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The Research Journal is a publication of the Davao Medical School Foundation, Inc. for its students, faculty, alumni, and consortium members. It is dedicated to health research and development.

Aim and Scope

The aim of the Research Journal is to provide a venue for the publication of research studies of the various units of the Davao Medical School Foundation. It responds to the need for a venue to publish on a frequent basis and reach a wider readership particularly for the dissemination of research findings.

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Comparison of Computer Assisted Instruction with a Lecture-Demonstration Format in Teaching Restorative Dentistry

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ABSTRACT

The information technology (IT) infrastructure and the newly acquired laboratory equipment of the Davao Medical School Foundation, Inc. (DMSFI) provide an environment conducive to computer assisted instruction (CAI), an alternative teaching strategy that has gained ground in medical and allied health education. Elsewhere in the world, the global computer revolution creates the impetus for DMSFI faculty to integrate this innovation into the curriculum and augment the traditional lecture method.

This study compared the effectiveness of CAI and the lecture-demonstration method on students' knowledge and skills acquisition and determined their attitudes towards the use of the two strategies. Twenty-two sophomore dental students enrolled in Restorative Dentistry II were matched and randomly assigned to the lecture-demonstration and CAI groups. Class sessions for both groups followed the same learning objectives, but differed in the teaching strategy employed to deliver content.

The instruments used to measure changes in the students' knowledge and skills were a written exam and a practical test developed with the help of the course instructor. These tests were devised specifically for the requirements of this study. To ensure the validity of these measures, they were first pilot tested on junior and senior dental students who had already passed the course. Cronbach's coefficient alpha was used to test the reliability of these instruments. Separate questionnaires were developed to measure attitudes towards the instructional strategy.

Based on the scores obtained by the two groups on the written and practical tests, it is indicated that CAI is just as effective as the lecture-demonstration method in teaching concepts of Restorative Dentistry. However, based on the results of the attitudes measures, the students perceived the lecture-demonstration method to have been more effective.

It is recommended that computer assisted instruction be encouraged as a supplemental teaching strategy at the DMSFI College of Dentistry.

INTRODUCTION

Computer innovations in DMSFI instructional materials. Early computer based materials generally featured an all-text format that saw instructional application in such fields as mathematics, computing, and the sciences. These days, newer versions of software incorporate graphics, animation videos, and hypertext features, which gave rise to the development of user-friendly CAI software for a widening consumer base. With the decreasing cost of computers and software, the educational communities, including medical and allied health sectors, now utilize these materials in the classroom (Cochrane, et al., 1993) for various purposes like drill and practice, simulations, tutorials, training, and as adjunct to lecturing.

The College of Dentistry was established in the DMSFI in 1980, four years after the school's founding, in keeping with the vision to develop health professionals responsive to the needs of the community. In 1988, the World Health Organization (WHO) put out a mandate for clinicians to be equipped with knowledge and skills in health informatics that combine technology and methodology to manage computer information (Cross & Shutt, 1998). In compliance, computer classes became a regular feature in all curriculum offerings at the DMSFI.

To date, there are 78 computers in the IT laboratory for use in class, writing reports, research, and Internet access. The DMSFI also invested in several CD-ROMs on medical topics for use of both students and faculty. It was expected that maximized utilization of these resources would follow.

However, the eight computer units reserved solely for faculty use remain under-utilized as only a handful of the instructors had confidence in using them. Generally, they preferred acetates and lectures when delivering course content. At the inception of this study, CAI was yet to be done in the College of Dentistry.

Delivery of instruction in restorative dentistry. Traditionally, teacher-centered lecture type of instruction has been the strategy employed by instructors in Restorative Dentistry. Even in laboratory sessions, where students are taught skills necessary for clinical practice, lectures are employed to introduce the theoretical aspects. In particular, *Amalgam Insertion, Condensation, and Carving Techniques*, one of the areas of practical exercises required in the board examination, is first introduced to the students through a lecture before the instructor models the technique on a dummy.

Given the situation, it is a challenge to find ways to shift the burden of meeting learning objectives from the teachers to the students by encouraging the latter to be responsible for their own learning. CAI may be one of the innovative methods available to accomplish the students' self-directed learning, especially in an area where their knowledge and skills would be tested in the future.

This study compared the effectiveness of CAI and the lecture-demonstration format on students' learning and determined their attitudes towards the use of two strategies. This study was undertaken to determine the basis for integrating CAI into the dental curriculum.

Problem

How does the performance of students in dentistry compare after a computer-assisted instruction and a lecture-demonstration?

Objectives of the Study

Specifically, the study aimed to:

1. Describe the profile of second year dental students in terms of age, sex,

computer background, and computer usage confidence;

2. Compare the performance of students who underwent lecture-demonstration instruction against those who had CAI on the topic of amalgam insertion, condensation, and carving techniques; and
3. Determine the perceptions and attitudes of the students towards the lecture-demonstration format and CAI as strategies in learning amalgam insertion, condensation, and carving techniques.

Scope and Delimitations

This study was limited to the second year dental students of the DMSFI College of Dentistry (DMSFI-CD). It covered only one topic in Restorative Dentistry II (Amalgam Insertion, Condensation and Carving Techniques), and measured the knowledge, comprehension, application, and analysis of the concept, as well as skill performance and the attitudes and perceptions of the students towards the two instructional strategies. The CAI was presented in an interactive text/video format.

A definite measure for the significance in the actual gain in learning was not included. The study also did not take into account the individual learning styles of the students and the degree of difficulty of the achievement tests used. Long term retention of the concepts was not measured.

Hypotheses

Ho1: There is no significant difference in the written test scores of dental students who had CAI and those who had the lecture-demonstration method.

Ho2: There is no significant difference in the practical examination scores of dental students who had CAI and those who had the lecture-demonstration method.

Ho3: There is no significant difference in dental students' attitudes towards the use of CAI as compared to the lecture-demonstration method.

REVIEW OF LITERATURE

The lecture method as a teaching strategy. Owing to its advantages, the lecture method has remained the most extensively used form of teaching strategy practiced by instructors in medical and allied health education. Lecturing is the most economical and efficient strategy of conveying large amounts of information in an expeditious manner to a large group of students (Brown & Manogue, 2001). It is practical for use where the ratio of students to teacher is high and the materials are not generally available to the students. Instructors can summarize the information contained in different sources and synthesize these for presentation. One added advantage of the lecture method is that, when delivered by an expert, the students get to learn from a credible source. Furthermore, if it is well-suited to the students' learning style, the lecture method may very well achieve its goal of fostering learning in the student as it can be used to provoke thought, deepen understanding, and enhance crtical thinking (Brown & Manogue, 2001).

It is, however, recognized that lecturing has its limitations. Lecture restricts the verbal participation of students, leaving the teacher largely uninformed of whether the students have indeed grasped the lesson (Gibbs, et al., 1987). This teacher-centered approach fosters student passivity and dependence on the teacher. At the same time, it demands

that the teacher be a good planner, speaker, and motivator in order to hold the students' interest. Furthermore, important learning goals like critical thinking skills, attitudes, experiential learning, and role modeling/ playing are little enhanced by lectures. These are demonstrated to be more appropriately learned in small group discussions (Abbat & McMahon, 1993).

Computer-assisted instruction (CAI). Computer assisted instruction is defined as a non-print form of self-instructional program that makes use of a computer and incorporates pictures, colorful graphics, animation, and sound into a multi-sensory learning experience (Abarquez, 1989). It is designed to emulate a human tutor which presents information and, depending on the student's response, may present additional information (Moore, 2001). Interactive learning provides feedback as the lessons incorporate questions to be answered.

CAI promises to benefit the students through increased awareness and control of their learning process, independent learning, flexibility and control of pacing, adaptability to their individual needs and interests, greater interaction and cooperation among students, and enhanced self-direction (Abarquez, 1989). The burden of learning shifts from the teacher to the student with this strategy, as the appreciation of the responsibility to master the material will enhance student understanding even without the external influence of the teacher (Collins & Hammond, 1987)

Comparison of CAI *and the lecture method.* Wills and McNaught (1996) evaluated the results of research studies comparing the effects of CAI to traditional delivery of training instruction on two variables: student achievement and attitudes towards the methods. They reported that there is little significant difference in learning outcomes, but an overwhelming evidence of attitudinal differences. Niemec and Walberg (1992) synthesized the results of quantitative reviews of CAI on instructional levels that range from kindergarten to college. They concluded that CAI has a substantial effect on achievement and majority favor CAI over the comparison group, especially in the elementary groups.

In the medical and allied health field, conflicting findings have been reported in studies that compared CAI with traditional delivery of instruction. No significant differences in general achievement performances were turned up by Finley, et al. (1998) in cardiology, particularly of the heart auscultation, Mulligan and Wood (1993) in geriatric dentistry, and Walsh and Bohn (1990) in human gross anatomy. On the other hand, Pam, et al. (1997) reported that CAI is superior to the traditional lecture format in two studies done in the field of cardiology. Devitt and Palmer (1999) reported the same on a study in internal medicine instruction, as does Lee (1997) who examined delivery of acid-based problem solving skills.

Satisfaction and other attitudes component measures were featured in many of these studies. Positive differences along these measures were found in delivery of instruction on pediatric nutrition (Rodriguez, et al. 1997), geriatric dentistry (Mulligan, et al., 1993), gross anatomy (Janssen, et al., 1996, Walsh and Bohn, 1990), and orthodontics (Stephens and Dowell, 1983). Lee (1997), on the other hand, reported that the satisfaction scores are the same for both groups.

Conceptual Framework

Figure 1 presents the different variables and illustrates their relationship to one another.

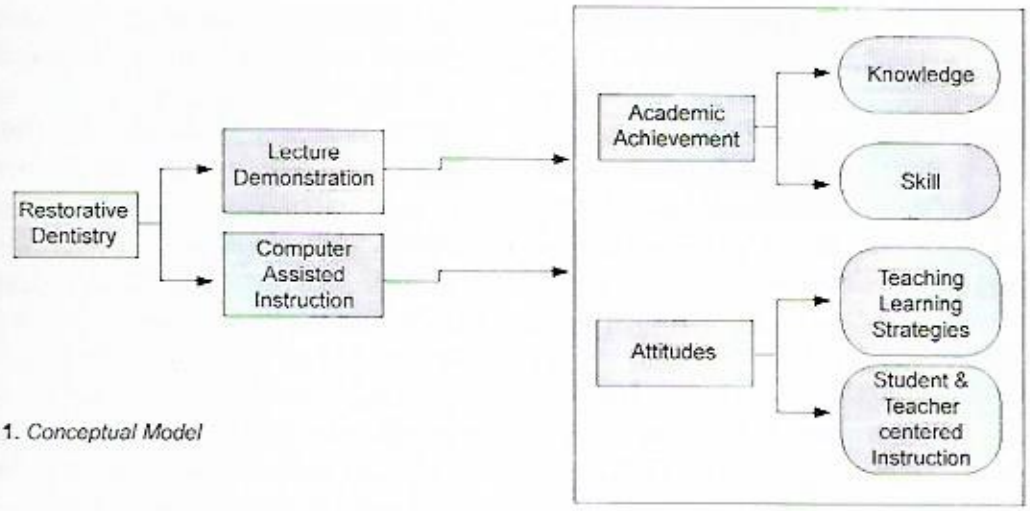

Figure 1. *Conceptual Model*

METHODOLOGY

Research design. This study utilized the randomized pretest-posttest control group design with matched subjects. Figure 2 shows the research design.

Research procedure. The procedure involved the selection of control and experimental groups, the learning phase, the study and practice phase, and the evaluation phase. The particular activities undertaken in each of these phases are discussed in more detail as follows:

Selection of control and experimental groups. Individual profile of the respondents, to include their first year GWA, and their scores on the pretest became the basis for random assignments into the lecture-demonstration group and the CAI group for the learning phase. Both groups were allowed a study and practice phase before posttest measures on knowledge and skills were drawn. The evaluation also involved the measurement of attitudes and perception toward both teaching strategies.

Preparation for the learning phase. The target participants of the study were asked to accomplish individual demographic profile checklist a week

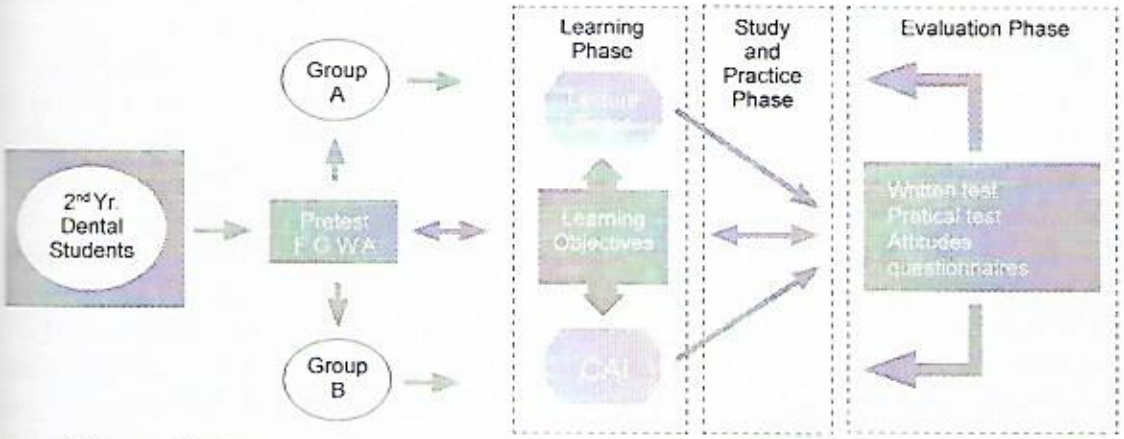

Figure 2. *Research Design*

before the scheduled delivery of instruction on Amalgam Insertion, Condensation, and Carving Techniques. As a class, they were given a pretest where their obtained results were ranked from highest to lowest. The official GWA they acquired during their first year was also arranged from highest to lowest. Based on this ranked list, the students were assigned to the control and experimental groups using an odd-even scheme (Borg & Gall, 1988). Matching was verified by the resulting t-tests of the means of the two groups on pretest, p=1.00, and first year GWA, p=0.83, which indicated the two groups not to have significant differences.

