27</b>	<b>61</b>	<b>54</b>
chi-square		62.116	3.128
p		0.000	0.077

Degrees of freedom = 1 in all chi-square analyses

Over the year of the study, communication about AIDS increased significantly, from 27% to 61%. This increase was greatest for communication with other women (8% to 47%) followed by communication with husbands (31% to 43%). The proportion of women reporting communication about AIDS was not significantly higher in villages where pamphlets were distributed than in those where they were not. Together these results support the conclusion that changes over time may reflect the influence of television and radio coverage of HIV/AIDS only in part. Interpersonal communication was included as a potential intervening influence on knowledge, attitudes and actions in later analyses.

**Specific influence of communication, time and pamphlet**

Analyses of variance were run on scale scores using reported communication (referred to as talk and no talk) and the three conditions (time 1, time 2, and pamphlet) as independent variables. The analysis of variance for knowledge scores demonstrated significant main effects of time and pamphlets ( $F = 24.228, p = 0.000$ ) and communication

( $F = 66.521, p = 0.000$ ), with no interaction effects. From the means and 95% confidence intervals reported in Table 2 it is apparent that the difference based on communication holds across all three groups while the significant F for condition is based only on the difference between the time 1 and 2 groups (*ie* no pamphlet effect).

The main effects of condition ( $F = 5.727, p = 0.003$ ) and communication ( $F = 11.788, p = 0.001$ ) were again significant in the analysis of variance for the scale measuring perceptions of the efficacy of a married woman protecting herself when she suspects her husband might be infected. However, when comparing the specific mean scores and 95% confidence intervals it is evident that both effects are only evident when comparing time 1 and pamphlet groups and the talk/no talk groups that have received pamphlets.

Readiness to use condoms presents a more complicated picture. In the analysis of variance, main effects for communication ( $F = 248.612, p = 0.000$ ), condition ( $F = 11.979, p = 0.000$ ) and their interaction ( $F = 13.424, p = 0.000$ ) were all significant. From the data in Table 2 significant differences in scores between women who do and do not report

Table 2

Means with 95% CI under each condition with and without communication with others for knowledge, efficacy and condom readiness.

	Mean $\pm$ 95% confidence interval	
	No talk	Talk
<b>Knowledge</b>		
Analytical groups		
Time 1	4.91 $\pm$ 0.37	6.17 $\pm$ 0.42
Time 2	5.98 $\pm$ 0.63	7.44 $\pm$ 0.43
Pamphlet	6.12 $\pm$ 0.38	7.70 $\pm$ 0.31
Range: -2 to 14		
<b>Efficacy</b>		
Analytical groups		
Time 1	2.32 $\pm$ 0.15	2.54 $\pm$ 0.22
Time 2	2.62 $\pm$ 0.24	2.79 $\pm$ 0.20
Pamphlet	2.55 $\pm$ 0.12	2.88 $\pm$ 0.14
Range: 0 to 6		
<b>Readiness to use condoms</b>		
Analytical groups		
Time 1	5.34 $\pm$ 0.37	10.31 $\pm$ 0.49
Time 2	7.09 $\pm$ 0.70	9.66 $\pm$ 0.52
Pamphlet	7.26 $\pm$ 0.49	9.92 $\pm$ 0.42
Range: 0 to 18		

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communication about HIV/AIDS are evident for each condition. In addition there are significant differences between time 1 and 2 for women who report no conversations about HIV/AIDS. There are no significant differences resulting either from pamphlet distribution or over time for women who

report conversations about HIV/AIDS.

When considering the more personal level of risk, results of chi-square analyses examining differences in perception of the presence and source of risk (or safety) to oneself (Table 3) showed no

Table 3  
Percentage reporting personal risk and various sources of risk by condition and communication.

