Global Public Health

ISSN: 1744-1692 (Print) 1744-1706 (Online) Journal homepage: http://www.tandfonline.com/loi/rgph20

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To cite this article: T. McGinn & K. Allen (2006) Improving refugees' reproductive health through literacy in Guinea, Global Public Health, 1:3, 229-248, DOI: 10.1080/17441690600680002

To link to this article: http://dx.doi.org/10.1080/17441690600680002

Published online: 17 Feb 2007.

Global Public Health, October 2006; 1(3): 229–248

Improving refugees' reproductive health through literacy in Guinea

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Abstract

Adult literacy programmes, particularly literacy-for-health programmes that integrate health material in their curricula, are gaining momentum as a means to improve women's and children's health and increase women's empowerment. However, the relationship between literacy skills and these benefits remains unclear. This paper presents results from a study on the Reproductive Health Literacy (RHL) Project among Sierra Leonean and Liberian women in refugee camps in Guinea. Literacy classes met for 2 hours twice per week for 6 months, with content focused on safe motherhood, family planning, STIs/HIV/AIDS and gender-based violence. A closed-ended interview and a written test of literacy skills were administered to 549 former RHL students to understand the programme's effects. Results indicate that participants had a high level of reproductive health knowledge after participation, and reported an increase in literacy skills. Respondents' current use of modern contraception was 48%, of which 23% reported using a condom at last sex. Findings suggest an increase from reported pre-RHL behaviour. Participants also reported a dramatic increase in 'boldness', the phrase used to describe empowerment. While only a third (32%) of respondents considered themselves 'more bold' than other women before RHL, a clear majority (82%) so considered themselves after RHL. A comparison of schooled and unschooled women indicates that those who had had previous schooling did better in RHL than their non-schooled colleagues, but both groups had good knowledge retention, positive behaviour levels and felt more bold after RHL participation.

Keywords: *Reproductive health, contraception, literacy, empowerment, refugees, Sierra Leone, Liberia*

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ISSN 1744-1692 print/ISSN 1744-1706 online
DOI: 10.1080/17441690600680002

Introduction

Women's education and health outcomes

The strong positive association between women's education, defined here as formal schooling during childhood, and women's and children's health in the developing world has been clearly established over the past several decades. As early as the 1960s, researchers were reporting on the strength and consistency of the inverse relationship between women's level of education and fertility rates (Heer 1966, Friedlander and Silver 1967, Timur 1977). In the 1980s and 1990s, numerous large demographic studies confirmed the connection between women's education and lower fertility, and additionally reported an association between women's education and improved child health and mortality. The studies confirmed that this association was not due simply to the influence of socio-demographic confounding variables (Caldwell 1979, Cochrane et al. 1982, Grosse and Auffrey 1989, LeVine et al. 2001).

While women's education is widely accepted as a determinant of improved health outcomes, the direct and indirect mechanisms through which this association works is less well established. A growing body of literature proposes potential mediating factors in the causal pathway between women's education and health outcomes. LeVine, LeVine and Schnell (2001) propose that education affects health by influencing women's aspirations for the future, personal identity, literacy and other skills, and by providing a model of teaching and learning. The authors also argue that education, through literacy training, provides people with an academic language that is used by bureaucracies and health promotion organizations. Comings, Smith and Shrestha (1994) propose that time spent in school, school-acquired personal dispositions, literacy skills and health knowledge are the four main mediators in the causal chain between education and health and fertility. Glewwe (1999) proposes health knowledge, literacy and numeracy skills and receptivity to modern medical treatments as three possible mechanisms of action.

While evidence from these studies supports the presence of the posited mediators, the researchers nonetheless agree that the specific pathway, or pathways through which education improves health outcomes, requires further study. The association itself, however, is quite clear: women's formal education is strongly associated with a range of positive health outcomes for the women themselves, their children and their families.

Women's literacy and health outcomes

Literacy is generally defined as the ability to read and write at a level that enables one to participate effectively in literacy-requiring activities in one's community (United Nations 1998). It is also more broadly understood as a tool for power, and an important resource for social transformation and development (Freire 1970, Schribner 1984). Literacy, whether attained through formal schooling in childhood or through training received in adulthood, may be salient for health outcomes.

Literacy skills are thought to improve health outcomes by increasing one's ability to receive and understand health messages in the media (both print and broadcast) as well as by improving one's ability to communicate effectively with health professionals through improved oral comprehension acquired through literacy training (LeVine et al. 1994). Literacy may also improve health outcomes through its potentially empowering effects, and hence by increasing a literate individual's ability and confidence to act on health information. For these reasons, literacy has been favoured in social policy. Indeed, the UN General Assembly designated 2003–2012 as the United Nations Literacy Decade (United Nations Literacy Decade 2003).

While the positive association between literacy skills and health outcomes has been demonstrated in many studies, few of these studies have controlled for educational level, hence it is usually not possible to distinguish between the effects of literacy and the effects of formal schooling (Caldwell 1979, Grosse and Auffrey 1989). What is widely reported as a strong link between literacy and health may in fact be merely a reporting of the known association between education and health.