The learning stage. In the learning stage, the control group was provided a 2-hour classroom lecture-discussion on Amalgam Insertion, Condensation, and Carving Techniques while the experimental group was provided a CAI session with the supervision of the researcher. Both class sessions were designed following the same objectives for conveying the material content outlined in The Art and Science of Operative Dentistry (Sturdevant, 1995). the sessions differed only in mode of delivery.

For the lecture-discussion method, a qualified lecturer used acetates and slides as visual aids. Learning interaction took the form of teacher-initiated questions during and after the end of the lecture presentation. The demonstration of the amalgam insertion, condensation, and carving techniques on a prepared model was conducted by the faculty in the class, after which selected students were asked to perform return demonstration for practice and feedback.

The CAI, on the other hand, was a didactic instruction program developed for this study with the use of an authoring software and several editing software to produce an executable file that can run on any Pentium computer. The program featured textual presentations, animation, graphics, still photos, video and audio demonstrations and hypertext capabilities. It was arranged according to introduction, the objectives of the study, glossary, and the main body of the topic divided into subtopics. Each subtopic included a review exercise of the concepts. Access to all contents was not restricted, and users could revisit certain subtopics even when they would have gotten to the review part. Instructions on navigating the program were provided by the researcher before the start of the learning period. At the end of the lesson, the students accomplished the posttest for self-assessment on knowledge and skills acquired.

The study and practice phase. Both groups were given a week to study, during which four 3-hour laboratory sessions were provided for the students to practice the techniques on prepared models under the supervision of three clinical instructors. The two groups were explicitly requested not to interact to prevent contamination of the study results. During this week, the experimental group was supposed to make use of the IT facilities for students to review the program used in CAI. However, AVR log-in records show that none of them used the materials provided during this period.

The evaluation phase. The evaluation phase consisted of three activities: the determination of attitudes towards the two strategies; the posttest on knowledge; and the practical examination on skills acquired.

Population and sampling. Twenty-three second year dental students enrolled in Restorative Dentistry II were invited to participate in the study. However, only 22 were included, as one of them was not able to take the pretest. The students were assigned ID codes from 01 to 22 for ethical purposes and for ease of identification.

Data collection procedures. Initial measures for demographic profile and pretest were taken during an orientation session provided a week before the learning phase. The official first year GWAS of the students were retrieved from the Registrar's Office.

During the evaluation phase, the students, sitting as a class, were made to accomplish the appropriate attitudes questionnaire for the instructional method they were subjected to. Posttest on knowledge of concepts was administered at one time to the combined control and experimental groups by the same instructor who conducted the pretest. A week later, a 4-hour practical examination supervised by three clinical instructors (CIS) was conducted to the combined group. The students were asked to use a standard set of dental instruments and uniform materials (amalgam pellet, mercury, matrix bands, and mandibular first molar teeth models with class two cavity) to demonstrate skills acquired in amalgam insertion, condensation, and insertion techniques. An evaluation form was used by the CIS to grade the students' performance on the placement of the matrix system and the condensation and carving procedures. The students' restorations were coded and submitted for blind evaluation by three CIS, undertaken a day after the practical exam.

Instrumentation. The CAI program designed specifically for this study was formulated in collaboration with the assigned lecturer for Restorative Dentistry II to match the contents and the learning objectives of the lecture-discussion session. It was field tested on selected third and fourth year dental students who were chosen on the basis of ownership of a computer.

The data required for this study were drawn using the following tools: individual demographic checklist; the lecture-demonstration attitudes questionnaire; the CAI attitudes questionnaire; parallel forms of a test of knowledge of concepts in amalgam insertion, condensation, and carving techniques; evaluation form for placement of matrix system and condensation and carving procedures; and the grading sheets for restorations performed.

- The individual demographic checklist was composed of close-ended questions on gender, age, computer background, and computer usage confidence.
- The Lecture-Demonstration Attitudes Questionnaire contained 14 statements that the student should rate on a 4-point scale, with 4 coded as strongly agree and 1 as strongly disagree. The statements were divided into two categories: (a) lecture-discussion as an educational tool and (b) student's preference of lecture-discussion as a learning medium. Internal consistency measured by Cronbach's Coefficient Alpha is at 0.92.
- The CAI Attitudes Questionnaire contained 22 statements that were categorized into (a) appeal of the CAI format, (b) the CAI as an educational tool, and (c) preference for CAI as a learning medium. Using Cronbach's Coefficient Alpha on the results derived from the pilot test group, internal consistency is pegged at 0.97.
- Pre- and post-test on knowledge about amalgam insertion, condensation, and carving techniques were parallel forms of a 30-minute test covering placement of matrix system, insertion and condensation procedures, carving procedures, burnishing, and checking of occlusion. The tests were subjected to content and construct validation by experts and were pilot-tested on third year dental students of the DMSFI. Internal consistency on Cronbach's Coefficient Alpha registered at 0.99.

- The Practical Exam Evaluation Form included 28 items to be rated by the clinical instructor on a 4-point scale (4 = very satisfactory, 3 = satisfactory, 2 = poor, and 1 = procedure was not done). Final rating on this scale is the sum of ratings given for placement of the matrix system (20%), conduct of procedure (30%), and average of ratings given on blind evaluation of restorations (50%). This tool was similarly examined by experts for content and construct validity. On the final results obtained, inter-rater reliability coefficient was computed at 0.82.

Data analysis. Table 1 shows the particulars of the research methodology employed in order to meet the objectives of the study.

FINDINGS AND DISCUSSIONS

Demographic profile of dental students. Twenty-two students of the DMSFI-CD, 19 female and three male, with ages ranging from 20 to 23 years old were the participants in this study. They all reported to have had computer use experience with softwares such as games, word processor, spreadsheet, and computer-assisted instruction. Their average computer use per week was 3-6 hours. They indicated school, home, and Internet cafes as the location of their computer usage. All of them expressed confidence in performing simple computer tasks.

Effects of lecture-demonstration format and CAI *on knowledge.* The findings of this study demonstrated the two methods do not

Table 1. *Summary of Research Methodology*

Objectives	Data Needed	Sources of Data	Instrument Used	Data Analysis
1. To describe the profile of the dental students	Age, sex, computer use background, computing confidence	Second year dental students of the DMSFI-CD	Individual demographic profile checklist	Frequency distributions
2. To compare the performance of students who had the lecture-demonstration with those who used the CAI in learning amalgam insertion, condensation, and carving techniques	Pretest and posttest scores Practical examination scores	Second year dental students of the DMSFI-CD	Test papers Practical Examinational Evaluation Form	t-test for matched pairs t-test for unmatched pairs
3. To determine the perceptions and attitudes of the dental students towards the lecture-demonstration format and CAI as strategies in learning amalgam insertion, condensation, and carving techniques	Ratings of attitudes towards the 2 strategies	Second year dental students of the DMSFI-CD	Lecture-Demonstration Attitudes Questionnaire CAI Attitudes Questionnaire	Mean scores Mean Scores

differ significantly in their effect on student achievement in the written test. Table 2 summarizes the findings on the achievement scores of the two groups.

Figure 3 shows that the posttest scores of the whole group (mean = 11.32) showed improvement over their pretest performance (mean = 8.36). However, the results of the experimental and control groups show that only the lecture-demonstration group showed a significant improvement (see Figure 4) in mean achievement, with the obtained p value (0.009) in the t-test less than the level of significance of 0.05 (see Table 2).

The improvement in the CAI group's score (see Figure 5), while showing an increase in the mean scores from pretest to posttest, is not considered statistically significant since the obtained p value (0.055) on the t-test is larger than the level of significance, 0.05.

While both groups showed an increase in the mean scores, the posttest scores obtained would not have allowed them to meet the minimum pass level based on the grading system at the DMSFI. The researcher was not able to set controls for the degree of difficulty of the pretest and posttest, thus it is not possible to conclusively gauge the students' performance. It can be surmised that the students' lack of motivation to work for a high grade in the tests may have stemmed from the assurance given by the researcher that their

Table 2. *Summary of Mean Achievement Scores (X), Standard Deviations (SD), Range (R), and t-Test Results of Students in the Lecture-Demonstration and CAI Groups*

Group	Pretest			Posttest			t	p
	X	SD	R	X	SD	R		
Overall Performance (n=22)	8.36	2.70	10	11.32	2.77	10	-3.800	0.845
Lecture Group (n=11)	8.36	2.54	8	11.45	3.01	10	-3.227	0.009*
CAI Group (n=11)	8.36	2.98	10	11.18	2.64	7	-2.169	0.055
t	< 0.001			-2.01				
p	1.00			0.845				

*Significant at the 0.05 level

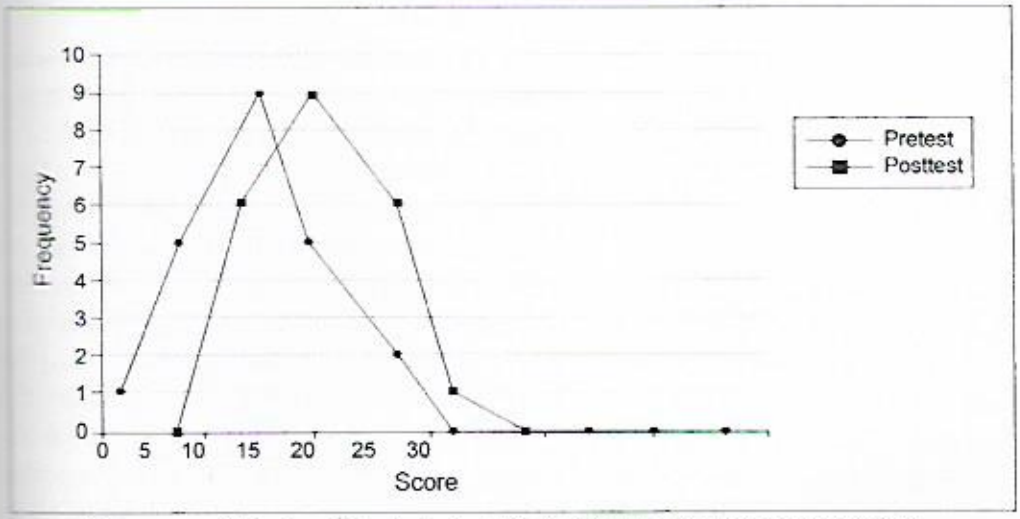

Figure 3. *Frequency distribution of the Pretest and Posttest Scores of the Whole Group (n=22)*

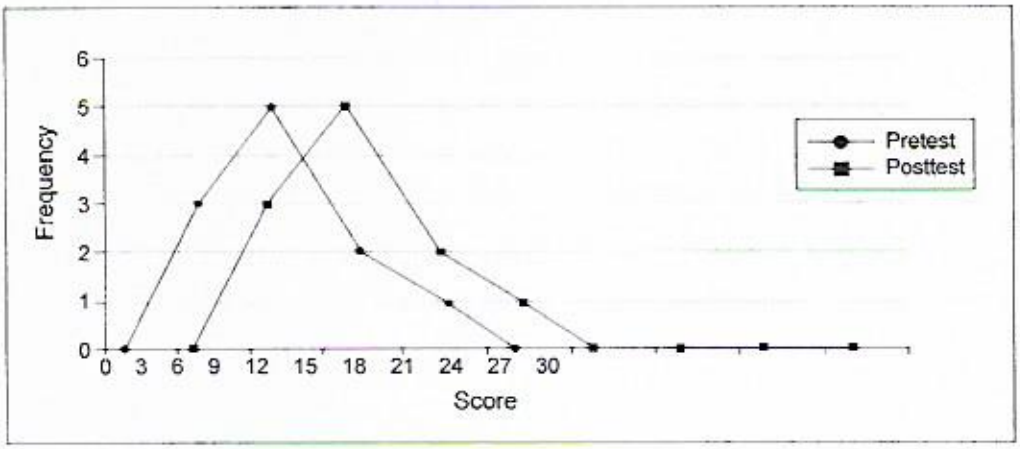

Figure 4. *Frequency distribution of the Pretest and Post Test Scores (n=11) of the Lecture Demonstration Group*

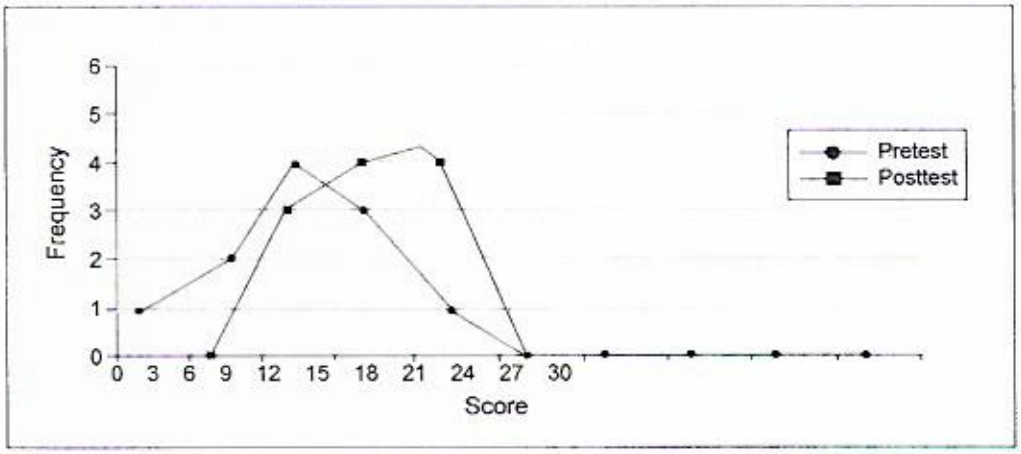

Figure 5. *Frequency distribution of the Pretest and Post Test Scores (n=11) of the Computer Assisted Instruction Group*

performance in these tests would not affect their grade in Restorative Dentistry II.

There was also no significant difference in the students' performance in the practical examination (0.364>0.05).

