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An International Model for Staffing Maternal and Child Health Research: The Use of Undergraduate Students

ANNE BABER WALLIS, RĂZVAN CHERECHEŞ, FLORIN OPRESCU, ALEXANDRA BRÎNZANIUC, and CLAIBOURNE I. DUNGY

ABSTRACT

Constrained resources in Central and Eastern Europe limit the capacity of local and national health ministries to study breastfeeding practices or implement evidence-based breastfeeding support programs. This paper describes an innovative model for studying an important maternal and child health (MCH) problem by training undergraduate students to strengthen local capacity for research. An international team of researchers from Romania and the United States designed a study conducted at Babeş-Bolyai University and two academic maternity hospitals in Cluj-Napoca, Romania. The objectives were to (1) spark interest in breastfeeding research among undergraduates, (2) develop empirical knowledge about breastfeeding, and (3) train a team of undergraduate students to collect, manage, and enter study data. A team of carefully selected undergraduate students was trained in survey design, data collection, data entry, and interviewing skills. Internet technology was used to facilitate communication and to transfer data. The project resulted in a trained cadre of undergraduate students able to conduct survey research on breastfeeding practices with skills ranging from questionnaire design and implementation to descriptive data analysis. Empirical data obtained from the study will be used for student projects, to stimulate new breastfeeding support policies and programs, and to apply for research grants. Undergraduate students in developing countries in Central and Eastern Europe are a valuable, untapped resource for expanding MCH capacity. We recommend adoption of this cost-effective approach to foster high-quality MCH research.

INTRODUCTION

THE FORMER COMMUNIST COUNTRIES OF Central and Eastern Europe face numerous challenges in evaluating existing or planned maternal and child health (MCH) initiatives. In Romania, MCH indicators reflect a country in transition: fertility rates have fallen to Western European levels, the infant mortality rate has decreased considerably from 27 deaths per 1000 live births in 1990 to 19 in 2000, and the under-5 death rate (i.e., child mortality rate) has fallen from 31 in 1990 to 20 per 1000 live births in 2004.[1] Although these data indicate significant improvement since 1989, they still represent poorer MCH outcomes than for the rest of Europe.

Relatively few MCH indicators are reported at the local level in Romania, and data on breastfeeding are limited. Although a 2005

Department of Community & Behavioral Health, University of Iowa, College of Public Health, Iowa City, Iowa.

Ministry of Health report found that 88% of Romanian women initiated breastfeeding in the hospital, data suggest significant drop-off in the early postpartum period, with only 16% of infants exclusively breastfed during their first 6 months of life.[2] Anecdotal evidence suggests that breastfeeding initiation and duration may vary significantly by region of the country, and most available data point to reductions in breastfeeding initiation since the 1990s.[3,4]

With evidence suggesting that breastfeeding rates are dropping, there is an immediate need to collect breastfeeding data at the local and national levels on initiation, duration, and exclusivity. It is also important to understand attitudes and knowledge about breastfeeding. Empirical data on breastfeeding attitudes and practices can be used by local and national health officials to strengthen breastfeeding promotion activities and to tailor interventions.

Romania has explicitly targeted objectives to improve MCH status.[2] However, public health officials struggle to meet the objectives due to inadequate economic resources, emerging health challenges, and a limited public health workforce. International investment in public health research has resulted in some national data collection efforts, but further investment and collaboration is necessary to strengthen local and national research capacity.

The purpose of this manuscript is to describe an innovative model for studying important MCH problems by training undergraduate students to strengthen local capacity for research. This report describes the process of training undergraduate students to conduct a pilot study of the relationship between breastfeeding attitudes and breastfeeding initiation and duration.

METHODS

The study was conducted in Cluj-Napoca, Romania, by an international research team of public health academics and students enrolled in courses within the Center for Policy and Public Health at Babeş-Bolyai University. Cluj-Napoca, located in western Transylvania, is an important academic and cultural center with over 300,000 residents, including about 100,000 university students. The innovative collaborative international project enhanced existing local MCH resources by training undergraduate students to participate in survey research. The Romanian research team consisted of the director of the Center for Health Research and Public Health, Babes-Bolyai University (R.C.). He has a medical degree and a doctoral degree in health policy. The other Romanian researcher is a doctoral student in public health at the University of Iowa. The U.S.-based faculty members of the team included a public health faculty member from the University of Iowa with expertise in women's health and survey design and a University of Iowa pediatrician–educator with epidemiology and international health expertise. The team utilized information technology to facilitate long-distance communications and transfer of data.

The study objectives were to (1) create interest in breastfeeding research among undergraduates, (2) develop empirical knowledge about breastfeeding, and (3) train a team of undergraduate students to collect and enter data for a pilot study. The research plan and teaching agenda were developed during a series of e-mail communications, international telephone conference calls, and in-person meetings when the Romanian coordinator attended an educational seminar at the University of Iowa.