Those studies that have distinguished between literacy and education have generally found some effect of literacy skills that holds independent of the effects of education. In a study that directly addresses this distinction, Sandiford et al. (1997) compare Nicaraguan women who learned to read and write in an adult literacy programme, women who never learned to read and write and those who learned as children in school. They find that the children of women in the adult literacy group had better health outcomes than the children of women who never learned to read and write, and comparable health outcomes to the children of those who learned through formal schooling. This held true even when controlling for a wide range of socio-demographic variables and scores on an intelligence test. Lomperis (1991), in her work in Colombia, finds that even low-level literacy in mothers, controlling for educational level, is one of the strongest predictors of long-term nutritional well-being of preschoolers. Glewwe (1999) finds evidence from Morocco that women's health knowledge is the key variable in predicting child health, and that health knowledge is primarily gained from outside the classroom and is dependent on literacy and numeracy skills.

While these studies lend support for the role of literacy skills in the causal pathway to improved *child* health, it is noteworthy that no studies addressing literacy's effect on *women's* health were identified. Literacy's effect on health outcomes of women requires further exploration.

Women's literacy-for-health programmes and health outcomes

Literacy programmes for adult women are increasingly seen as a means of improving the health of women and children in developing countries. Literacy-for-health programmes (a developing genre of literacy programmes that integrates health messages directly into their curricula) are also gaining momentum as a means to more directly link the literacy and health improvement goals. Health materials are viewed as providing interesting and relevant content material for

literacy courses, while literacy courses give participants the opportunity for extended contact with and discussion of important health information. Additionally, as literacy skills provide participants with an increased sense of personal power and choice, health content can provide an opportunity for the application of this new personal power to health behaviour change decisions (World Education 2002).

Literacy-for-health style programmes have been implemented in a growing number of countries for nearly three decades (World Education 2002). As implemented, these programmes vary widely in design (e.g. they differ in frequency, intensity and duration of class meetings; health topics covered; and integration with other development activities) but all share the common goals of improving literacy skills and health knowledge, with the intent of positively influencing health outcomes.

Anecdotal reports from those involved with literacy-for-health programmes indicate positive feedback by participants and staff. Evaluations of these programmes indicate improvements in participants' literacy levels, health knowledge and sense of empowerment. However, many successfully received programmes around the world have had little or no formal evaluation component and, to date, few studies have demonstrated an impact of literacy-for-health programmes on health outcomes.

Findley, Laugharn and Gueye (1995), reporting on a Save the Children literacy-for-health programme in Mali, compare post-intervention census data on child health outcomes between the children of literate and illiterate adults, and between the children of women who live in villages with a Save the Children literacy programme and those who live in other villages. The children of literate women and those who lived in villages with the programme had better child health outcomes than their respective comparison groups, although lack of pre- and post-intervention data makes it difficult to determine whether this is due to the literacy training itself, or to differences between the groups prior to the intervention. Qualitative retrospective data indicate improved health behaviour by programme participants.

Smith et al. (1995) evaluate a World Education literacy-for-health programme for adult women in Nepal, and find, through pre- and post-intervention data from intervention and comparison groups, that both literacy skills and health knowledge improved. They, too, report qualitative retrospective data showing that programme participants improved their health behaviour.

Aller Atucha and Crone (1980) state that an evaluation of their literacy-for-health programme in Honduras suggests that acceptance of family planning increased after participation. Stephens and Oriuwa (1996) report comprehensive, population-level pre-intervention data for their literacy-for-health programme in Nigeria, though post-intervention data are not available. They report high participation and retention rates for the programme (Stephens et al. 1999).

With over 570 million illiterate adult women in the world (United Nations Literacy Decade 2003), who no longer have the opportunity of gaining the health

benefits associated with formal schooling, literacy-for-health programmes are a potentially promising means of reaching health improvement as well as empowerment goals. While each of the studies discussed above lends some support to the effectiveness of such programmes, the literature remains inconclusive. Whether or not literacy-for-health programmes do indeed have a substantial effect on health outcomes is an important question in light of the growing interest in this approach. The present study seeks to contribute to the small but growing literature on adult literacy-for-health programmes and to shed light on the link between women's literacy and health (in particular reproductive health) behaviours.

Reproductive Health Literacy Project

The Reproductive Health Literacy (RHL) Project was carried out in Guinea, West Africa, by the American Refugee Committee, with support from World Education, JSI Research and Training Institute and the Heilbrunn Department of Population and Family Health of Columbia University's Mailman School of Public Health. Its purpose was to serve Sierra Leonean and Liberian women living in refugee camps. In 1999, when the RHL Project began in Guinea, there were some 350,000 Sierra Leonean and 100,000 Liberian refugees in the country, most in the Gueckedou area in western Guinea (US Committee for Refugees 2000). The expected audience for the RHL classes were semi-literate women (i.e. those who had completed at least 2 years of formal schooling) but was later expanded to include illiterate, non-schooled women.