The effect of lecture-demonstration format and CAI *on attitudes and perceptions.* The favorable response to the lecture-demonstration method (mean = 3.43) over the CAI (3.33) as an educational tool, as indicated by the higher mean scores given by the students who received it (see Table 3), implies that the students may not be ready to dispense with the tea during class instruction. The lower mean r given by the CAI group towards their metho instruction as an education tool may have b due to the technical difficulty with the a feature of the program. It is important tha quality of a program used as CAI be care considered for best outcomes. Difficulty w certain features of the program could inferred from the fact that none among CAI group accessed the program during study and practice week. Given their repo early exposure and confidence in comp

use, a higher frequency of utilization of the CAI during the study and practice phase would have been expected. This study also demonstrated that a high computing confidence does not necessarily translate to total acceptance of CAI as a stand-alone method of learning.

Since the CAI scheme is grounded on self-directedness, learning a concept and self-assessment become the responsibility of the learner. According to Collins and Hammond (1987), this should have been a "liberating experience," but the results of this study seemed to indicate the opposite. Perhaps the students were not ready for self-directed learning and were more comfortable with teacher-centered methods.

The exercise questions, summary of points, and review features of the instructional strategy were the only areas where the CAI group gave a higher mean rating than the lecture-demonstration group. This is congruent with the thinking that the ability of the learner to immediately evaluate his progress through the feedback feature of the program is a strength of CAI. The favorable ratings on summary and review features serve to establish CAI as a reusable and reliable educational tool. Although the total acceptance of the CAI as a stand-alone educational tool may not be immediate, the students may come to accept its gradual introduction as a possible alternative or adjunct to the conventional forms of instruction.

Table 3. *Comparison of Mean Attitudinal Scores (X), Standard Deviations (SD), and Range (R) of Students Towards the Use of the Two Strategies*

Response	Groups					
	Lecture			CAI		
As an Educational Tool	X	SD	R	X	SD	R
1. Well explained objectives	3.91	0.30	1	3.55	0.52	1
2. Understanding of concepts because of examples/demonstrations	3.81	0.40	1	3.55	0.52	1
3. Appropriateness of the difficulty of questions	3.27	0.47	1	3.18	0.40	1
4. Satisfaction in answering of excercise/ questions	3.45	0.52	1	3.64	0.50	1
5. Confidence to take the test	3.00	0.63	2	2.82	0.60	2
6. Exciting and interesting strategy	3.55	0.52	1	3.64	0.65	2
7. Ability to evaluate itself	3.45	0.52	1	3.45	0.52	1
8. Emphasis of concepts	3.73	0.47	1	3.27	0.47	1
9. Ability to summarize main points	3.00	0.0	0	3.27	0.47	1
10. Stimulating and challenging instructional aids	3.27	0.65	2	3.27	0.47	1
11. Ability to review of difficult parts	3.27	0.47	1	3.36	0.67	1
Total mean score and SD	**3.43**	**0.30**		**3.33**	**0.22**	

CONCLUSION

Comparison of performance of the two groups on the pretest and posttest revealed that there was no significant difference in their knowledge on amalgam insertion, condensation, and carving techniques. However, this may have been affected by the fact that the population was so small that the t-test used was not able to detect any difference. Using a larger population may result in a different outcome.

The lecture-demonstration group showed a significant difference in performance on the pretest and posttest. It also measured a higher preference for the method in comparison to the ratings given on CAI by those who were subject to it.

The results observed in this study seem to suggest that a lecture-CAI strategy may be more beneficial to the students in the long run. Teachers in the dental field will have to select topics where CAI will be most appropriate and can supplement the lecture method. This might get the students interested to use CAI to enhance their learning. This move towards a blended instruction, coupled with a gradual shift in the attitudes of the faculty towards more innovative teaching strategies, may pave the way for students to become self-directed learners in the future.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

1. The DMSFI-CD administration is encouraged to promote the use of CAI among the faculty and students by disseminating the findings of this study, supporting the efforts to develop CAI, and giving proper orientation and training on the technology in order to maximize the use of the available IT facilities of the school;
2. Assess dental concepts as to the applicability of CAI to enhance knowledge achievement and skills acquisition and, when appropriate, consider CAI as a supplemental tool to the lecture method;
3. Further investigate the effectiveness of CAI against the lecture-demonstration method using a bigger population and on another topic of instruction in health education;
4. A detailed analysis of the learner's characteristics may be performed in future researches to correlate these with the scores on the achievement tests and attitudes questionnaire;
5. An assessment of the significance of any gain in learning of the students with regard to their training in the dental field is also encouraged to determine the efficiency of the use of CAI in dental education; and
6. A complete evaluation of the CAI program regarding its technical aspects be undertaken to minimize the possibility that any factor among its features prevents appreciation of the learning experience it could provide.

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Community Immersion and Interpersonal Skills of 2003-2004 DMSFI Clerks during Medical Interviews

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ABSTRACT

This study explored the effects of community immersion on the interpersonal skills (IPS) of the 2003-2004 batch of DMSFI clerks with patients during medical interviews. The IPS of 58 fourth year clerks during medical interviews with patients were compared in terms of hospital assignment, department rotation, and community immersion experience. In addition, a group of 14 clerks among them were the subject of a time series observation for IPS behaviors during medical interviews conducted while on pre-community immersion, during community immersion, and post-community immersion. Two separate checklists for IPS developed by Mencias (1991) were used by trained observers and on randomly selected patients to assess the IPS behaviors of the clerks.

Based on their mean performance, the 58 clerks rotated in private hospitals performed better on IPS as compared to clerks rotated in the public hospitals ($p=0.000<0.05$). This study found no significant difference in performance on IPS among clerks rotated in Internal Medicine, Obstetric-Gynecology, Pediatrics, and EENT-Dermatology ($p=0.105>0.05$). Similarly, there was no significant difference in performance on IPS among clerks who had undergone community immersion and those who were yet to undergo community immersion ($p=0.563>0.05$).

Improvement in IPS was observed in the 14 clerks during community immersion and post-community immersion as against their performance during pre-community immersion.

In the teaching hospitals, frequent experiences of history taking, explaining clinical procedures, and doing progress notes were cited as IPS enhancers, while lack of rest, excessive workload, the absence of role models, and less trust by patients were cited as IPS inhibitors. In community immersion, on the other hand, IPS enhancers included the absence of clinical preceptors, doing routine history taking, health program lectures, and community diagnosis, and experiencing community life. The clerks' IPS were inhibited by the lack of interest by rural residents, their limited stay in the community, and difficulty adjusting to community life.

This study recommended that patients be involved in the interview assessment of medical students to provide them with relevant and specific feedback and learner support to develop their interview skills. Clinical preceptors and more clerk-patient contact at the community level should also be provided. Further study should be done to examine why empathy gradually declined while acceptance gradually improved during and after community immersion.

INTRODUCTION

Clinical clerkship at the DMSFI. Medical students of the DMSFI experience their first clinical exposure during their second year when they enroll in Medicine II (Physical Diagnosis) where they are taught "how to communicate with the patient, collect clinical data and develop the skills of history taking and physical examination." In the next year, Medicine III (Junior Clerkship) affords them their second clinical exposure, which is meant to expand their knowledge of diseases through intensive classroom lectures and clinical work in teaching hospitals. The students' final year is spent in clinical clerkship under the supervision of a medical preceptor to give them the opportunity to further develop their clinical skills in the organization of their *knowledge structure, psychomotor skills* and interpersonal relationships (DMSFI Student Handbook, 1993). The clinical clerkship is spent in the teaching facilities of three private tertiary hospitals (San Pedro Hospital, Davao Doctor's Hospital, and Brokenshire Memorial Hospital) and a government tertiary hospital (Davao Medical Center), as well as in some barangay health centers of the municipalities of New Corella and Carmen.

The clerkship program is pivotal to help the institution meet its objective of training competent general practitioners. In the hospitals, the medical clerk is assigned to five major service departments (Surgery, Internal Medicine, Obstetrics-Gynecology, Pediatrics, and Community Medicine) on rotation basis for six to eight weeks each. The clerks' hospital schedule is a cycle of 24-hour duty in the emergency ward, followed by a day of rest and an 8-hour duty in the ward and outpatient clinic. Daily activities include interviewing and examining patients in the emergency or outpatient clinics, attending daily ward rounds, and performing basic technical procedures. Bedside teaching, grand rounds, clinico-pathological conferences, and morbidity-mortality rounds are the methods of teaching. At the end of each rotation, the clerks' clinical skills are evaluated by resident-preceptors using a rating scale that assess the clerks in terms of their information-gathering and diagnostic abilities and patient-care attitudes.

The community immersion component, on the other hand, requires the clerks to live for six to eight weeks among rural residents and work with them in various health programs like environmental sanitation, immunization, health surveys, and medical consultations. This is an opportunity for the students to be exposed to various types of people and to broaden their knowledge of the important non-pathological determinants that contribute to the development of poor health.

The importance of interpersonal skills (IPS). Growing evidence links good IPS and health outcomes (Greco, et al., 2001; Garard, et al., 1980). Good IPS demonstrate to have positive influences on patient recall and understanding, adherence, symptom resolution, physiologic outcomes, patient and physician satisfaction, and the frequency of malpractice claims (Laidlaw, et al., 2001; Monahan, et al., 1988).

Critical to the acquisition of these skills is the patient, who serves as the vital link between textbook learning and medical practice (Waterbury, 2002). Patients play a crucial role in the development of clinical reasoning, communication skills, and professional attitudes, and their relevance to real life provides essential motivation for the students (Parsell & Bligh, 2001; Haffling, et al., 2001).

Despite the inclusion of patient-care attitudes in the criteria for student evaluation, the DMSFI clerks' quality of IPS in the clerk-patient interaction was observed to be at varying levels. Cases of rude and inappropriate behaviors allegedly shown by DMSFI clerks while on assignment in teaching hospitals had been reported. In particular, a faculty member who went to a teaching hospital as an outpatient was dismayed to see a DMSFI clerk rudely treating a pregnant patient who was about to deliver. The teacher was alarmed enough to report the matter to the school authorities.

In the rural communities of assignment, however, the field coordinators generally report that the DMSFI clerks behave in an appropriate manner. It is, however, common knowledge that most medical students come from middle- and upperclass families, such that they are expected to have had little social interaction with the rural poor. Their stint at the poor communities include routine activities such as medical consultations at the barangay health center on Mondays and Fridays and purok visits on Tuesdays and Wednesdays to provide health lectures, immunizations, water supply construction, and herbal propagation. There is reason to be concerned that class divides could pose problems of adjustment among clerks that would affect how they relate with community residents.

It is in the light of these concerns that a study of the students' IPS behaviors during clerkship becomes relevant. It is of interest to explore if community immersion has any effect on the interpersonal skills of clerks and whether such skills are sustained after community immersion when clerks are rotated back to the hospital.

Significance of the Study

This study could provide information on the effects of community immersion in the development of the clerks' interpersonal skills. It is hoped that the findings would allow teachers in the basic and clinical sciences to reflect on the effectiveness of their teaching-learning strategies in the affective domain and to modify, if necessary, any component of the curriculum so as to improve student performance.

Problem

Does community immersion have any effect on the interpersonal skills of Davao Medical School Foundation clerks with patients during medical interviews?

Objectives

Specifically, this study aimed to:

1. Describe the interpersonal skills profile of DMSFI clerks in general and in terms of sex, hospital assignment, and service department rotation as (a) assessed by trained observers and (b) perceived by patients;
2. Compare the interpersonal skills of DMSFI clerks who had undergone community immersion and those who were yet to undergo community immersion as (a) assessed by trained observers and (b) perceived by patients;
3. Compare the interpersonal skills of DMSFI clerks prior to, during, and after community immersion as (a) assessed by trained observers and (b) perceived by patients;
4. Identify the experiences of DMSFI clerks that enhanced their interpersonal skills while on assignment in the (a) teaching hospital and (b) rural community; and
5. Identify the experiences of DMSFI that inhibited their interpersonal skills while on assignment in the (a) teaching hospital and (b) rural community.

Scope and delimitations

All the fourth year medical students belonging to Batch 2004 of the Davao Medical School Foundation were included in this study. The study was conducted during their clerkship program and while the students were assigned in various teaching hospitals and in selected barangay health centers in the municipalities of New Corella and Carmen.

The data used were limited to clerk-patient interactions during medical interviews conducted to draw medical history, diagnosis, and treatment. The interviews assessed by this paper included those that took place in the outpatient clinics of the training hospitals and in the barangay health centers. Only patients who sought medical help at the outpatient clinics were requested to rate clerks, and only after the researcher had secured their consent.

Hypothesis

Ho:There is no significant difference in the interpersonal skills of medical clerks who had undergone community immersion and those who had not.

Conceptual Framework

Mencias (1991) developed an evaluation tool for assessing interpersonal skills based on observable indicators of empathy, acceptance, and congruence in the context of Filipin values. Interpersonal skills are categorize into interaction skills and communicatio skills. Communication skills are gleane from behaviors that facilitate the flow information. Interaction skills, on the othe hand, could be observed from behaviors th manifest sensitivity to current feelings of t client and verbal facility to communicat this understanding in a language attun to the patient's current feelings (empathy unconditional and non-manipulative ca (acceptance), and genuineness (congruence).

Illustrated below are the dimensions interpersonal skills used in this study:

REVIEW OF RELATED LITERATUR

Interpersonal skills in the medical professio

In general, interpersonal skills are essent keystones to maintain good relationships a successful careers. Supportive interperson relationships meet personal needs, build tr and confidence, and encourage cooperation. F medical practitioners, effective IPS assure t development of meaningful, positive, cari and respectful relationships with the patie whether in the hospital or in the communi These skills promote helping relationsh

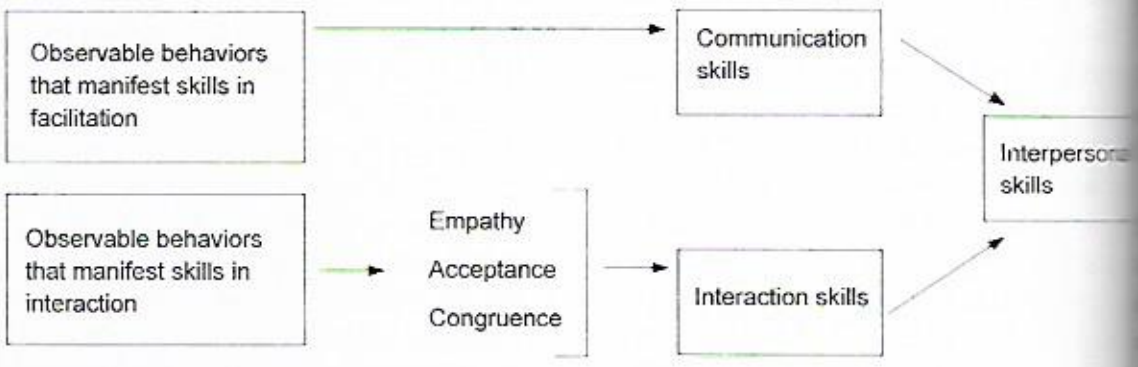

Figure 1. *Dimensions of Interpersonal Skills*

(Garard, et al., 1980) and could be observed in verbal and non-verbal expressions of the physician as he interacts with the patient.