Nine undergraduate students and one graduate student were identified from over 60 students to form the initial Cluj-Napoca data collection team. The undergraduate students were selected on the basis of academic performance, interest in public health, demonstrated reliability, and availability during the time period of the study. The majority were upper division students. Their major areas of study included communications, political science, and preveterinary medicine. The Romanian research coordinator (RC) also established contacts with appropriate university, medical, and public health officials in Cluj-Napoca to determine their interest in participating in the study. Two maternity hospitals in Cluj-Napoca were enrolled as study sites. The Romanian coordinator obtained signatories to a research agree-

ment binding the interagency, international collaboration and assuring the confidentiality of human subjects. The pilot study period was July through December 2006.

During a 10-day period in July 2006, the Romanian–U.S. research team trained a data collection/data entry team, met with medical directors and clinical staff at the two study sites, and pilot tested questionnaires. A 1-week training course (Table 1) facilitated by two of the authors (A.W. and C.D.) was conducted at Babeş-Bolyai University on research design, interviewing, and research ethics that included didactic lectures, simulated interviews, on-site pretest interviews with prenatal women, on-site pretest interviews with women who had given birth within the previous 48 hours, and simulated in-home postpartum interviews. The students also conducted interviews at hospital-based antenatal clinics serving normal-risk pregnant women and the in-patient units for women who had recently delivered. A four-part Romanian language survey instrument included (1) sociodemographics, (2) information about social networks, (3) the Iowa Infant Feeding Attitude Scale (5), and (4) opinions about breastfeeding in public.

In general, didactic sessions were conducted in the morning and the hospital and in-home interview practice sessions occurred in the afternoon. Total contact time each day was approximately 6 hours, with the exception of a 2-hour wrap-up session on the last day. A combination of large and small group sessions were used. The didactic sessions were delivered to the group as a whole by one or two members of the research team (Table 1), while the interviewing sessions consisted of teams of two to three students and a researcher. The research team worked closely with students during the training phase to provide coaching and help resolve logistical problems. Training data were analyzed to confirm instrument and interrater reliability. Informal and formal meetings were held to ensure systematic and consistent administration of the questionnaire and to gather student suggestions for improving the protocol wording and administration. These student-generated recommendations significantly strengthened the content and process of the study.

At the completion of the 1-week training, continued follow-up with the team included using an e-mail-based list serve to facilitate frequent communications and to allow quick responses to fieldwork questions. In addition, weekly meetings of the Romanian researchers, a student leader (A.B.), and the U.S.-based researchers were conducted using the *Elluminate* platform.[5] The nine students who participated in the summer program and six students enrolled in the fall semester were able to apply the knowledge and skills gained by participating in a pilot breastfeeding research program. The study was conducted at the two academic maternity hospitals where part of the training

Table 1. Training Curriculum

Day	*Topic*	*Presenters*
Day 1	• Introduction/review	R.C.
	• Introduction to research principals	A.W.
	• Breastfeeding trends	C.D.
Day 2		
	• Introduction to survey studies	A.W.
	• Breastfeeding research	C.D.
	• Interviewing skills—practice session	A.W., C.D., R.C.
Day 3	• Study design	A.W.
	• Interviewing skills—on-site practice session and critique	A.W., C.D., R.C.
Day 4	• Data entry and collection	A.W./C.D.
	• Interviewing skills and critique	A.W., C.D., R.C.
Day 5	• Data entry	A.W.
	• Interviewing skills—home-based interviews and critique	A.W., C.D., R.C.
Day 6	• Review	A.W., C.D., R.C., F.O.

occurred and at 6-week postpartum home visits.

Data entry forms were created using Internet-based survey software (WebSurveyor).[6] Data were collected orally, and students entered the data using a secure, on-line format. Once entered, data were stored in a flat-file database format from which analysts in either Romania or the United States could extract data for statistical analyses. No identifiers (e.g., names) were uploaded, and data could only be accessed with a protected identification and password. A form created in WebSurveyor was also used to report weekly data collection progress.

The training and informal meetings enhanced the collaborative team effort. This close working relationship, in addition to the scientifically sound approach, resulted in a very conscientious data collection process and highly reliable data.

RESULTS

Students participating in the training program completed a five-item questionnaire to evaluate the content and structure of the training session. Responses to the questionnaire indicated satisfaction with the training program (Table 2). Responses to open-ended questions about strengths and areas for potential improvement of the training program added qualitative insight for future collaborations. Comments concerning strengths of the training sessions included: "We learned a lot of new things about breastfeeding and how to do a survey design"; "I liked the fact that there was time for practice as well as for theory"; and "I really liked the idea of practice interviews in hospitals and that it was an advanced step in questionnaire application." In response to suggestions for improving the training program one student responded, "A longer training, more mothers to practice applying questionnaires, more talks about the topic of the project. . . ." An indication of the students' enthusiastic acceptance of the project is reflected in their active recruitment of other students to enroll in a survey research course taught in the following fall and spring session. Several of the students have continued participation in ongoing pilot research activities. It is too early to know if any of the students will change their career path or incorporate knowledge gained about MCH initiatives into their chosen careers.