The premise of the project was that literacy training, with reproductive health information as the content, and participatory adult education techniques as the process, would lead to better literacy skills, increased knowledge of reproductive health and increased use of reproductive health services available in the camps. Participation in RHL appeared to empower the women; thus, while empowerment was not identified as a goal at the project's outset, it came to be understood as a benefit of the project. The content for the literacy training included safe motherhood, family planning, sexually transmitted infections, HIV/AIDS and gender-based violence. The curricula were in English at the request of the participants. Classroom discussion was often in local languages to help comprehension.

In the project's first phase in Gueckedou in 1999, 24 teachers were trained and 580 women in 12 refugee camps participated in RHL classes. Participation was voluntary and free of cost. Twenty classes met for 2-hour sessions twice a week for 6 months. The second phase, begun in mid-2000 with 780 women students in 17 camps, was suspended after 5 months when Sierra Leonean rebels attacked the camps. Most refugees fled the area; many settled in new camps in Dabola and Kissidougou further inside Guinea where ARC established services in February 2001. In RHL's third phase in 2001, classes were established for 965 women students in the Kissidougou camps. All of the RHL teachers who relocated to Kissidougou were retained and new teachers were trained (see Table I).

Table I. Overview of reproductive health literacy courses, RHL follow-up study, Guinea, 2002.

RHL phase, year, location	Number of teachers	RHL course level	Number of students
Phase I, 1999 Gueckedou	24 women	Intermediate	580 women
Phase II, 2000 Gueckedou	24 women	Beginner and Intermediate	780 women
The Phase II course ended prematurely due to rebel invasion			
Phase III, 2001 Kissidougou	33 women	Beginner	675 women
		Intermediate	290 women
		Total	965 women
Total women enrolled, Beginner and Intermediate levels, 1999–2001			2,325

Study purpose and methods

The Reproductive Health Literacy Follow-up Study was undertaken to understand the short and medium term health effects of the project on the women who participated in RHL courses in 1999, 2000 and 2001. If warranted by the results, the project in Guinea would be revised and continued, and replicated in Sierra Leone and Liberia for refugees as they returned home.

A closed-ended interview and a written test of literacy skills were administered to respondents. The instrument included questions on respondents' socio-demographic characteristics; fertility; child deaths; knowledge of specific reproductive health information; attitudes towards reproductive health topics; and behaviours related to reproductive health, prior to and since their RHL class. Respondents were also asked to complete a beginning or intermediate written test of literacy, depending on the RHL course level they had completed, similar to the tests they had taken during their classes.

Interviews were conducted by 13 Sierra Leonean and Liberian women refugees living in the camps who were selected based upon their education and work experience, screening test scores, active participation in a screening workshop, interpersonal skills and commitment. None had taken part in RHL, as students or teachers. They were given substantial training in interviewing skills, study procedures and instruments.

The study instrument was drafted in English by the survey advisors. The local languages in which the interviews would be administered are not typically written so, during the training period, the survey supervisors and interviewers agreed on the precise oral translation of each question into Krio, the most common Sierra Leonean language, as well as Kissi and Mende. The instrument, including the translations, was then pre-tested under realistic field conditions and minor changes were made in the wording and sequence of questions. The final questionnaire contained 45 multi-part questions and five additional multi-part questions for the literacy tests.

To identify the names and locations of former RHL students, a list of participants from the 1999, 2000 and 2001 courses was compiled from class

registers, teachers' notebooks or personal notes and other project records. Many records had been lost in the chaotic flight from Gueckedou but, ultimately, the current locations of 1,900 of the 2,325 women who took the RHL courses from 1999 to 2001 were identified. During the preparatory field work in early 2002, it became apparent that due to phases of peace and unrest in Liberia, the end of the war in Sierra Leone in January 2002, and repatriation efforts supported by the Government of Guinea and UNHCR, fewer women than had been anticipated were able to be located in this mobile population. It was therefore decided to interview all of the 1999, 2000 and 2001 course participants who could be found in the Kissidougou area. Ultimately, 549 former RHL students were interviewed, 33% of them from the 1999 course, 25% from the 2000 course and 42% from the 2001 course (see Table II).

Data collection took place in April 2002. Informed consent was requested; no women declined participation[1]. The interview and literacy test lasted 30–45 minutes. Questionnaires were reviewed in the field by the supervisors and transported to the ARC office in Kissidougou for coding, data entry and cleaning (as there was no electricity in the camps).

Results

Findings for the entire group of RHL respondents are presented below, followed by an analysis of outcomes according to whether or not participants had entered RHL having already had formal schooling.

Background of respondents

Most of the 549 former RHL students interviewed for the survey were Sierra Leonean (91%).[2] Two in three (66%) were interviewed in Krio, the most common language in Sierra Leone. Respondents' mean age was 31.5 years. Almost half (47%) had never attended school. The 53% who had attended school had completed a mean of 7.3 years (see Table III).

At the time of the survey, most of the respondents were married (56%), although fewer (44%) reported their husbands as heads of household, suggesting that their husbands were not present in the camps. The women reported a mean of 4.2 live births and 1.3 deaths of children under 5 years old. Fully six in 10 women (61%) had had at least one child under 5 years old die: this was made up

Table II. RHL follow-up survey respondents, RHL follow-up study, Guinea, 2002.