Mencias defined the concept of IPS for the health professional as "a set of behaviors that focus on the transmission and reception of information in the practitioner-patient interaction," which is usually initiated by the physician during patient interviews. In the clinical setting, Cote and Leclere (2000) see that the practitioner should have "the ability to conduct interviews effectively and politely, the ability to understand and involve the patient and, in some cases, the ability to handle emotionally charged situations."

Garard, et al. (1980) contend that IPS do not come naturally among health professionals. They must therefore receive explicit training in order to master it. Brennan, et al. (2001) discovered that as medical students move through their years in medical school, IPS initially improve then decline in the later years. And even though medical students may receive explicit training in IPS, the lack of awareness or failure on the part of the medical staff to model these skills may have a negative effect on the students' IPS (Cote & Leclere, 2000; Garard, et al., 1980) As such, it must be strengthened among medical students. The development of IPS can be influenced by personal and socio-cultural characteristics of the health professional and patient (Combs & Purkey, 1972; McConnell, 1980; Holland & Courtney, 1998; Bustos & Espiritu, 1996), as well as by role modeling (Alora, 1999; O'Connor, 2001; Rubin, 2001; and Waterbury).

Dimensions of IPS. It is not enough that a student in the health professions understands how to elicit medical history, do physical examination, and treat patients' complaints. He should also understand the interpersonal behaviors occurring between him and the patient, to include words and body language - manner of speaking, tone of voice, eye contact, and body posture, among others (Garard, et al., 1980).

In a study conducted by Hess in 1969 (in Mencias, 1991), IPS were classified according to communication skills that contributed to information flow and interaction skills that promoted acceptance by the patient. Garard, et al. (1980) categorized IPS according to three basic types of interpersonal problems that health professionals deal with: facilitation skills and behavior change skills are required in situations that prevent him from focusing on a task; problem-solving skills are used in situations where he and the patient work together to complete a task; and assertion skills are to be used in situations where he has a problem responding to another person's behavior.

While various authors categorized IPS into different dimensions (cited in Mencias, 1991), the observable behaviors described are quite similar to one another, e.g. introducing self to patient, showing interest, eye contact, active listening, observing, encouraging, questioning, clarifying, recognizing patient's feelings, using language understandable to the patient, and summarizing. The Calgary-Cambridge Observation Guide, in particular, incorporates these observable behaviors but focuses on the structure of the medical interview (Laidlaw, et al., 2001). Cote and Leclere (2000), on the other hand, categorized the different competencies required at progressively difficult levels of the interview process.

Assessment of IPS *in the health professions.* To determine if the clerk has acquired the necessary competence in interpersonal relationships, the clinical preceptor has to observe the clerk's interaction with patients. Patients could also be asked to do the assessing, by filling up questionnaires or providing feedback on the

verbal and non-verbal behaviors exhibited by the clerk during interaction. Experts have noted that the strength of the observation method lies in the ability of the observer to relate the observed behavior to a specific construct or variable of the study. However, the presence of the observer during the study may lead to the Hawthorne effect,[1] although Kerlinger's study saw little effect of this on individuals and groups under observation.

Important details have to be considered when measuring behavior through observation. The researcher must ensure the validity and reliability of the observation measures, such that the constructs being measured by the observation method are embedded in the theoretical framework (Gronlund, 1998) and the observation tool consistently measures true individual differences across these constructs. The setting must also be considered. Newble (1992) recommends the ward as the most desirable environment in which to assess interpersonal behavior because of the possibility it provides to make multiple observations over a period of time in a variety of clinical situations. The use of multiple raters would also correct the "halo effect,"[2] error of severity, error of leniency, and error of central tendency. To increase the validity of the observation method, triangulation may be used, such as patient interviews, field notes, and content analysis.

METHODOLOGY

Research design. To determine whether community immersion had any effect on IPS, a causal-comparative research design was used. The population was divided into two post-immersion (A1 and A2) and tw pre-immersion groups (B1 and B2). Th performance of each clerk was observed an assessed separately by three trained observe using the Mencias checklist. To corrobora the assessment of trained observers on th performance of the clerks, three random selected patients previously seen by each cle were interviewed by the trained observers usi a different form of the Mencias checklist whe the items were about the patients' perception the interviewing skills of the clerk, their feeli of satisfaction with the interview process, an their willingness to comply with the medic advice of the clerk.

To determine the changes in the cler IPS over the three phases of clerkship trainin a longitudinal research design was employe Assessment of the clerks' interperson behaviors while doing medical interviews wi patients were observed and assessed prior t during, and after community immersion. On one group of the pre-immersion students (B qualified for the realization of this resear objective as their schedule of rotation allow for the observation of their performan in all the three phases. The B1 clerks we observed and assessed during their Obstetri Gynecology rotation in the hospital (pr immersion phase), during their immersi in the different barangays of Carmen an New Corella (immersion phase), and duri their return to the hospitals for their Inter Medicine rotation (post-immersion phase).

To explore the factors to possible chang in the IPS scores across the various phases, t survey design was used to solicit from the cler their attributions on their experiences - bo

[1] Also known as the "guinea pig effect", this phenomenon involves artificial behavior manifested by the subject due to his knowl that his performance is being observed and judged.

[2] The tendency for an observer's judgment of performance in one item to affect his judgment of the subject's performance in ano item, especially when both items provide measures of behavior in the same construct or dimension.

in the hospital and in the community – that enhanced or inhibited their skill at interpersonal relationships with patients. For this purpose, the B2 clerks were excluded since they were yet to undergo community immersion. Reflection papers turned in by the A1, A2, and B1 clerks as part of the requirements for Community Medicine were used to corroborate their responses in the survey questionnaire.

Research procedure. Prior to the data collection, three observers were identified and a session was provided to train them on the operational definitions used in the study and to familiarize them with the Mencias checklists. The session also became the venue to level off on the protocol to be adopted for uniformity in data gathering procedure. In addition, the trained observers toured the outpatient clinics of the teaching hospitals and the barangay health centers in Carmen and New Corella to familiarize themselves with the actual observation sites.

Data for this paper were drawn from the assessments done by trained observers and by randomly selected patients and from the results of the survey questionnaires that the clerks accomplished in January 2004. Shown on Table 1 is the layout of the causal-comparative design executed on 15 to 31 October 2003 to meet the first and second objectives of this paper.

The schedule of the data gathering for the longitudinal time-series research design employed on B1 clerks to meet the third objective of this paper is provided on Table 2.

After the last post-immersion measures of IPS performance of the B1 group were taken,

Table 1. *Schedule of Observation for IPS of Groups A and B*

GROUPS	INDEPENDENT VARIABLE	DEPENDENT VARIABLE
A (n=30)	Clerks who had undergone community immersion on:	Performance of clerks to the different behaviors of IPS as assessed by 3 observers and as perceived by 3 randomly selected patients
A1 (n=14)	May 24 to July 19, 2003	
A2 (n=16)	June 20 to September 17, 2003	Schedule of observation: October 15 to 31, 2003
B (n=28)	Clerks who were yet to undergo community immersion on:	Performance of clerks to the different behaviors of IPS as assessed by 3 observers and as perceived by 3 randomly selected patients
B1 (n=14)	November 6 to December 31, 2003	
B2 (n=14)	January 1 to February 21, 2004	Schedule of observation: October 15 to 31, 2003

Table 2. *Schedule of Observation for IPS of Group B1*

PRE-IMMERSION	COMMUNITY IMMERSION	POST-IMMERSION
September 5 to November 5, 2003	November 6 to December 31, 2003	January 1 to February 25, 2004
Assessment and patient evaluation done on October 15 to 31, 2003	Assessment and patient evaluation done on November 28 to December 10, 2003	Assessment and patient evaluation done on January 12 to 20, 2004

the A1, A2, and B1 groups were made to accomplish the survey forms to draw the data needed to meet the fourth and fifth objectives of this paper. This was done in the third week of January 2004. The scheduling of the survey was purposely done to avoid Hawthorne effect for the B1 clerks in particular.

Machine copies of the clerks' reflection copies were acquired from the chairman of Community Medicine. These were used to lend support to findings from their responses on the survey questionnaires.

The findings were then analyzed and summarized in this report.

Population and sampling. Following Fraenkel and Wallen (2003), purposive sampling was used for the causal-comparative and time-series designs of this study given the limited number of subjects available. All the Batch 2004 clerks were included in this study. However, of the 64 clerks, three could not be located at the start of the study, while another three refused to be observed. Thus, the final 58 participants included 14 clerks that were assigned in Internal Medicine (A1), 16 clerks in Pediatrics (A2), 14 clerks in Obstetrics-Gynecology (B1), and 14 clerks in EENT-Dermatology (B2). The clerks were between the ages 20 and 30 and could speak Visayan.

Data collection procedures. The first phase of data gathering involved getting the measures of IPS for all clerks through assessment by trained observers and by patients. The second phase focused on drawing measures of the IPS of the B1 clerks as they went through immersion and post-immersion. The third phase involved the administration of the survey questionnaires on the clerks belonging to the A1, A2, and B1 groups.

Assessment of the clerks' IPS by trained observers. Using the Mencias checklist for observers, three trained observers assessed the individual performance of all clerks conducting medical interviews with patients in outpatient clinics of the training hospital where they were assigned. Only one observer at a time was allowed to observe any of the interview sessions considered in this study. The observations took place on weekdays starting from 10:00 am to 4:00 pm. The observer unobtrusively positioned himself in the interview cubicle at a distance of about four or five feet away from the clerk-patient interaction.

Assessment of the clerks' IPS by randomly selected patients. After the observer was done assessing the interpersonal behaviors of each clerk, the patient previously examined by the clerk was interviewed by the observer using the second Mencias checklist. In all cases, the observers were the ones who marked the questionnaire to record the patient's responses.

Administration of survey questionnaires to A1, A2, and B1. One session was set for the distribution of the survey forms to the Batch 2004 clerks who belonged to A1, A2, and B1. At this session, the clerks accomplished the survey forms and submitted these to the researcher.

Instrumentation. The Mencias checklist used by the trained observers to assess the IPS of clerks during medical interviews consisted of 25 observable behaviors, 12 of which were reflective of interaction skills and 13 of which were measures of communication skills. The 12 interaction skills behaviors were further categorized as showing empathy (4 items), acceptance (6 items), and congruence (2 items).

The patient questionnaire was framed in Filipino and contained three sets of questions. The first set consisted of eight items that asked about the patient's perception of the interviewing skills of the clerk. The second set had six questions that referred to the patient's feelings of satisfaction with the interview process. The last set included six questions designed to elicit the patient's willingness to comply with the medical advice of the clerk as a consequence of the medical interview.

The survey questionnaire for the clerks contained four open-ended questions in English that sought to plumb the clerks' opinion on how hospital and community work affected their skills in interpersonal relations with patients.

Data analysis. Chi-square test using SPSS was employed to obtain frequency distributions and mean frequencies of the interpersonal profiles of clerks given standard levels of significance.

FINDINGS AND DISCUSSIONS

Interpersonal skills profile of the Batch 2004 clerks. The IPS of Batch 2004 in general and in terms of sex, hospital assignment, service department rotation, and community immersion experience were established from the ratings given by trained observers and by randomly selected patients.

Interaction skills. The clerks were noted by trained observers to perform more frequently in only three out of twelve behaviors that measure interaction skills, namely: attends to the comfort of patients, expresses empathy and understanding, and listens attentively to patients.

Communication skills. It was noted by the trained observers that the clerks performed more frequently on behaviors that enabled them to extract information from the patient and less frequently on behaviors that provided information to the patient.

Patients' assessment of clerks' IPS. Based on data gotten from randomly selected patients, the clerks were seen to have performed behaviors that were reflective of interviewing skills. Less affirmative responses were registered for behaviors that were reflective of patient satisfaction and patient compliance.

IPS *by sex.* No significant difference was noted in the performance in any of the dimensions of interpersonal skills between the 22 male clerks and 36 female clerks. Similarly, no significant difference across sex was found upon comparison of the patients' perception on the interviewing skills of clerks, patient satisfaction, and patient compliance.

IPS *by hospital assignment.* The clerks assigned in private teaching hospitals outperformed their counterparts in the public hospital in all dimensions of interpersonal skills. And from the point of view of the patients, the private hospital clerks got more affirmative responses to behaviors that were reflective of interviewing skills and patient compliance. No significant difference was noted in patient satisfaction between the two groups of patients.

IPS *by service department rotation.* The clerks assigned in Internal Medicine, Obstetrics-Gynecology, and Pediatrics performed better on empathy and acceptance than the clerks assigned in EENT-Dermatology. No significant differences were noted in congruence, communication skills, and overall

performance on interpersonal skills. The patients gave the clerks in Internal Medicine, Pediatrics, and Obstetrics-Gynecology more affirmative responses for items that were reflective of compliance.

IPS *by experience of community immersion.* Between those who had undergone community immersion (Group A) and those who had yet to undergo it (Group B), it was shown that Group A clerks performed more frequently than Group B clerks on behaviors that were reflective of acceptance. The patients gave Group A clerks significantly more affirmative responses than they gave Group B clerks on behaviors that reflected patient compliance.

IPS *of clerks prior to, during, and after community immersion.* Fourteen clerks, assigned for the purpose of this study as Group B1, were individually assessed by trained observers and randomly selected patients on three occasions. The first set of observations was drawn during their rotation in Obstetrics-Gynecology at the teaching hospitals. The second set was taken while the group was on community immersion in rural barangays and the last set was gathered during their return to the teaching hospitals, this time when they were rotated in Internal Medicine.