	Percentage volunteering each response communication				Chi-sq	p
	No talk		Talk			
	%	(N)	%	(N)		
<b>Are you at risk? Yes</b>						
Time 1	40	(238)	44	(87)	0.462	0.497
Time 2	36	(80)	51	(125)	4.399	0.036
Pamphlet	36	(208)	45	(240)	4.033	0.045
No significant differences by condition using chi-square analysis						
<b>Those claiming no personal risk</b>						
<b>Source of safety:</b>						
<b>Husband monogamous</b>						
Time 1	94	(144)	94	(49)	0.001	0.975
Time 2	96	(51)	98	(61)	0.555	0.456
Pamphlet	93	(133)	95	(131)	0.589	0.443
No significant differences by condition using chi-square analysis						
<b>Those claiming they are personally at risk</b>						
<b>Source of risk:</b>						
<b>Husband</b>						
Time 1	52	(94)	63	(38)	1.332	0.248
Time 2	31	(29)	67	(64)	10.582	0.001
Pamphlet	44	(75)	60	(109)	4.362	0.037
No significant differences by condition using chi-square analysis						
<b>Injections</b>						
Time 1	15	(94)	13	(38)	0.066	0.797
Time 2	14	(29)	8	(64)	0.817	0.366
Pamphlet	7	(75)	14	(109)	2.308	0.129
No significant differences by condition using chi-square analysis						
<b>Casual contacts</b>						
Time 1	15	(94)	5	(38)	2.356	0.125
Time 2	28	(29)	34	(64)	0.421	0.516
Pamphlet	8	(75)	20	(109)	5.112	0.024
time 1/time 2 chi-square	2.431		11.230			
p	0.119		0.000			
time 2/pamphlet chi-square	6.887		4.282			
p	0.009		0.038			

All degrees of freedom = 1



change in the proportion of women who considered themselves to be at risk across the experimental conditions nor any significant difference base on communication for perception of risk at time 1. During the follow-up phase, however, there were significant differences between women who reported communicating with others about HIV/AIDS in both the time 2 and pamphlet groups. Both for those who identified themselves as 'at risk' and 'not at risk', a husband's extra-marital activities were seen as the primary determinant of risk or safety. Well over 90% of women who felt safe from AIDS credited their safety to their husbands across all conditions, regardless of whether they did or did not communicate with others about HIV/AIDS. This left no room for crediting personal safety to any other sources.

As with perception of risk to oneself, husbands as a source of that risk varied based on communication at the follow-up phase of data collection. Risk from casual sources followed a different pattern, however. Here time and communication resulted in more women citing casual contacts as a source of risk to themselves. Pamphlet distribution had a beneficial effect, with significantly fewer women citing casual sources of risk in villages where pamphlets had been distributed door-to-door.

Given the dominant position of 'risk from husbands' in these women's perceptions, the specific responses included in the knowledge measure that addressed heterosexual transmission and condom use for prevention, and the reported use of condoms for self protection were analyzed in detail. Results in Table 4 indicate that the two knowledge responses followed the knowledge scale pattern of an increase over time in responses that HIV/AIDS could be transmitted heterosexually and that such transmission could be prevented with condom use. There was a slight decrease in knowledge regarding heterosexual transmission with pamphlet distribution for women who did not talk to others, resulting in the difference based on communication becoming significant in the pamphlet group. Of note is that by time 2, nearly all women reported heterosexual contact as a mode of HIV transmission. The change in reports of condoms as a mode of prevention over the course of the study was pronounced (increasing from 15% to 91% and 24% to 98% from time 1 to time 2 without and with communication respectively) as was the decrease in women reporting condoms as a mode of protection in villages receiving pamphlets (decreasing to 73% and 84%

in villages receiving pamphlets without and with communication respectively).

Communication had a positive effect across all three conditions, though this was weak at time 1 (when few women reported talking to others about HIV/AIDS). Despite the large proportion of women who perceived they were at risk from their husbands and who identified condoms as a mode of prevention, few women reported condom use to prevent disease under any of the conditions. The only significant association was that based on communication with others at time 1 (which was infrequent).