RHL course year	Total number of women students enrolled in RHL	Number of former students interviewed	Respondents by year as proportion of total sample
1999	580	181	33%
2000	780	137	25%
2001	965	231	42%
Total	2,325	549	100%

Table III. Socio-demographic characteristics of RHL study participants, RHL follow-up study, Guinea, 2002 ($n = 549$).

Age group	% distribution
< 20	10.1
20–29	36.2
30–39	35.5
40–49	12.9
50 or older	5.3
Mean age	31.5 years
Education completed	
Never attended school	47.5
1–6 years	20.3
7–12 years	32.2
Mean, all women	3.8 years
Mean, schooled women	7.3 years
Religion	
Christian	69.7
Muslim	30.3
Country of origin	
Sierra Leone	91.4
Liberian	8.6
Residence in home country	
City	5.5
Town	58.2
Village	36.3
Interview language	
Krio	66.1
Kissi	15.8
Mende	5.5
English	10.8
Other	1.8
Marital status	
Single	16.0
Married	56.1
Separated	14.6
Widowed	10.9
Divorced	2.4
Head of household	
Self	37.0
Husband	43.6
Mother	10.6
Father	4.2
Other	4.6
Household size	
1–3 persons	17.4
4–6	42.7
7–9	27.8
10+	12.1
Mean household size	6.1 persons
Occupation	
Housewife	23.8
Trader/business	22.5

Table III (*Continued*)

Age group	% distribution
Farmer	12.8
Student	11.5
Other	29.4
Live births	
0	8.1
1–4	50.6
5 or more	41.3
Mean number of live births	4.2 live births
Number of children under 5 years who died	
0	39.1
1	25.6
2	17.5
3 or more	17.8
Mean number of child deaths	1.3 child deaths

of 25% of women who had had one of their children die, 18% who had had two children die and 18% who had lost three or more children.

RHL participation

Of the 549 respondents, 60% took the beginner level RHL course and 40% took the intermediate level. When asked why they took the RHL course, the women responded that they wanted to learn: about themselves, about their health or to read and write. Virtually no one reported any objection to their participation in the course from partners or family. Of course, it is likely that those women who faced objections from home would never have enrolled in RHL, and therefore would not be part of this study.

Reported reproductive health knowledge and practice

Since pre-participation levels of reproductive health knowledge were not available (pre-test measures were either not collected or lost during the attack in Gueckedou), the respondents were asked to recall their level of awareness of reproductive health topics before they enrolled in RHL. They were also asked to report specific reproductive health behaviours both prior to and since they took the RHL course.

It must be noted at the outset that there are several shortcomings to this 'recall' method. First, a respondent may over-represent her prior knowledge or actions in order to impress the interviewer or to avoid admitting ignorance. Second, the respondent may under-represent her prior knowledge, to make her subsequent change more dramatic or to consciously make RHL look successful. The greatest shortcoming, however, is that it is simply extremely difficult to accurately remember what one knew or did and when one first knew or did it. Thus, while statistical comparisons between pre- and post-RHL findings are presented, they must be interpreted in view of these limitations.

Family planning

Respondents' reports of basic awareness of family planning were already high prior to taking the RHL course (89% had heard of family planning and 87% had heard of condoms). The post-RHL survey sought specific knowledge, such as distinguishing among categories of contraceptives. Asked to identify whether injectables, condoms and abstinence were hormonal, barrier or natural methods, 76% correctly identified at least one and 46% correctly identified all three.

Interviewers also asked women whether they had ever spoken of reproductive health topics to their partners or family members. A significantly higher proportion of women reported communication since RHL (87%) than prior to RHL (69%; McNemar chi square $p < .001$; see Figure 1).

The analysis of current contraceptive use was limited to the 515 women in the sample (95% of all respondents) who were of reproductive age (WRA, 15–49 years). Half (50%) of these respondents reported current use of modern contraceptives at the time of the survey. Hormonal methods accounted for almost all current use: the 50% was made up of oral pill (23% of WRA) and injection (21%) users, with condom users (2%) and users of other methods (4%) making up the difference.

Two survey findings suggest that contraceptive use increased after RHL participation. First, 40% of current users were new to family planning; i.e. they had never used a method prior to taking RHL. Second, the proportion of women who reported ever-use of modern contraceptives (49% of WRA) was very close to the proportion who reported current use (50%). If there had been no increase, we would expect ever-use to be considerably higher than current use since the former is a cumulative total of all past use over women's entire reproductive lives.