Data showed that during the pre-immersion phase, the clerks performed less on behaviors that were reflective of interaction skills (empathy, acceptance, and congruence) and performed more on behaviors that were reflective of communication skills. During the immersion phase, the clerks improved their performance on behaviors that were reflective of acceptance, congruence, and communication skills. However, their performance on empathy declined. In the post-immersion stage, the clerks further improved their performance on behaviors that were reflective of acceptance and congruence. Their performance on behaviors that were reflective of communication skills returned to its pre-immersion levels as their performance on behaviors showing empathy further declined.

Each subject's performance in all dimensions of IPS was reviewed. Following are the findings from the ratings given by trained observers:

Overall IPS. Of the 14 clerks who were the subject of the time-series study, one maintained his performance level across all phases, while 13 showed improved IPS during the immersion phase. However, only two clerks sustained their improvement. Four actually rated lower than their pre-immersion performance while seven clerks registered slight deterioration.

Communication skills. All the B1 clerks showed improvement in communication skills during the immersion phase. However, during the post-immersion phase, one further improved, four slacked off a bit although at levels higher than pre-immersion ratings, while nine performed on communication lower than their pre-immersion levels.

Interaction skills. Twelve out of 14 clerks improved on interaction skills from pre-immersion to immersion phase. Coming back to the teaching hospitals, seven manifested further improvement, three showed slight decline, while two performed at lower than their pre-immersion levels. Of the two clerks who registered declining interaction skills in the immersion stage, one brought his performance back to his pre-immersion level while the other further declined on measures of interaction skills.

On the individual element of interaction skills, the following results were obtained.

Empathy. Two out of 14 clerks maintained the same level of performance on empathy measures all throughout the three phases. Five clerks improved their performance on behaviors that show empathy from pre-immersion phase to immersion phase. Upon reassignment to the teaching hospital, their individual performances on behaviors showing empathy were as follow: one further improved; another declined to a level higher than his pre-immersion performance; and three decreased their performance on empathy to levels lower than their pre-immersion ratings. Seven clerks performed less on empathy measures during the immersion than they did in the pre-immersion. Upon reassignment to the teaching hospital, it was seen that two raised their performance on empathy back to their pre-immersion levels, while five showed further decline.

Acceptance. Twelve out of 14 clerks improved on measures of acceptance during the immersion phase. Upon reassignment to the teaching hospitals, nine of these 12 clerks showed further improvement on these measures while three manifested some decline that did not quite dip to their pre-immersion levels. Two clerks showed decline in the immersion phase, but brought their mean performance back to its pre-immersion levels when they were reassigned back to the hospitals.

Congruence. Twelve clerks improved on congruence measures during immersion. Among them, nine showed further improvement in the post-immersion phase while three declined at levels higher than their pre-immersion ratings. Two registered declining measures on congruence during the immersion phase. During the post-immersion phase, one of them rated lower than his pre-immersion performance while the other gained a measure comparative to his pre-immersion level.

IPS *according to client feedback.* Triangulating the results using patient feedback showed that the B1 group of clerks was assessed to have markedly improved during immersion in measures of interviewing skills, patient satisfaction, and patient compliance. Back in the hospital, however, the interviewing skills of the students further improved while patient satisfaction and patient compliance declined a bit, but not quite hitting the pre-immersion levels.

Clerkship experiences that facilitated or inhibited IPS. To determine what factors possibly influenced any changes in the clerks' ratings on the different dimensions of IPS, questionnaires were distributed to Groups A1, A2, and B1. The 14 clerks in B2 were not included because at the time the questionnaires were accomplished, they had yet to undergo post-immersion rotation. The results from the 44 clerks were as follow:

Hospital experiences that facilitated IPS. Doing medical histories, explaining routine procedures to patients prior to actual maneuvers, and carrying out daily progress notes were identified by clerks as the experiences or activities that enhanced their skills in interpersonal relationships with patients. A few cited bedside teaching, reporting during medical conferences, and role modeling by preceptors and other health professionals as having contributed for the improvement of their IPS.

Community experiences that facilitated IPS. Doing routine medical histories, explaining health-related topics during purok visits, and organizing community activities facilitated the development of IPS.

Hospital experiences that inhibited IPS. Work overload, lack of sleep and rest, humiliation received from clinical preceptors and nurses, inappropriate behaviors, and lack of trust displayed by patients were found by the clerks to have had a negative impact on their IPS.

Community experiences that inhibited IPS. The clerks cited the lack of interest manifested by local residents as the main inhibitor to the improvement of IPS. They further clarified that the residents' lack of interest seemed to be rooted in the clerks' inability to provide free medicine. Other reasons cited include limited time in the community, difficulty adjusting to community life, language barriers, and poor rapport with community-based health workers.

> As a whole, the Community Medicine experience was not only a vacation, but also a learning experience that enabled us to value what we already have, learn how to be health managers and researchers - how to be doctors in the community, how to relate with the people in the community, and how to be resourceful given limited resources.
>
> Too bad Community Medicine is over. Well, I guess it's back to reality. Back to being JUST a medical clerk in the city after having been a DOCTOR in the community.
>
> *- Excerpts from the students' reflection papers*

CONCLUSIONS

In the early part of their clerkship training, the clerks demonstrated less interaction skills and performed better in communication skills, regardless of gender, hospital assignment, and department rotation. The clerks who performed less in interaction skills also received less affirmative response from patients in the dimensions of patient satisfaction and patient compliance. The clerks who performed better in communication skills were given more affirmative responses on the[ir] interviewing skills. Those who had undergon[e] community immersion rated higher also o[n] patient compliance that those who had yet t[o] be assigned to communities.

Tracking the IPS behaviors of 14 clerk[s] from pre-immersion to immersion and post-immersion showed that the second phase w[as] generally marked with improvement of IP[S] in all aspects except empathy, but the gain[s] were not sustained upon the clerks' return t[o] the teaching hospitals. The community-based residents, however, gave better ratings of th[e] clerks' interviewing skills, patient satisfaction[,] and patient compliance.

Adequate communication skills seem to be indicated even at the start of th[e] clerkship program and the clerkship task that required communication served to bring the clerks' performance up to an expert level. This would explain why the measures of their communication skills leveled off in the later part of the clerkship program.

As the end of the clerkship program approached, more behaviors reflecting acceptance and congruence became manifest. While it is not conclusive whether this improvement is traceable to community immersion, the possibility could not be ruled out either. The students' reflection papers also indicated degrees of social awakening to the differences in life circumstances and an emerging awareness of the crucial role of doctors in marginal communities.

Empathy measures progressively declined in the later phases of the clerkship. Two items show up in the students' reflection papers that might be worth pursuing in further studies on empathy. One has to do with the realization that patients objectify doctors and limit their judgment of the clerks' professional competence on his ability or inability to provide the cure in

...nses on their ...d undergone ...gher also on ...o had yet to ...of 14 clerks ...n and post- ...d phase was ...ment of IPS ...ut the gains ...rks' return to ...nunity-based ...atings of the ...t satisfaction. ...skills seem ...start of the ...rkship tasks ...rved to bring ...expert level ...sures of their ...f in the later ...hip program ...s reflecting ...me manifest ...whether this ...community ...not be ruled ...on papers all ...wakening to ...nces and an ...ucial role of ...s. ...vely declined ...ip. Two items ...on papers that ...her studies on ...he realization ...nd limit their ...al competence ...ide the cure in ...form of free medicine. The perception of ...patient's disappointment in the clerk over ...inability to provide free medicine may set ...an unconscious response in the clerk - that ...psychologically distancing himself from the ...patient. Also, the students expressed concern ...about maintaining emotional control in the ...face of some pitiful cases that they dealt ...with. Blocking empathy, whether consciously ...or unconsciously done, might have been an ...attempt to salvage one's clinical objectivity in ...order to serve the best interest of the patient.

Measures of acceptance continued to ...improve in the post-immersion phase, as the ...students' exposure to community life lent to ...them the context to understand the health ...condition of the patient. They not only see the ...disease in the patient, but also other factors ...that contribute to his health condition.

RECOMMENDATIONS

Based on the findings of this study, the ...following are recommended:

1. Patient participation in medical students' ...interview assessment should be developed ...to imbue students with relevant and ...specific feedback and learner support.
2. Increase awareness among clinical ...preceptors and other health professionals ...of their role in the development of the ...students' competence in interpersonal ...relationships with patients, both in the ...hospital and in the community.
3. Provide more clerk-patient contact at ...the community level to enable students ...to gain more insights into the socio-...economic factors that contribute to the ...health condition of patients.
4. Do follow up studies on the decline of ...empathy.
5. Further study the effect of less duty hours on the IPS of clerks while on hospital duty.

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Client-centered Approach in Reproductive Health Services: A Case Study of the Sustainability of Program Implementation

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ABSTRACT

This five-year study examines the factors that affect the sustainability of a client-centered family planning/reproductive health (FP/RH) program implemented by the Department of Health (DOH) in Davao del Norte and Compostela Valley.

Four data sets were taken to draw the indicators of program sustainability: before the intervention study started (SA1 in late 1997); six months after the intervention was introduced (SA2 in 1998); two years after the intervention started (SA3 in 2000); and three years after the culmination of the project (SA4 in 2002).

Situational analyses, focus group discussions, and interviews were used as data sources. Thirty-two of the forty targeted health providers served as the units of analysis. Client perception was utilized to determine how adoption of QOC was sustained. In-depth interviews of key health officials and program managers provided insights into the particulars of implementing the intervention.

Study results revealed that the adoption of QOC was sustained -albeit at a slow rate. No significant increase was observed up to the second year of implementation of the project, except for the two elements of the QOC: information exchange and choice. Overall, the factors conceptually correlated to sustainability of adoption were found not to correlate with QOC when analyzed quantitatively.

However, significant increase was evident three years after the withdrawal of intervention support. This could be explained by the fact that the GATHER approach used by the health providers mediated the transfer of knowledge needed for health workers to be creative despite limited support and lack of funds and materials.

The study recommends the following: integrate other maternal and child health services in sustaining QOC; use of a structured approach in conducting operations research on QOC which integrate maternal and child health services; and use of GATHER in other health programs, including the extensions of QOC to the private sector and its integration to the academic curricula of health-related professions.

INTRODUCTION

The Philippine population policy. A national policy on population was first articulated by the Marcos administration (1969-1986). In the 1970s, the family planning (FP) policy focused on fertility reduction and contraceptive use. The succeeding Aquino administration (1986-1992) extended the policy beyond fertility reduction to cover considerations for the status of women, maternal and child health, and other health issues such as those brought by urbanization. Presidents Fidel V. Ramos (1992-1998) and Joseph E. Estrada (1998-2001), in their respective terms, emphasized the reproductive health agenda outlined in the 1994 International Conference on Population and Development (ICPD) held in Cairo and in the 1995 Fourth World Conference on Women in Beijing.

The incumbent Arroyo administration (2001 to present) pursues a population policy that emphasizes reproductive health and adolescent health and development.

Through all these years, the DOH has tried to manage the execution of the evolving policy. Today, the department's focus has shifted from pursuit of purely demographic objectives to translating the Cairo paradigm by stressing QOC in its FP/RH program.

Client-centered approach in reproductive health service. Population Reports 1994 recognizes that clients are the experts on their own personal circumstances and wants, such that client preferences ought to guide every aspect of service delivery of reproductive health services. The adoption of this approach requires health providers to shift their attitudes and use their expert knowledge to accommodate the preferences and concerns of their clients - "from clinic hours to counseling techniques to contraceptive decision making". In this way, informed choice and genuine QOC are achieved.

At the international level, considerable evidence has now accumulated to support the contention that better quality of services can influence contraceptive use (Piotrow & Meyer, 1991). However, very few national FP programs have been implemented following the client-centered approach as it is viewed as unrealistic, costly, and irrelevant in the context of developing countries. And aside from the methodological issue in measuring QOC, its operational execution has also been limited in the actual provision of services in the public health sector. In the Philippines, with little precedence in executing client-centered reproductive health programs, there is little experience to draw from. There is, thus, a need to demonstrate the feasibility and impact of services at the field level (Jain, et al., 1992).

Tailoring a pilot client-centered FP program for local needs. In response to the Cairo Conference agenda, the Provincial Health Office of Davao del Norte, the Social Research Training and Development Office (SRTDO) of the Ateneo de Davao University (ADDU), and the Population Council designed an experiment in ten municipalities. Health providers in the ten municipalities found in Davao del Norte and Compostela Valley were introduced to an intervention on QOC as part of preparing them to deliver a client-oriented Family Planning and Reproductive Health Services.

The intervention focused on 1) shifting the providers' and program's orientation from method to client, 2) ascertaining information from clients to understand their needs and circumstances, 3) involving clients in the selection of the initial method, and 4)

providing clients with adequate information. The intervention was undertaken from 1997 to 2000 and consisted of two components: the training of health providers on GATHER[1] and the training of outreach workers to provide appropriate information by referring and following up clients in the community level (Jain, et al. 2002). The results of this study indicated that the client-centered approach through QOC was feasible with the modification of the following: interpersonal relations; technical competence; information exchange; client choice; and mechanism for continuity of services.

At the close of the intervention, the DOH implemented an expanded version of the program to cover all the municipalities in Region XI. As a means of monitoring the quality of services, the Family Planning Coalition was organized from which the Quality Assurance Committee was formed.

In general, scaling up intervention programs brings a number of operational concerns that need to be addressed. Foremost among these is the question of funding. Programs heavily dependent on external funding are likely to experience a rough transition upon expansion. Steven and Stevens (1998) observed that expansion involves operational difficulties and usually goes through a series of experimental variations, such that the sincere commitment of the program manager to motivate the staff and to sustain interest is required. Just as important, there is the question of wh ther what works in one community could work in the same way in other communities (Frejka, 1998).

This follow up study was done to determine whether the adoption of QOC on an expanded scale was feasible in the absence of logistics and financial assistance from outside funding agencies.

Significance of the Study

The study aimed to provide information for the local program managers of Family Planning Region XI on the feasibility of expanding a client-centered approach in FP through QOC in the public health sector. The DOH would then be able to use the data to assess the needs of the health centers and to find a norm in providing quality assurance. The results of the study would also be of use to the Family Planning Coalition team, specifically the Committee of Quality Assurance, as baseline information towards improving services in the health centers. It will likewise provide the basis for collaborative action to improve FP/RH services in Region XI.