DISCUSSION

The Central and Eastern European region faces enormous public health challenges in the coming years as residents attempt to stretch limited resources to build infrastructure, create surveillance, and other core public health systems, and develop a workforce. Most previous MCH research conducted to date has been funded and led primarily by European Union (EU)-based organizations, including the United

Table 2. Student Evaluations

(Percentages)	*Strongly aagree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*
The training program was well organized organized.	33.3%	66.7%	0.0%	0.0%	0.0%
The instructors were knowledgeable about current information on breastfeeding promotion programs.	33.3%	66.7%	0.0%	0.0%	0.0%
The instructors were knowledgeable about survey design and implementation.	66.7%	33.3%	0.0%	0.0%	0.0%
The instructors provided information about survey design that was useful to me.	66.7%	22.2%	11.1%	0.0%	0.0%
The time allotted for practice interviews was adequate.	11.1%	66.7%	22.2%	0.0%	0.0%

Nations Children's Fund and the United Nations Population Fund, and nongovernmental and governmental agencies in the United States and Europe.[2,7–9] Now that several countries have joined or are in the process of joining the EU, including Romania, which joined in early 2007, it is envisioned that EU funding will become more competitive. Therefore, it is even more important to increase local health research capacity so that countries can build and sustain population-based data systems designed to support the collection of vital statistics, disease surveillance, and policy development.

Cost-effective collaborative initiatives consisting of international research teams and teams of specially selected and trained undergraduate students can have significant impact on breastfeeding support and other public health programs. These programs have the potential to increase capacity by developing a research infrastructure at the local level, engendering an interest in MCH among undergraduate university students, and establishing lasting professional linkages between and among universities and hospitals. This simple, inexpensive project can be replicated elsewhere in relevant settings, including undergraduate anthropology, communication, public health, and sociology courses. It can also be tailored to fit local conditions and to suit identified data collection or research needs. To optimize the successful implementation of such projects it is recommended that the research team consist of public health researchers and a faculty member committed to public health principles who is involved in teaching an undergraduate course with public health relevancy. Preferably the faculty member should have experience in MCH programs. In this study, the undergraduate professor is also a public health researcher, and the pediatrician is a breastfeeding researcher with considerable international experience with MCH programs.

The project exceeded the coinvestigators' expectations. A strong bond was established among the team members. All collaborators were enthusiastic in their support for the research aims and provided valuable information that resulted in modifications of the protocol to adapt it to local conditions. Because of the success of the collaboration, an unanticipated outcome was the opportunity for the University of Iowa investigators to collaborate with Babeş-Bolyai University in the development of an undergraduate MCH curriculum to be launched in the 2008–2009 academic year at Babeş-Bolyai University and a graduate MCH symposium conducted the summer of 2007. The graduate component will be expanded in subsequent years.

The collaborative model described in this report can be used throughout the region to create public health capacity, improve reliability and validity of data, maximize scarce funding, and propel needed MCH programs. It also has the potential of recruiting a cadre of new MCH researchers trained early in their academic career to conduct evidence-based breastfeeding research.

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REFERENCES

1. United Nations Children's Fund. The State of the World's Children. New York: The United Nations Children's Fund, 2005.

2. Romanian Ministry of Health. Reproductive Health Survey. Romania. Romanian Ministry of Health, World Bank, UNFPA, USAID, UNICEF, 2004.
3. United Nations Children's Fund. UNICEF Romania 2003 Annual Report. Bucharest: UNICEF ROMANIA, 2003.
4. Chalmers B. Childbirth in eastern Europe. *Midwifery* 1997;13:2–8.
5. Elluminate Live Academic. 7.0 ed. [computer program]. Ft. Lauderdale, FL: Elluminate Live USA, 2006.
6. WebSurveyor [computer program]. Herndon, VA: WebSurveyor Corporation, 2006.
7. Centers for Disease Control and Prevention. Reproductive, Maternal and Child Health in Eastern Europe and Eurasia: A Comparative Report. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2003.
8. United Nations Children's Fund. Infant and Young Child Feeding and Care. http://www.unicef.org/nutrition/index_breastfeeding.html. Accessed 2/24/06.
9. United Nations Children's Fund. 2005.

Address reprint requests to:
Anne Baber Wallis, Ph.D., MHS
Department of Community & Behavioral Health
University of Iowa, College of Public Health
200 Hawkins Drive, E223 GH
Iowa City, IA 52242

E-mail: anne-wallis@uiowa.edu

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