A similar pattern was found regarding condom use, also suggesting that condom use increased since RHL. A total of 24% of all respondents reported

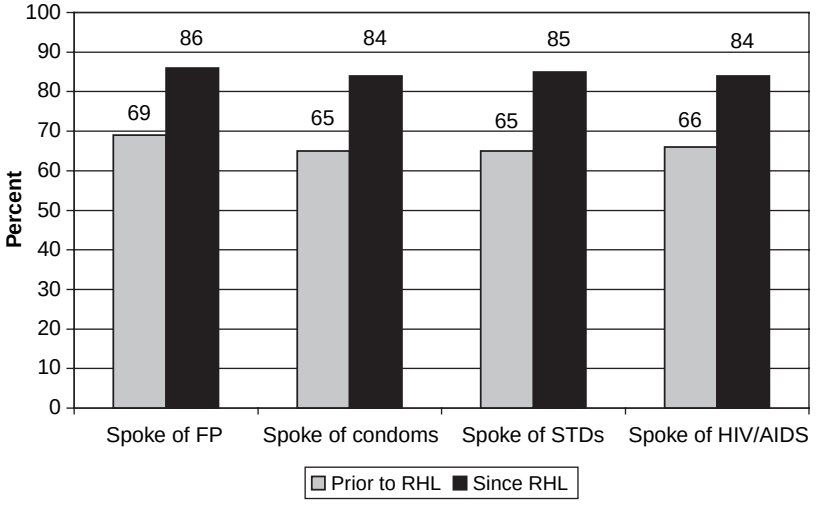

Figure 1. Respondets' communication with partner/family, RHL follow-up study, Guinea, 2002.

using a condom the last time they had sex, while 23% reported ever using a condom. Again, we would expect ever-use to be considerably higher than current use if it reflected long-term utilization. Of those who used a condom at last sex, half (51%) had never used a condom prior to taking RHL. Another important finding regarding condoms is that, clearly, more women used condoms than reported it as a family planning method. This may reflect the perceived purpose of condoms as disease prevention rather than pregnancy prevention. During the interview, women reported positive views on family planning: 81% of WRA said they thought they would use contraceptives in the future.

STIs and HIV/AIDS

Like their family planning knowledge, respondents' basic awareness of sexually transmitted infections (STIs) and HIV/AIDS was high prior to RHL: 83% had heard of STIs and 84% had heard of HIV/AIDS. Specific knowledge at the time of the survey was also high: 89% of women could identify a symptom of STIs, 95% knew gonorrhoea can cause blindness in newborns, and 90% knew that AIDS is incurable.

Safe motherhood

Even prior to RHL, women seemed well aware of antenatal care: 90% of women with at least one child reported having attended antenatal care before RHL and 88% had received tetanus toxoid immunization. Since RHL, 26% of respondents reported having been pregnant and, of those, 92% made at least three antenatal visits, the number recommended in the RHL course, and 90% received tetanus toxoid. Among all respondents, 79% knew the recommended number of antenatal visits at the time of the interview.

Information on warning signs of obstetric emergencies also appears to have been retained: 87% of women knew that a head-first delivery could safely be managed at home by a traditional birth attendant (TBA), and 95% knew that a woman in labour for 24 hours required more care than a TBA could give at home. Almost all (92%) respondents knew that feeding the infant 'first milk' (colostrum) is good; 81% knew that babies should be exclusively breastfed for 6 months; and 85% knew that a minimum of four visits are required to fully immunize a child.

Other RHL topics

Nutrition was another topic in the RHL curriculum, and in this area current knowledge levels were also high. Asked whether meat, bananas and yams were body-building, protection or energy foods, 63% of women identified all foods correctly and an additional 12% accurately placed two of the food items in their correct categories.

Female anatomy had consistently been a curriculum topic identified as being among the hardest for the RHL participants. As part of the survey, respondents

were shown a diagram of the female reproductive system with five areas marked. They were asked to identify the vagina, cervix, uterus, Fallopian tubes and ovary. Two in three (65%) respondents correctly matched all five items and an additional 15% correctly matched three or four.

Literacy skills

Survey respondents were given a beginner or intermediate literacy test, depending on the highest level of RHL they had completed. Of the 549 respondents, 349 (64%) took the beginner test and 200 (36%) took the intermediate test.

The beginner test had five multi-part questions with a total of 33 items to be answered. These comprised identifying letters and words; writing words and numbers; selecting the appropriate word to complete a sentence; and answering questions to assess reading comprehension of a story with four short sentences. The 349 women who took the beginner level test had a mean score of 20 out of 33 (61%).

The intermediate test also had five multi-part questions, with a total of 24 items to be answered. These comprised writing words and numbers; selecting the appropriate word to complete a sentence; and answering questions to assess reading comprehension of a story with five relatively complex sentences. The 200 women who took the intermediate level test had a mean score of 19 out of 24 (79%) (see Table IV).

The study did not assess actual improvements in literacy, as no pre-test measures were available for comparison. However, participants' self-assessed literacy skills improved: the proportion reporting being able to both read and write was 42% prior to RHL and increased to 48% afterwards (McNemar chi square, $p < .001$); the proportion reporting that they could neither read nor write was 45% prior to RHL and declined to 34% afterwards (McNemar chi square, $p < .001$).

Perceptions of boldness

In the survey, respondents were asked to rate their own 'boldness' relative to other women, both prior to and since participating in the RHL course. Boldness was identified during the planning stage of the study as the term that women used to convey empowerment (see Figure 2).

Table IV. RHL study participants' literacy test results, RHL follow-up study, Guinea, 2002.