The study will be useful in developing a theory on the adoption of QOC in health services delivery in the public health system.

More importantly, the community will benefit from the study in making the FP/RH services more accessible and more client-centered. The research findings will provide the bases in the formulation of policies to make the client-centered paradigm a more feasible approach towards the attainment of the reproductive health needs of the Filipino people.

Problem

Can quality of care in client-centered Family Planning/Reproductive Health project be sustained after three years using local resources?

Objectives of the study

Specifically, the study sought to:

1. Determine the characteristics of health providers in the client-centered FP/RH services in Davao del Norte and Compostela Valley in terms of their training experiences, methods provided,

[1] Greet, Assess, Tell, Help, Explain & Refer/Return

knowledge in FP, attitudes towards FP, and readiness to provide QOC service;
2. Verify whether the adoption of QOC was sustained by these health providers as perceived by the clients;
3. Identify the factors that contributed to the sustainability of adopting QOC; and
4. Describe the difficulties in adopting the QOC approach in the absence of external funding support.

Scope and delimitation

The study assessed the adoption of the intervention three years after it was introduced in ten experimental areas and after the original program had been expanded without external funding support. Extent of adoption was measured comparing the quality index over a period of time using the framework in QOC developed by Bruce (1990). The factors related to the adoption were analyzed using both qualitative and quantitative methods. The variables considered were participation of program managers, participation of supervisor, channel of communication, characteristics of adopters, and physical environment.

The design of the study excluded the use of a control group since the study was limited to the diffusion process of the QOC technology of the experimental group.

Conceptual Framework

Patterned after Roger's 1983 model of the innovation-decision process, the conceptual framework used as the basis of this study is presented below:

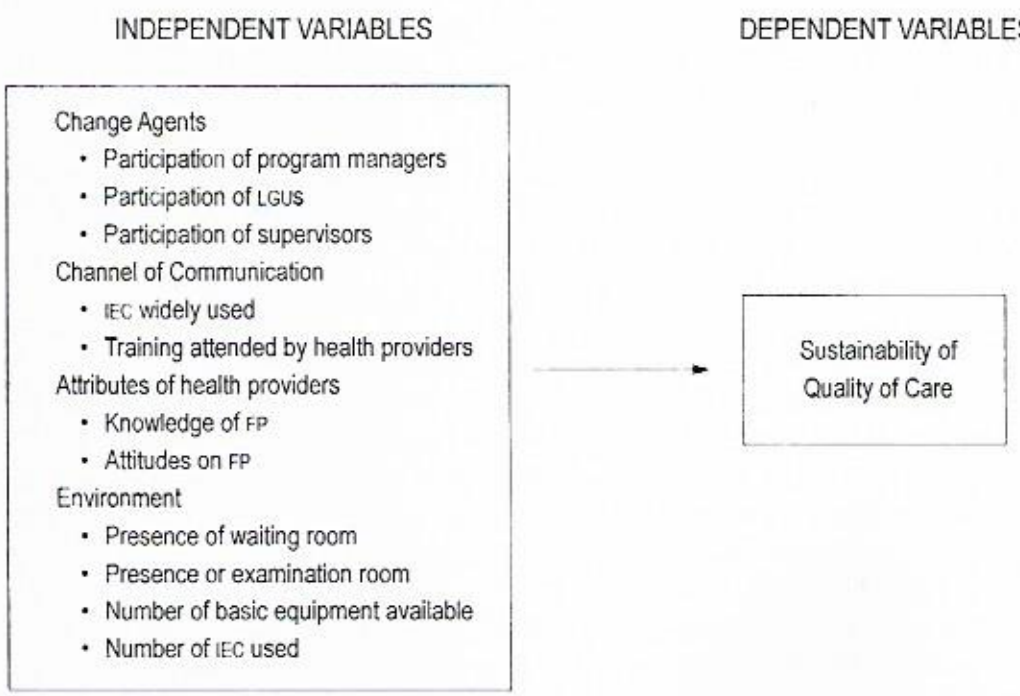

Figure 1. *Framework for analyzing the relationship of the Independent and Dependent Variables.*

REVIEW OF RELATED LITERATURE

This section includes the following topics: 1) response to ICPD Agenda, 2) local needs for information exchange, 3) client-centered approach, 4) need for QOC, and 5) the factors affecting adoption of QOC.

Response to ICPD *Agenda.* The 1994 International Conference on Population and Development in Cairo envisioned the family planning programs as client-centered, a shift from the demographic approach in population management. The conference recognized the rights of all people to reproductive health and the importance of client needs. Contraceptives came to be recognized not merely as tools to achieve demographic targets but as a means to empower clients to prevent unintended pregnancy, prevent sexual transmission of diseases, and cope with adverse social and family conditions related to these efforts.

In response to this, developing countries with stringent population policy made changes to accommodate the new thrusts. This involved reorienting health workers to provide more client-centered services, expanding providers' capacity to deal with underlying issues of gender, sexuality, and partner relations, and broadening the constellation of services to include neglected RH concerns. Haberland and Meacham (2002) report that about 22 projects were done in developing countries to document the efforts of policy makers, program managers, health workers, health advocates, and clients. These studies provided guidance to others on how best to pursue and implement the ICPD Agenda.

Local needs for information exchange. At the local level, studies have shown that very few health service providers give counseling, provide relevant information, or do regular and systematic follow up of clients. For example, studies in the Davao area (Region XI) have shown that most service providers do not provide counseling services. Midwives and volunteer health workers rarely conduct follow up visits (Lacuesta & Amoyen, 1993). Operations research studies (Sealza, 1993; Rood, et al., 1993) found that very few respondents reported clinic personnel to have given full information on the different family planning methods. Patron and Palabrica-Costello (1995) reported that most women could not recall being informed by health care providers about the potential side effects of these FP methods. In Davao City, Sealza found that those who were not informed about the advantages and disadvantages of their FP method of choice were likely to drop out from DMPA use.

Need for quality of care. The client-centered approach is synonymous with quality of care. Brown, et al. (1995) pointed out that as applied to international FP programs, QOC means "a managerial philosophy that accords high priority to a client's interests and needs." Since QOC is relative, the "gold standard" is yet to be established. Most would agree that client satisfaction is the ultimate indicator of quality of care.

Measuring client satisfaction was envisioned to improve quality and provide better prospects for sustainability (Williams, et al.) Clients' perception affects their decision to return and to recommend the services to other potential users. As a result, sustainability is enhanced because the clients' favorable perceptions about the services increase the number of new and continuing users.

A number of strategies have been adopted to foster quality. These include the Total Quality Management (TQM) and Continuous

Quality Improvement (CQI). Under these strategies, changes are introduced at all levels of the organization to satisfy the needs of the client. Based on the Donabedian framework (1980 & 1988), Bruce and Jain's Quality of Care is composed of six elements: choice of methods; information given to client; technical competence; client-provider interpersonal relations; mechanism to ensure continuity; and constellation of services. However, despite being internationally accepted, little empirical verification of the framework has been undertaken. Still, according to Williams, et al. (2000), it provides a starting point for the development of evaluative tools and indicators based on the six central elements of quality.

Factors affecting adoption of quality of care. In the absence of studies on factors affecting FP/RH services in the Philippines, studies done in the sub-Saharan region will provide a good review for this section. Miller, et al. (1998) identified certain barriers and stimulants to quality services. Situational analysis indicated that improvements in infrastructure could lead to better service quality for clients. Heddad and Fourier (1995), in their study on Zaire villages, were able to turn up that the clients could be motivated to pursue the objectives of the program beyond the limits of local resources. In their report, they detailed how clients took pains to access the use of the microscope in another health station since the equipment was not available in their community.

In related endeavors, several studies demonstrated that adoption of innovation had been found to be influenced by the participation of local leaders, the learning methodologies, the role played by supervisors, and the attributes of the health service providers.

According to Depositario (1995), loc leaders become good change agents becau people will readily accept new practices th their leaders have adopted. In the diffusio adoption process of any technology, loc leaders are expected to perform vari functions, to include initiation, disseminati interest articulation, linkage, overseer, a social mobilization.

As to learning methodologies, Martin and Plopino (in Valera, 1987) argue that problem-based method of teaching will useful to health care providers in conveyi sensitive FP/RH technology to mothe Among farmers, Oakley and Garforth (198 mentioned that the group method works adopting agricultural technology in ma parts of the world. Group meetings and gro demonstrations have been extensively used Southeast Asia, Brazil, Colombia, and oth parts of Latin America.

Simmons and Simmons (1992) cauti that if the top management is not committ to quality, the lower level management a frontline supervisors will also be less motivate Supervisors monitor and evaluate proje to ensure that targets are met and work proceeding according to schedule and pla Valera and Plopino (1987) pointed out th monitoring systems should cover data that a important for rational decision-making. Ba information should include input deliver which is the cost of inputs, and activities be judged as consistent with the norms a standards set by the project. Critical extern factors such as changes in institutional polici must be part of the monitoring activities.

Good QOC depends greatly on t receptivity of the health providers and their technical competence and motivatio Bhatia (1999) showed that human resour has to be skillfully managed. In the study do

Karnataka in India, key staff members lacking and those that were in place not fully utilized to perform the services Low morale, lack of supervision, faction and corruption contribute to improvement in coverage and QOC.

METHODOLOGY

design and procedure. This is a longitudinal, quasi-experimental research taken from 1997 to 2002, incorporating results of an earlier study done by Lacuesta, Amoyen, and Costello (1998). The earlier study provided the data sets for SA1 (pretest before the intervention), SA2 (posttest six months after the intervention), and SA3 (posttest two years after the introduction of the innovation). Additional analysis was conducted to draw SA4 data (posttest three years after the culmination of the project).

of the study. At the start of the intervention in 1997, the ten municipalities included in this study still belonged to Davao del Norte. However, with the formation of the province of Compostela Valley in the next year, the administrative jurisdiction of some of these municipalities was transferred. The political meiosis had no adverse effect on the conduct of the study as in the first year of the existence of the new province, its local government continued to draw financial support from Davao del Norte.

The study sites were mainly agricultural communities inhabited by descendants of Christian settlers from Luzon and Visayas. Strong LGU support, high Total Fertility Performance (TFP), and low Family Planning Continuation Rate (FPCR) characterized these sites (1996 Family Planning Survey; Lacuesta & Amoyen, 1996).

Population and sampling. Using the criteria of geographic location, level of urbanization, client-provider ratio, and population size, the municipalities of Davao del Norte were sorted into ten pairs, excluding two that were just too different on the basis of accessibility and urbanization level. For each matched pair, random assignment was done to form the experimental and control groups. Four service delivery points (SDPs) were chosen purposively in each municipality, to include the RHU or Main Health Center (MHC) and the three Barangay Health Stations (BHSs) closest to the poblacion. Thus there were ten MHC/RHUs and 30 BHSs targeted for each province, for a total of 80 SDPs. In this report, only data from the experimental group were considered necessary to meet the objectives. Thus only a total of 40 SDPs belonging to the experimental group were included in the study.

For each SDP, the service providers include one doctor, one nurse, and ten midwives, for a total of ten doctors, ten nurses, and 40 midwives in the sample. Of the 40 midwives, however, only 32 were included in the study. Eight midwives were unavailable for interview for reasons of death (2), leave (3), reassignment (2), and retirement (1).

Exit interviews of clients were used to assess the QOC provided by the midwives during consultation. At least five clients per visit in each SDP were targeted. However, only a few clients showed up during most of the visits, such that only a total of 89 exit interviews were obtained.

Random selection of two municipalities per province was used to draw two groups of health providers for the FGDs. Separate FGDs were conducted for Montevista and Pantukan in Compostela Valley and New Corella and Panabo in Davao del Norte. The FGD participants included all the midwives from

the RHUs and the three nearest barangays. Participation for the FGDs for the clients was by invitation. The client-participants were selected from the individual list of clients in the Montevista, Pantukan, New Corella, and Panabo SDPs.

Three municipal officers who were active in the intervention activities in the 1997-2000 study were sought for in-depth interviews. Also interviewed were the Provincial Health Officer of Davao del Norte and the Family Planning Coordinator for Region XI.

Data collection procedure. There were three main sources of data: situational analysis, focus group discussion, and in-depth interviews. The situational analysis (SA) used in this study was developed by the Population Council in 1989 to describe the strengths, weaknesses, and quality of care of FP programs.

Four FGDs were conducted, two with clients and two with service providers.

In-depth interviews were conducted with the supervisor of the program managers. Due to problems of availability, only six out of 10 targeted key informants were interviewed.

The data collection teams were trained on the different data collection techniques such as interviewing, observing, and inventory listing. The training also familiarized interviewers with the elements of QOC and the instruments used in SA.

Instrumentation. Situational Analysis involved the inventory of health facilities, staff interviews, and exit interviews. The inventory of health facilities at the SDPs was checked against a standard list. Staff interviews followed indices designed to determine the knowledge, attitudes, and attributes of health providers that affected QOC. Exit interviews with clie on the other hand, were conducted in Visay following an interview guide.

The interview guide for the FGD w health providers consisted of questions rela to supervision, LGU support, and attitude local program managers towards provid QOC services.

The interview guide for the FGD w clients delved on their perceptions about Q and whether they perceived themselves recipients of it during their visit at the SDPs.

In-depth interviews were conducted w the use of open-ended questions, as pertine to the experience of the key informant bei interviewed.

Data analysis. The study utilized bo qualitative and quantitative analyses.

To determine the extent of adoptio an index of QOC was formulated. Scores the index were compared with the results SA1, SA2 and SA3 that were gotten betwe 1997 and 2000. To determine the differen of means, t-test were used, while qualitati analysis was utilized to describe the adoptio process.

To determine the factors that affe sustainability, the Pearson Product Mome was used to check for correlation betwe indices of independent variables given in th conceptual framework and the derived measu of QOC. For independent variables that yielde nominal data, Pearson R was used to correla interval data against dummy data.[2]

Qualitative analysis was used to tre data gotten from in-depth interviews of ke informants.