## DISCUSSION

The predominant picture portrayed by these data was one of an increase in communication about HIV/AIDS over time and with this an increase in knowledge, efficacy and readiness to use condoms. The pervasive presence of television and radio was seen in the consistently high percentage of women who reported these as their dominant sources of information throughout the period of the study. These media probably represent the major secular trend for this population and were joined by "AIDS talk" among women and couples over the course of the study in influencing the outcome measures of interest. With communication about AIDS increasing two-fold over the course of the study, HIV/AIDS "education" moved out of the exclusive domain of the professional communicators of television, radio and pamphlet design and into the homes, streets and informal meeting places. The results of analyses presented here suggest the relationship between time, pamphlets, communication, knowledge, risk perception, efficacy and condom readiness may be that portrayed in Fig 4.

The natural setting of this work made it especially difficult to demonstrate a specific influence of pamphlets. The absence of a clearly demonstrable impact of pamphlets on most outcome measures is not surprising when considering that villages receiving pamphlets were also exposed to secular trends and the influence of increased communication. To produce a significant effect, pamphlets would have to add to the effect of these.

In questions specifically addressing perception of risk to oneself and in the analysis of the knowledge responses addressing heterosexual transmis-

Table 4

Percentage reporting knowledge and actions directly relevant to prevention of transmission between husband and wife by condition and communication.

	Percentage volunteering each response communication				Chi-sq	p
	No talk		Talk			
	%	(N)	%	(N)		
<b>HIV may be transmitted heterosexually</b>						
Condition						
Time 1	59	(242)	66	(88)	1.412	0.234
Time 2	95	(80)	98	(125)	1.000	0.317
Pamphlet	86	(208)	97	(240)	16.552	0.000
time 1/time 2 chi-square	36.276		39.615			
p	0.000		0.000			
time 2/pamphlet chi-square	4.554		0.245			
p	0.032		0.621			
<b>Condoms can prevent HIV transmission</b>						
Condition						
Time 1	15	(242)	24	(88)	3.648	0.056
Time 2	91	(80)	98	(125)	4.239	0.040
Pamphlet	73	(208)	84	(240)	8.234	0.004
time 1/time 2 chi-square	156.619		127.263			
p	0.000		0.000			
time 2/pamphlet chi-square	11.632		15.483			
p	0.001		0.000			
<b>Women who consider themselves to be at risk and use condoms to prevent transmission</b>						
Condition						
Time 1	2	(94)	13	(38)	6.556	0.010
Time 2	0	(29)	9	(64)	2.906	0.088
Pamphlet	7	(75)	11	(109)	0.999	0.317

No significant differences by condition using chi-square analysis

All degrees of freedom = 1

sion and prevention with condoms, the split between knowledge in general and application of this knowledge to oneself found in other research (eg Maticka-Tyndale 1992; Maticka-Tyndale and Levy 1993) is evident here. Though over time there were significant increases in women identifying heterosexual transmission and condom use for prevention, there were no significant changes in perception of risk to self. Conversation about HIV/AIDS

did influence self perception with more women who talked with others considering themselves to be at risk and their husbands to be the source of risk than women who did not talk to others. It appears that conversations among villagers heightened awareness of potential personal sources of risk while the more impersonal education efforts in the media and pamphlets did not.

The two areas where pamphlet distribution was

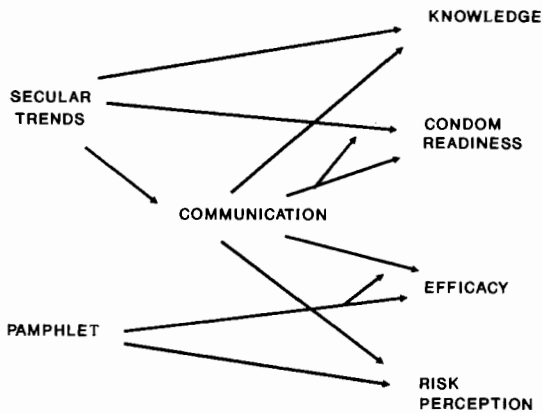


Fig 4—Potential relationship between conditions and outcomes

associated with statistically significant effects can both be related to the specific presentation of the content in the pamphlets. Two-thirds of the area of the pamphlet devoted to information about transmission focused on dispelling myths that casual contact was a source of risk. In villages that did not receive pamphlets, there was a statistically significant increase in women blaming casual contacts as a source of personal risk. This was not the case in villages that received pamphlets. Changes in reports of believed casual risk also demonstrated the influence of "AIDS talk" among villagers. Perceived casual risk increased not only with time, but with increases in reports of "AIDS talk." Pamphlets were unable to fully counteract the influence of such communication.