Scores	Beginning students ($n = 349$)	Intermediate students ($n = 200$)
Less than 50% questions correct	35%	7%
50–75% questions correct	19%	35%
More than 75% questions correct	46%	58%
Total	100%	100%
Mean score	(20/33) 61%	(19/24) 79%

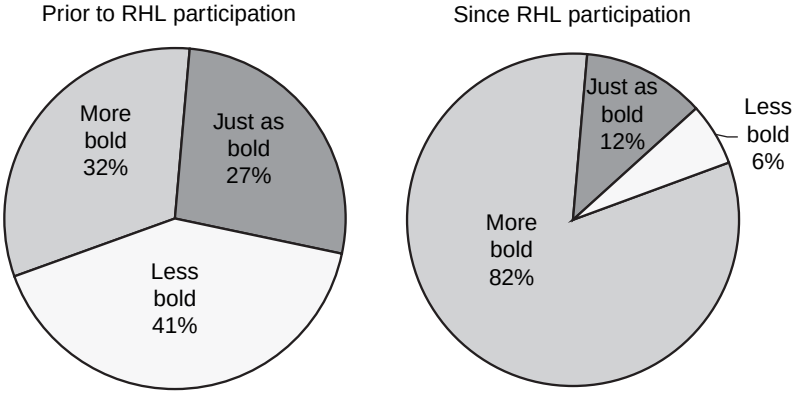

Figure 2. Survey respondents' perceptions of their own boldness, compared to other women, RHL follow-up study, Guinea, 2002.

As Figure 2 illustrates, women's sense of boldness increased dramatically after the course. While less than a third (32%) of respondents considered themselves 'more bold' than other women before the course, a clear majority (81%) so considered themselves afterwards (McNemar chi square, $p < .001$).

Boldness was associated with positive health outcomes. As compared to women who identified themselves as 'less bold' or 'just as bold' as other women at the time of the survey, those who self-identified as more bold were significantly more likely to use family planning (51% versus 36%, chi square $p < .01$) and condoms at last sex (26% versus 14%, chi square $p < .05$).

As a means to better understand the concept of boldness and its association with RHL, in-depth interviews were conducted with 22 RHL participants who had already completed the survey. These interviews confirmed the perception that participants became more bold after RHL. Moreover, it was clear from these interviews that they attributed their change to RHL.

When asked to define boldness during the in-depth interviews, most women spoke of someone who is 'able to talk before many people', or one who can 'talk in public'. Many women expressed this ability as the opposite of something: a bold woman is one who is *not* 'afraid' or 'ashamed' to speak in public. Some women addressed this notion of shame directly:

> I was ashamed to talk to people but now I can express myself in public.

A few women included other concepts in the definition of boldness:

> A bold woman is free to go anywhere.
> A bold woman knows her rights.
> [I am bold] because I never knew how to read and write but now I can.

The women uniformly agreed that the community admires bold women; boldness was perceived as a positive force. All but one of the women considered themselves bold,[3] and believed that people admired them for it. When asked why others would admire them or see them differently now, many women referred back to

speaking in public, such as at community meetings and RHL community education activities. They saw this as an admirable trait.

They gave numerous reasons for why others saw them differently now:

> . . . because I can read and write now.
> . . . because now I space my children.
> . . . because what I was not doing before—I am doing it now.
> . . . because I am proud of RHL.

Some respondents spoke of others seeing them differently because of a new role in interpersonal interactions:

> I assist my friends with their doubts.
> [People see me differently] because of my counselling with respect to use of family planning methods and condoms.
> [People see me differently] because I have learned and I can explain to them what I have learned.

Ultimately, the women perceived great benefits to participating in RHL, attributing their increased self-confidence and boldness to the course.

> I have learned a lot of things and now I am a changed woman.
> I have learnt how to be a bold woman.

Differences in outcomes by prior schooling

In an effort to distinguish the effects of the RHL Programme from the residual effects of formal education (an unresolved but important question in the field at large), study data were analysed for differences between women who had had any formal schooling as children and those who had never attended school. The study sample was almost evenly split between schooled and non-schooled women: 53% of respondents had prior schooling and 47% did not. The two groups had substantially different socio-demographic profiles. Non-schooled women were significantly older (mean age of 35.0 versus 28.4, t-test $p < .001$) and had more children (mean 5.3 versus 3.2, t-test $p < .001$) than did the schooled women. The two groups had different experiences of deaths of their children under 5 years old: 72% of non-schooled women and 50% of schooled women had had at least one child under age 5 years die (chi square $p < .001$). The mean number of child deaths to non-schooled women (1.7) was almost twice that reported by the schooled women (0.9, t-test $p < .001$). The difference is significant even when controlling for age (chi square $p < .05$) (see Tables V and VI).

Basic awareness of family planning, STIs, HIV/AIDS and condoms, even prior to RHL participation, was uniformly high in both groups (80% or more of both groups of respondents had heard of these topics); the slightly higher levels among the schooled women were not significant. The schooled women answered more factual items measuring retention of RHL information correctly than did the non-schooled women (mean score 16.7 vs. 15.5 out of 20; t-test $p < .001$). On the five-item reproductive anatomy question (consistently identified as the toughest curriculum element), 61% of the non-schooled and 69% of the schooled women achieved a perfect score of five (chi square $p < .05$). Thus, while the schooled

Table V. Socio-demographic characteristics and outcome variables, by schooling, RHL follow-up study, Guinea, 2002.