[2] Following O'Brien's technique (1981), a dummy data refers to nominal data translated into interval data. F example, "y" is assigned as "1" and "n" is assigned as "2", thereby transforming "yes" and "no" into interval data.

FINDINGS AND DISCUSSIONS

This section provides the analysis and interpretation of data on the background characteristics of the health providers, preparedness of the health centers, channels of communication, clients' perception of QOC, the extent of adoption of the QOC, and the factors affecting adoption.

Background characteristics of the health providers. The units of analysis in this study were the midwives in the experimental group. They were followed through from the first Situational Analysis (SA1) conducted in 1997 to SA4 in 2002. Of the 40 midwives in 1997, only 32 were interviewed in 2002. Nine were from the RHUs while 23 came from the BHSs. On the average, they had 13 years' experience providing FP services with a mean of five FP trainings attended after the culmination of the project in 2002.

These trainings involved counseling techniques (59.4%), basic comprehensive training (50%), refresher course on counseling (50%), interpersonal communication (46.9%), IMPAC training (43.8%), information, IEC (43.8%), management information system (34.4%), pre-marriage counseling (25%), supervision and evaluation (21.9%), and mid-level management planning (18.8%).

Specifically on the theory and practice of FP, the midwives had attended an average of seven training courses on FP theory and seven on-the-job training (OJT), with more than half (53.1%) receiving their most recent training more than a year since the last interview. These trainings included GATHER (15.6%), refresher course on FP (15.6%), and FP counseling (15.6%) conducted by the Provincial Health Office and the AVSC (56.3%), as well as the DOH (40.6%). In general, the midwives believed that they had adequate training in addressing side effects (96.9%), that they performed their duties adequately (93.8%), and that the trainings helped them to identify and manage sexually transmitted diseases (71.9%).

On GATHER in particular, it was shown that only 81.3 percent of the midwives received training from the AVSC. The research team targeted those who had no GATHER training for a refresher course during the duration of the intervention. However, their attendance in the sessions were sporadic, with a total of 15 midwives (46.9%) attending at least one of the six sessions. However, when asked whether they needed another refresher course, 59.4% answered in the affirmative.

To determine whether the health providers applied what they learned in the GATHER training, a checklist of activities they undertook as health providers was designed. Data showed that the majority did counseling (87.5%) and performed physical examinations on clients (62.5%). They also provided both supplies (46.9%) and client consultations (28.1%). On one-to-one discussions with clients, about 40.9 percent discussed all FP methods, 13.6 percent provided new information on FP, and 13.6 percent focused on immunization and environment.

The midwives reported providing clients FP methods, to include pills and injectables (100%), condoms and intra-uterine devices (90.6%). Lactation ammenoria (84.4%) was recommended over natural family planning (53.1%). About 31.3 percent referred their clients to hospitals for vasectomy or ligation as these services were not available in the clinic.

Following the Johns Hopkins Population Information Program (Hatcher, et al., 1997), a knowledge index was designed to assess the midwives' FP knowledge. The results are shown in Table 1 in the next page.

Table 1. FP *Knowledge Index*

Statement	N=32	%
When a woman is likely to get pregnant	8	25.0
When to start taking pill	32	100.0
How often to take a pill in a day	32	100.0
What to do when one pill is forgotten	32	100.0
What to do when two pills are forgotten	32	100.0
What to do when user did not appear on scheduled visit	30	93.8
IUD can be inserted anytime during the menstrual cycle	25	78.1
IUD can be inserted ten minutes after delivery	1	3.1
IUD can be inserted 4-5 weeks postpartum	28	87.5
How to check if IUD is in place	31	96.9
Number of years IUD is effective	23	71.9
When should clients start injectable	27	84.4
When to return for next injection	29	90.6
Advise client if breastfeeding (continue and use any method except pill)	20	62.5
Methods for stopping Vasectomy Ligation	 15 22	 46.9 68.8
Mean	13.06	

The midwives' attitude towards FP was measured using the restriction criteria they employed. The assumption is that the less restriction employed by the health provider in screening FP clients, the more favorable is her attitude toward FP. When SA3 and SA4 data were compared, a statistically significant difference was drawn showing an improvement in attitude towards FP methods three years after the close of the project. The providers became less restrictive and presented the clients more choices.

Preparedness of health centers. The readiness of SDPs to provide client-centered FP/RH services was assessed based on an inventory of required facilities and an inventory of required equipment. Data show that three years after the culmination of the intervention, the SDPs still suffered from lack of certain resources that are important for optimal delivery of client-centered FP/RH services.

The inventory of facilities was used to check whether the SDPs had the essential requirements for providing QOC to clients. Shown in Table 2 are the results of the inventory:

Table 2. *Readiness of Infrastructure Index.*

Infrastructure requirement	F	%
Available piped in running water	25	78.1
Adequate supply of clean water	4	12.5
Available electricity	25	78.1
Available waiting room	29	90.6
Separate waiting room for examination	28	87.5
Auditory privacy maintained	29	90.6
Available working toilet	30	93.8

In Table 3, the health providers detailed the availability of the following essential equipment:

Table 3. FP Equipment Inventory

Equipment for FP	F	%
Speculum	24	75.0
Sphygmomanometer/BP	29	90.6
Weighing scale	28	87.6
Flashlight/gooseneck lamp	26	81.3
Stethoscope	27	82.5
Gloves	26	81.3
Forceps	27	82.5
Examining table	27	82.5
	26	81.3

...of communication. In terms of Information, Education and Communication (IEC) materials, the most commonly available were posters (59.4%), flipcharts (59.4%), sample contraceptives (53.1%), and leaflets (50%). It is noted that these leaflets were developed for the intervention program on FP in 1998. They were developed by the Provincial Health Office with assistance from the health providers.

The majority (96.9%) reported using the IEC materials with new and old clients alike. During the FGD sessions, they expressed the need for budget to procure IEC materials. Some of them reported that they were procuring these IEC supplies through the Matching Grant Program funded by the LGU and the USAID.

Based on the interviews with program managers, the different LGUs strove to increase their access to funds for the improvement and renovation of health facilities. Most notably, the Kalusugang Sigla Movement[3] of the DOH encourages local health units to improve not only their physical infrastructure and logistics, but also to improve the attitudes of health providers, community participation, and record keeping system in the SDPs.

Clients' perception of QOC *received.* Quality of care is usually assessed using both objective and subjective measures. Objective measures, known as quality assurance measures, are used by program managers to assess QOC based on medical standards of quality. On the other hand, the subjective measure considers the beneficiaries' opinions and perception as important. In this study, the perception of the clients on QOC received was first asked during the FGD sessions.

The clients found it difficult to translate QOC into the vernacular. To them, QOC meant satisfying services and involved dimensions of interpersonal relations (100%), provision of information (86.9%), provision of choice (43.5%), health provider's competence (43.5%), and accessibility of health provider (34.8%).

The clients generally perceived the health providers to have been accommodating and that they had been "treated well" during their clinic visit. Probing into the subjective perceptions of the clients, variations in interpretation of having been "treated well" were revealed. For one, it had to do with the amount of time provided by the midwife to discuss FP methods with them. For another, it had to do with the general attitude of respect and kindness shown by the provider. Still, others equated it with the sensitive manner used by the health provider in asking about personal FP/RH issues. Other matters raised involved the availability of the midwives for consultations and privacy issues.

Data from exit interviews with the clients show that QOC was correlated with client satisfaction. They perceived the opening time to

[3] Selection criteria include age, number of children, and marital status

be convenient (94.4%) and the waiting period reasonable (55.1%). When asked whether they would encourage friends to go to the health center, nearly all (98.9%) said yes.

Extent of adoption of the QOC. Figure 2 shows the measures for adoption of the QOC technology by the service providers at each phase of the study.

As shown in Figure 2, a slight increase was observed six months after the GATHER Training, but this tested out to be not significant. This could be attributed to the cautious application of the change in knowledge after the training.

Between SA2 and SA3 two years after, a slight decline in the use of QOC technology was recorded, suggesting that QOC had minimal effects on adoption. This could be attributed to a "wait-and-see" attitude of adopters.

However, three years after the intervention ended, a significant change was noted between SA3 and SA4. The trend seems consistent with the Roger's model of adopting diffusion innovation (1983). The downtime in between receiving new knowledge and actually incorporating it in the adopters' repertoire of behaviors was a time for the midwives to form congruent attitudes towards the use of GATHER to provide QOC to the clients.

The sharp increase in the SA4 measure indicated that the QOC technology was adopted and institutionalized by health providers an program managers. This significant change w revealed only after the participants went throug a process of adoption - from awareness, attitud formation, and decision to implementation.

Factors affecting adoption. In this stud sustainability has been defined as the adoptio of QOC three years after the intervention perio The factors considered as related to adoptio of QOC were (1) participation of progra managers, (2) participation of supervisors, (channels of communication, (4) participatio of adopters, and (5) attributes of adopte Table 4 shows the correlation of these facto with QOC Index.

All items were shown to have no significa influence on the quality of care. The resu of the correlation may be explained by th skewed QOC scores. There were 27 out of th 32 respondents who had scored on the upp limit of the QOC Index, indicating that most them (84.4%) did practice QOC regardless the influence of the factors being investigate Data from the in-depth interviews and th FGD with health service providers revealed th about 75 percent of the midwives discusse the operational considerations for executi GATHER in their respective SDPs. Furthermo 96.9 percent included these considerations their planning activities.

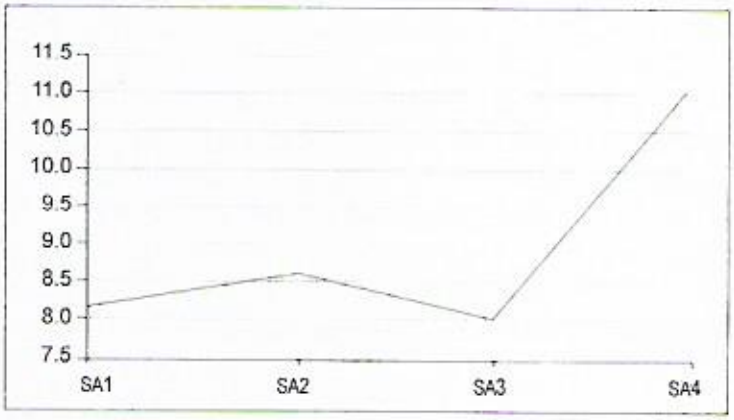

Figure 2. *Process of Adoption of Quality of Care Technology*

doption of a client-centered

Table 4. *Factors Correlated*

Factor
Participation of program managers
Participation of supervisors
Channels of Communication
Number of trainings attended
Attendance in training on cou
Attendance in IEC training
Number of IEC materials used
Participation of adopters
Number of years in the clinic
Number of years in FP servic
Presence of examination room
Presence of auditory privacy
Presence of visual privacy
Number of equipment used
Attributes of adopters
Knowledge of QOC technology
Attitudes towards QOC

Barriers and stimulants to

This section examines the
ceptiveness of health
modifiability of technolog
adoption of QOC.

Supervisors play a
monitoring and evaluating
ensuring that monitoring
that are important in dec
mady, supervision appeared
felt. About 46.9 perce
supervisors introduced
activities to improve their
A majority reported that
featured in planning sessions
they were encouraged to
the SDPs (78.1%). There we
reported that logistic and
was provided in various w
and supervisors. For the
the midwives relied on
execute QOC given what
their disposal.

Factors Correlated with Quality of Care Index

Factor	N	Pearson r	Significance
of program managers	32	-0.001	0.997
of supervisors	32	-0.245	0.176
of Communication			
of trainings attended	32	-0.132	0.478
in training on counseling	32	-0.002	0.991
in IEC training	32	-0.076	0.628
of IEC materials used	32	-0.115	0.532
of adopters			
of years in the clinic	32	0.098	0.594
of years in FP service	32	0.111	0.546
of examination room	32	0.106	0.564
of auditory privacy	32	0.132	0.423
of visual privacy	32	0.132	0.423
of equipment used	32	-0.260	0.889
of adopters			
of QOC technology	32	-0.056	0.762
towards QOC	32	0.281	0.119

and stimulants to sustainability of QOC.

section examines the role of supervision, of health providers, and of technology in affecting that of QOC.

Supervisors play a crucial role in and evaluating projects and in that monitoring systems cover data important in decision-making. In this supervision appeared to be moderately About 46.9 percent reported that supervisors introduced training and refresher to improve their GATHER technique. majority reported that the technology in planning sessions (96.9%) and that were encouraged to continue using it at (78.1%). There were 68.8 percent who that logistic and operational support provided in various ways by health offices supervisors. For the most part, though, midwives relied on their creativity to QOC given what resources they had at disposal.

On the part of the program managers, in-depth interview data revealed that despite lack of external funding support, they had come to recognize and own QOC technology as an important tool in meeting the objectives of the public health sector. Thus, they were moved to innovate when the situation presented itself. They did so by encouraging frontline personnel to continue its usage and by taking the necessary steps to access fund sources to equip the SDPs and the health providers with the requisite materials and training.

Receptivity of the adopters among health providers was important in the adoption of QOC. It was reported in the FGDs with the midwives that they felt motivated to continue the GATHER approach, despite having experienced difficulties in executing all of its elements. Some reported that the GATHER approach proved useful in the diagnosis and treatment of other community concerns like tuberculosis (TB) prevention. The effectiveness

and workability of the GATHER approach was something that the health providers realized over time, and in this they were aided by the refresher courses that were ongoing at the time when they were assimilating congruent attitudes. Between SA3 and SA4, the health providers' knowledge did not really change. However, their behavior did, especially on the matters of providing clients with choice and in lowering restriction criteria for delivering FP/RH services.

At the close of the intervention, the health providers report that their familiarity with the GATHER technique allowed them to modify the use of it as appropriate to what they judged was the requirement during the client-midwife interaction. Unlike during the intervention phase when they felt constrained to follow the exact sequence, their continued use of the approach allowed them to accurately judge which steps ought to be emphasized and which ones could be done without. In doing so, they were better able to adjust the time spent with each client in order to adequately service all who came to the clinic.

In the FGD, the participants were unanimous in their claim that there were no real difficulties in adopting QOC through a modified GATHER approach. However, they suggested the need for more refresher courses.