The treatment of condoms as a preventive mechanism in the pamphlets also illustrated the influence of the content and form of presentation of information. Condoms were portrayed as large humanoid cartoon figures dancing across the entire back of the pamphlet. They were distanced from information about transmission both by location in the pamphlet and by style of presentation. They were accompanied by slogans ("be safe" and "a first line of defense, condoms") rather than information about their appropriate use. Such vague, comical allusions to condom usage appear to have moved the attention of a significant portion of women away from condoms as a preventive measure with fewer women reporting condoms as a mode of prevention in villages receiving pamphlets than those not.

Finally, though efficacy and condom readiness

increased, the women in this survey had not yet moved to condom use as self protection. Few women, even among those who considered themselves to be at risk and the dominant source of risk to be their husbands, reported condom use to prevent disease.

#### IMPLICATIONS OF HIV/AIDS HEALTH PROMOTION

The interplay between the information in the general media and interpersonal communication, and the influence of the specific content of pamphlets have important implications for HIV/AIDS health promotion initiatives. On first appraisal, the results of this evaluation suggest that funds allocated to distribution of information pamphlets is poorly spent. Certainly, the main effects demonstrated here are those associated with time/media, and interpersonal communication. The stronger of the two is consistently that of interpersonal communication. It appears that pamphlets add little to the impact of mass media and the resulting interpersonal communication about HIV/AIDS. However, the two areas where pamphlets did have an effect demonstrate the role which such an intervention can play and provide information useful in developing such an intervention. Both communication and the media were associated with increases in the proportion of women who considered themselves to be at risk from casual sources. Such blaming of casual contacts for one's own risk is dangerous in at least two ways. First, it can function as a form of displacement and denial, diverting attention and risk reducing activities from 'real' sources of risk. Second, it can focus both personal and communal risk reducing efforts on casual contacts between individuals resulting in 'fear mongering' and discrimination against people with HIV infection. This is seen in campaigns in some countries to segregate HIV positive individuals, denying children access to schools and adults access to a selection of occupations, housing, and community facilities. Such attitudes will become increasingly problematic on the communal level as the epidemic spreads and more communities have residents who are infected with HIV. Pamphlets such as those distributed here appear to be an effective mechanism to correct the misperceptions fostered by heightened attention to HIV/AIDS in the media and in conversations. This requires that pamphlets place sufficient focus on

dispelling beliefs that casual contact is a source of risk and present their information in a simple, accessible format to insure that their message is widely available.

The association of pamphlets with a decrease in the number of women who volunteered condoms as a form of transmission prevention also demonstrated the influence of pamphlet content and style. Condoms were presented in a comical fashion, removed from the substantive content about transmission. Humanoid, dancing condoms cautioning the viewer to "be safe" and "first line of defense - condoms" on the back of a pamphlet appear to have had a counter-influence to improving knowledge.

This project afforded a rare opportunity to conduct a naturalistic inquiry into the impact of a publicly distributed pamphlet in rural areas of a developing nation where little specific HIV/AIDS education had yet been conducted. The conclusion from this evaluation is that all three factors analyzed here - general media attention to HIV/AIDS over time wide distribution of appropriate, informative pamphlets, and interpersonal communication - interplay to influence knowledge and attitudes about HIV/AIDS in rural communities with little prior HIV/AIDS education. The general media heightens awareness and communication which in turn influences general knowledge and attitudes. Pictorial presentations of detailed information can help in clarifying misperceptions, but comical presentation appear to foster misperceptions. Clearly, the design of media requires careful attention both to content and presentation, for both may impact on what is retained by recipients.

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