Variable	Women without prior schooling ($n = 259$)	Women with prior schooling ($n = 288$)	Significance level
Mean age (years)	35.0	28.4	$p < .001$
Mean number of live births	5.3	3.2	$p < .001$
Mean number of child deaths under 5 years	1.7	0.9	$p < .001$
Mean current health knowledge score (out of 20)	15.5	16.7	$p < .001$
Reproductive anatomy questions: Perfect score of 5	61%	69%	$p < .05$
Mean literacy test score: Beginner	54%	81%	$p < .001$
Mean literacy test score: Intermediate	*	79%	

* Only 6 cases, so results not shown.
* Pearson's chi-squared test.

women outperformed the others on knowledge items, both groups did very well, indicating good knowledge retention among all respondents.

Communication with partners about reproductive health topics increased significantly for the respondents overall, as noted above, but the differences

Table VI. Socio-demographic characteristics and outcome variables prior to and since RHL, by schooling, RHL follow-up study, Guinea, 2002.

	Prior to RHL			Since RHL		
Variable	Women without prior school	Women with prior school	Sig level	Women without prior school	Women with prior school	Sig level
Spoke to partner about:						
family planning	68%	70%	ns	84%	90%	ns
condoms	64%	67%	ns	82%	87%	ns
Family planning use:						
ever-use prior to RHL	42%	53%	$p < .05$			
current use (WRA)				45%	54%	$p < .05$
Condom use:						
ever-use prior to RHL	18%	28%	$p < .01$			
use at last sex (at time of survey)				20%	27%	ns
Self-assessed literacy skills: Can read and write	6%	72%	$p < .001$	12%	78%	$p < .001$
Self-assessed boldness: More bold than other women	42%	$p < .001$	70%	92%	$p < .001$	

* Pearson's chi-squared test.

between the non-schooled and schooled groups were not significant. For example, 68% of non-schooled women and 70% of schooled women recalled speaking to their partners about family planning prior to RHL. These figures increased to 84% and 90%, respectively, since RHL.

Pre-existing differences between the non-schooled and schooled women were identified with respect to reproductive health behaviour. Schooled women were significantly more likely than non-schooled women to have used a family planning method prior to RHL (53% versus 42%; chi square $p < .05$), and were more likely to be currently using a contraceptive (54% versus 45%, chi square $p < .05$), although rates for both groups were high. Similarly, schooled women were more likely to have ever used a condom (28% vs. 18%, chi square $p < .01$) and to have used a condom at last sex (27% vs. 20%, ns) than were non-schooled women.

There were marked differences in literacy skills between the two groups of women. Of the 347 women who took the beginner-level literacy test, 94 (27%) had been to school. The schooled women's mean score was 81%, significantly higher than the 54% mean score of the non-schooled women (t-test $p < .001$).[4]

Self-assessed boldness was higher among schooled women, but showed substantial increases within both groups of women. Non-schooled women who reported themselves as more bold than other women increased from 21% before RHL to 69% afterwards; within schooled women, the proportion increased from 42% to 92% (McNemar chi square, $p < .001$).

Overall, the analysis of outcomes by prior schooling indicates that RHL had a significant effect on reproductive health knowledge, behaviour, self-assessed literacy skills and sense of boldness for both the schooled and non-schooled women. To be sure, the schooled women entered at higher levels and gained more than their non-schooled counterparts, but both groups profited substantially from their RHL participation.

Discussion

Whether or not adult women's literacy-for-health programmes can positively influence health outcomes is an important question in view of the world's 570 million illiterate adult women, and a timely one in this UN Literacy Decade (United Nations Literacy Decade 2003).

The present follow-up study indicates that the Sierra Leonean and Liberian refugee women participating in the Reproductive Health Literacy project in Guinea experienced positive health outcomes and suggests several potential ways in which these benefits occurred. Participants entered RHL with high levels of awareness of basic reproductive health information. Retention of specific factual material taught in RHL classes was high and it is likely that at least some of this was new information for the participants. Women's communication with their partners on reproductive health topics was also high prior to RHL (about two in three women reported having spoken to their partners about

these topics), but nevertheless increased since RHL (more than four in five reported doing so).

Reproductive health behaviour also showed a marked change, although pre-participation levels of contraceptive and condom use were high. Ever-use of modern contraception prior to RHL, reported by 48% of all respondents, is very high for Africa, and for West Africa particularly, and perhaps reflects the self-selection inherent in voluntary programmes such as this one (Population Reference Bureau 2005). Current modern contraceptive use, at 50% of women of reproductive age, is also extraordinarily high for the region. For example, current use of modern contraception is estimated at 14% of married women, 15–49, for Sub-Saharan Africa and at 8% for West Africa (Population Reference Bureau 2005).[5] These rates compare favourably to those found in populations where most women who want to contracept are able to do so: current use of modern contraceptives among married women, 15–49, is 79% in Thailand, 76% in Northern Europe and 68% in the USA (Population Reference Bureau 2005). The high current use rate among the study population, coupled with the finding that 40% of current users were first-time users since RHL, suggests that contraceptive use increased after RHL. The same pattern holds for condom use: a relatively high 24% of women reported using a condom at last sex, and 51% of them had used condoms for the first time since RHL. It must be noted that the refugees were able to act on their demand for contraception because services were available to them free of charge from NGO service providers in the camps and by referral at Guinean government facilities outside the camps.

The women's sense of boldness, investigated in the survey and in follow-up in-depth interviews with some survey respondents, showed dramatic change and is perhaps one of the most interesting and important findings of this study. The women clearly identified RHL as key to their newfound confidence, in part because of what they learned, but perhaps in larger part simply out of a sense of belonging. Whether boldness is a positive good in itself or only a means to improved health or other outcomes is a topic of much debate; the present study suggests that both ends were achieved in the RHL programme.

Women who had had previous schooling did better in RHL than their non-schooled colleagues: they entered with more knowledge and literacy skills, they outperformed the others and they had higher rates of positive reproductive health behaviours. However, both groups of women, even the non-schooled, illiterate women in this extremely poor, conflict-affected part of the world, had good knowledge retention, improved health behaviours and felt more 'bold' after RHL participation. Thus, RHL participation appears to have influenced its participants, whether or not they had had previous schooling.

It is interesting to note that while this study supports the hypothesis that RHL participation improved health outcomes, it provides little or no evidence that literacy skills influenced this change. Given the lack of pre-intervention measures of literacy, it is not possible to determine whether a change occurred in literacy

skills. This study suggests that boldness may play a larger role in the pathway between RHL and health than do literacy skills.

The present study has a number of significant limitations that should be kept in mind in interpreting these results. Women self-selected into the RHL programme, and thus likely represent a highly motivated sub-sample of women in the refugee camps. Since programmes like this inevitably rely on self-selection, however, this situation mirrors typical field conditions so does not alter the study's implications for programme guidance. It should also be noted that the RHL Programme structure (sessions of 2 hours, twice per week for 6 months) is just one of many possible models. Programme managers must be aware that variations in design may influence results.

More problematic is the potential bias in selection due to movement and loss to follow-up of groups of refugees at many stages in the life of the RHL Programme. The women who participated in RHL and were ultimately interviewed for the study were those who (a) fled to Guinea rather than staying at home or going elsewhere; (b) settled in Guinea's refugee camps rather than in local communities; (c) self-selected into the RHL course, as noted above; and (d) remained and could be located in the camps 1–3 years later. There are a great many non-random economic, social and political factors that influence individuals and families at each of these stages. Thus, respondents in this study are not necessarily representative of Sierra Leonean and Liberian women or refugees in general, or even of RHL participants.

The lack of pre-programme measures with which to compare results, due in large part to a loss of data during the rebel invasion, and extremely difficult field conditions in general, is a substantial limitation of the study. The need to rely on respondents' recall of their knowledge and behaviour prior to RHL to substitute for the missing pre-programme measures is unfortunate, though not atypical in field settings. This study has demonstrated that extremely difficult conditions are not reasons to avoid carefully evaluating programmes for programmatically relevant lessons. Indeed, those whose lives are upended by conflict deserve programmes as thoroughly reviewed as those delivered to stable populations.

The results of the RHL follow-up study in Guinea in 2002 suggest that the RHL model is worth replicating in Guinea's refugee camps, in Sierra Leone, in Liberia and elsewhere. Implementing the model in villages and towns, rather than in refugee camps, will require adaptation to the different, probably greater, daily demands that women face in those settings. More diligent record-keeping and back-up data systems are, of course, recommended, though such a suggestion is far easier to make than to effect under difficult field conditions. Additionally, a waiting-list control design would fulfil the fundamental purpose of service provision while permitting a useful analysis of the programme's independent effects. A more thorough examination of the concept of boldness in such a design would also contribute to the broader understanding of its direct and indirect effects on women's lives.

Acknowledgements

The authors wish to thank Meriwether Beatty of JSI Research and Training Institute; Huy Pham and Connie Kamara of the American Refugee Committee (ARC); Michelle Thompson, the Study Field Coordinator in Guinea; the ARC staff in Guinea; the study interviewers, data managers and supervisors; and, especially, the teachers and participants of RHL.

Notes

[1] It was found, after the first few days of field work, that some women were being interviewed twice, by choice. (Duplicate records were deleted in the data cleaning exercise.)
[2] Liberians had also actively participated in the RHL programme, but there was substantial movement in and out of the camps from 1997 to the time of the study. Therefore, many of the Liberian women who had participated in the RHL courses were unavailable for the study.
[3] The one woman who did not consider herself bold said it was because she 'did not stay long in RHL due to the crisis [i.e. the rebel invasion in Gueckedou]'. She did not perceive that others saw her differently and said of herself, 'I see no difference'.
[4] Too few non-schooled women took the intermediate-level literacy test to permit comparison of schooled and non-schooled women's scores.
[5] Note that contraceptive use rates among *married* women of reproductive age are likely to be higher than among *all* women of reproductive age, since the latter group may include non-sexually active women.

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