Some of the barriers to QOC that were identified in the FGD include the resistance provided by the Church, lack of FP training especially on IUD insertion and in counteracting side effects of FP methods of choice, lack of funding support from LGU, lack of supervision, and the fast turnover of BHWs whose longer stay could have provided smooth procedures for referral and follow-up of clients in the community.

CONCLUSIONS

Adoption of innovation depends on the complexity of innovation and the time involved in the adoption. The social system by which the innovation was introduced could either hinder or facilitate the adoption of the innovation. In this study, restrictive norms in introducing GATHER initially affected the attitude of the health providers towards the QOC technology during its introduction. However, at the close of the program, the midwives found that the approach was actually preferable given modifications to suit their immediate needs and purposes. Thus, five years after they were introduced to the technology, almost all of the midwives incorporated it in their repertoire of clinic behavior, not only for FP/RH-related concerns of their clients, but for dealing with other community health issues as well.

Knowledge was demonstrated to be very important in enhancing the skills of health providers to deliver QOC.

QOC was shown to be consistent with the values of the health providers. Though it required training, the idea is not difficult to introduce in the health system because both health providers and their clients agree that it is grounded on a noble idea: Clients' satisfaction is the ultimate criteria in the effectiveness of community health service.

RECOMMENDATIONS

Based on the results of the study, the following recommendations are made:

Policy related. The study shows that QOC is feasible, though it would take a longer time to incorporate in the health system. If services are to be made accessible to the clients, health

providers should be prepared to integrate other maternal and child health services in their existing FP program. This would attract clients to return, not only because of QOC, but also because of the other services - like gynecological and child-related services - that could be accessed at the clinic. When health centers are prepared to provide quality FP services, this would entail working out the balance between access, quality, and cost. Realistically, this might mean the adoption of some form for charging clients.

Research related. The DOH should conduct an operations research to determine the effects and problems of integrating services and charging for services other than FP. Operations research should also be conducted to determine the effect of using GATHER for other health programs managed in the community level. Finally, situational analysis must be regularly conducted to monitor the nature and level of preparedness of SDPS to provide client-centered services.

Program related. Since QOC was demonstrated to be sustainable, it should be expanded to the private sector and should be introduced into the academic curricula for training in the health professions. This is a concern that ought to be better addressed by the DOH and the Education Department.

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Effects of Early
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Mila O. Maruya, MPD, M

ABSTRACT

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Effects of Early Reinforcement to Academically Low-performing Physiology Students

Milla O. Maruya, MPD, MCH, MHPEd

ABSTRACT

With increased dependence on student enrolment to finance the continued viability of the Davao Medical School Foundation, Inc. (DMSFI), the school confronts a dilemma now affecting many institutions of higher education in the Philippines. The entry of students who could be considered academically challenged or underachievers poses the challenge for DMSFI to find ways to improve their performance and attitudes towards learning to enhance their chances of retention. This study was conducted in response to the need to examine the effects of an early intervention in the performance, attitudes towards learning, and level of confidence in class of academically low-performing medical students.

Using the preliminary examination in Physiology as the pretest, the twenty-two students who failed it were subjected to an early intervention program. Their academic performance was monitored, with their scores on the four subsequent quizzes serving as the posttest measures, along with their ratings on the midterm and final examinations. Comparison of the actual ratings in the pretest and posttest showed both individual and group improvement in the students' performance. Comparison of means of the two groups indicated positive outcomes from the intervention. The analysis of variance (ANOVA) showed a significant difference in performance in all subsequent quizzes and exams, except for the second quiz.

Pretest and posttest measures were also derived for the students' attitudes towards learning and their level of confidence in class prior to and right after the intervention. Using the Wilcoxon signed ranks, results showed that early intervention had a significant effect on the students' attitudes towards learning and their level of confidence when attending class.

It is recommended that an early intervention program be instituted for low performing students. Instructors should adjust teaching strategies more in line with the learning styles of low performing students. Prompt feedback and reinforcement to students should be a matter of school policy to enable DMSFI to achieve its goal of generating competent and committed graduates who will serve the communities of Mindanao.

INTRODUCTION

Balancing quality education with declining enrolment. Since its foundation in 1976, the Davao Medical School Foundation, Inc. (DMSFI) has been known to maintain high academic standards. In recent years, however, the DMSFI has not been spared from the trend characterizing matriculation in private institutions of higher education. Unable to maximize the offering of scholarships for lack of government subsidies and largesse from the private sector for this purpose, the school generally caters to students who have the capacity to pay the full cost of educational services and medical training provided. Given the economic landscape of the Philippines and of the Southern Mindanao region in particular where most of the students come from, the DMSFI has been faced with dwindling enrolment. The opening up of lucrative overseas employment opportunities for nurses influenced many prospective medical students to take up nursing instead. In addition, bigger Manila schools attract medical students from Mindanao, especially the more academically inclined who are able to qualify for the scholarships there, thereby eroding further into the potential clientele of DMSFI.

The resulting decline in the number of applicants for enrolment in medicine proper in DMSFI is compounded by the low scores earned by these applicants in the National Medical Admissions Test (NMAT) or in the Grade Weighted Average (GWA). This leaves the selection committee with little choice, as the school has to take in a minimum number of students for it to continue its operations.

Given this dilemma, the school is constrained to compromise its standard for student admission. The selection committee continues to subject and rank applicants according to different selection criteria although in some cases, the committee had to favorably consider admitting applicants who scored as low as 10 percent on the NMAT, far below the school's official admission cut-off of 40 percent.

While lowering its admissions criteria the DMSFI refuses to compromise its academic standards in order to deliver on its mission to produce graduates who are competent and committed. In admitting low performing students, the school recognizes its responsibility to ensure that these students perform well enough to allow them to advance to the next years, and eventually complete their studies. This consideration is not only for the benefit of the student, but for the school as well. It is estimated that for every student who drops out the school loses potential revenue amounting to sixty thousand pesos per year. To illustrate the context of the concern for this, the 23 percent attrition rate that had characterized matriculation at DMSFI in the last five years (Registrar's File, 1998-2003) represents a sizeable loss of potential revenue for the school estimated at Php1.3M annually.

The need for institutionalized support for low performing students. In order to enhance student retention while maintaining the academic standards for which the DMSFI is highly reputed, the school recognizes that support should be provided its academically low performing students. Timely support would ideally include improved teacher quality, resource equity, teaching and learning activities, and effective feedback (Norfolk State University 2003). Feedback, in particular, allows the student to monitor his own progress and provides him the information to consider when directing, scheduling, and prioritizing his study activities.

As per observation, however, DMSFI students lose out on timely feedback because the majority of the faculty members teach part-time and have minimal interaction with the students aside from the time they spend together in the classroom. Students are generally informed of their class standing by means of the grades posted on the information board. Examination papers are seldom given back, unless the student raises questions about the grade report.

This study rests on the assumption that when academically low performing students receive early feedback on their performance and have the chance to discuss with the teacher the correct answers to the items they missed, the knowledge gap is resolved prior to moving on to the next topic. Eventually, the students will develop focus on their study. There will be less tension and they will improve on their comprehension of the subject matter, leading to better performance in subsequent tests.

In the case of Physiology classes, the instructors give out course syllabi at the start of the course and orient the students on the grading system, policies, and regulations. On the average, the class size is about 98, such that multi-media presentations are utilized during lectures to amplify the delivery of the course content given the number of students. Periodically, the coordinator administers written examinations that were constructed by the instructors concerned. There is no school policy that regulates the conduct of feedback on students' performance. Some teachers return examination results during class and discuss these with the students, while others merely post the results on the board a week after the test.

The timeliness and quality of feedback is seen as the crucial factor in an early intervention program intended to ensure the retention of low-performing students without sacrificing the academic standards in place. Ultimately, this would help the school to achieve its aim in developing competent graduates while at the same time enhancing its financial viability derived from matriculation.

Significance of the study

This study examined how the school can support the academic performance of the students through specific intervention schemes. The results of this study could provide low performing students information on the importance of early reinforcement in improving their class standing. Instructors would also increase their awareness of ways to enhance teaching-learning strategies.

Problem

How does early reinforcement affect the academically low performing students of the Davao Medical School Foundation - College of Medicine (DMSFI-CM)?

Objectives of the study

The study aimed to:

1. Compare the performance of academically low performing students in Physiology before and after early reinforcement/ intervention; and
2. Describe the effect of early intervention to the academically low performing students on their attitudes towards learning.

Scope and Delimitations

The study involved 22 first year students of DMSFI-CM for schoolyear 2004-05 who were rated 74 percent and below in the preliminary examinations for Physiology, the subject where most students were observed to get a failing mark. Academic performance was measured using the ratings gotten by the students on the

preliminary, midterm, and final examinations and on four formative quizzes taken during the course of the semester.

Attitudes towards learning included their degree of self-confidence during class.

Hypotheses

The following hypotheses were tested at 0.05 levels of significance:

Ho1. There is no significant difference between the performance of academically low performing students in Physiology before and after early reinforcement.

Ho2. There is no significant effect of early reinforcement on the attitudes towards learning and level of confidence of academically low performing students in Physiology.

Conceptual Framework

The conceptual framework used in this study is provided in Figure 1 below:

In this study, academically low performing students admitted into the school system referred to those who had a grade of 74% and below in the prelim examination in Physiology.

Early reinforcement consisted of study groups where early feedback on the results of the tests was provided by a competent facilitator immediately after every examination with the students correcting their own papers. The self-assessment and the accomplishment of learning contracts were done before filling of gaps was undertaken through discussions focused on the difficult items that were not correctly answered by the students.

The early intervention is hypothesized to redound to more satisfactory academic performance, measured in terms of improved class and more positive attitudes towards learning. Better academic adjustment would improve the students' chances for retention, thereby lowering the attrition rate, such that the sustainability of the school and its training facilities would be assured.

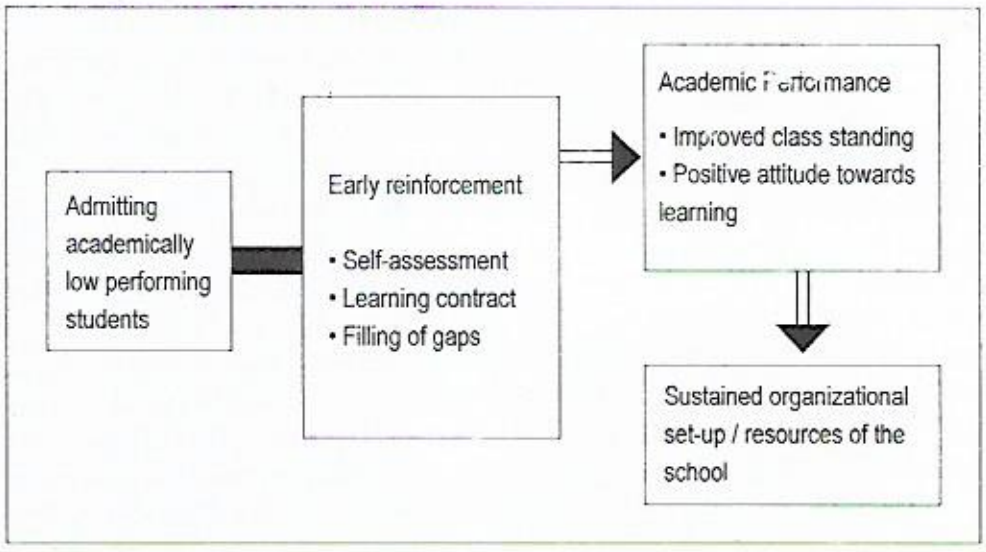

Figure 1. *Conceptual Framework*

REVIEW OF LITERATURE

This section discusses salient findings and studies on early reinforcement of academically low performing medical students. Key terms include: the admission criteria of medical schools; academically low performing medical students; and early reinforcement and its advantages.

Admission criteria of medical schools. Certain qualities are considered in screening the ideal medical student. The candidate should be intelligent, compassionate, highly motivated, and aware of social issues, especially those that impact on the health care and services delivery sector. Moruzi and Norman (2002) add the dimension of exceptional interpersonal and problem-exploration skills, as well as leadership ability and personal integrity. McGaghie (1990) emphasizes work ethic and orientation toward service.

Academic measures such as undergraduate GPA and NMAT play a significant role in the selection process. However, Tekian (1998) questions too much reliance on these for screening medical school applicants, as there is non-uniformity in grading across universities. Many schools also factor in letters of reference, personal statements, and interviews as these provide information on the applicants' non-cognitive abilities which are nevertheless deemed relevant to the study and practice of medicine (Moruzi and Norman). In general, the admission interview is heavily weighted. It is used by 99 percent of American medical schools (Mitchell, 1990) because interview reports narratives have proven to be predictive of medical performance (Elam, Studs & Johnson, 1997).

Academically low-performing medical student. According to Quirk (1994), as well as to Vaughn, Baker, and DeWitt (1998), an academically low-performing medical student is a problem learner whose academic performance is below performance potential due to specific affective, cognitive, structural, or interpersonal difficulty. The affective class of problem learners has difficulty dealing with personal adjustment events. The cognitive class, on the other hand, is hampered by problems in oral or written communication, spatial-perceptual abilities, integration skills, abstract thinking, or memory retention. Inability to structure their experiences characterizes the structure class of problem learners. The interpersonal class of problem learners has relational difficulties because they may be shy, manipulative, overeager, or just generally lacking in social skills.

Early reinforcement model. Vaughn, Baker, and DeWitt proposed general guidelines for the management of intervention for problem learners. Called S-T-P, the process incorporates feedback and problem-solving principles and provided opportunity to practice by means of role play. Mirroring the doctor-patient interaction, the steps involved in S-T-P are:

1. specify the problem (diagnosis using history and physical/clinical tests);
2. target state (desired outcome of patient); and
3. procedure plan (treatment plan).

The S-T-P model lends itself to versatile modes of execution. Hunt, et al. (1989) suggests a mentoring program where each student is paired with a faculty member throughout the program or course to allow early assessment, help with adjustment, and provide interaction, role modeling, and advice from a professional in the field. Atherton (2003) emphasize the importance of the learning contract in leveling off the objectives of the intervention. Niemi

and Vainiomaki (1999), meanwhile, suggest that medical educators should give more attention to the medical students' distress and coping efforts during the first study years.

An assessment of an academic support program discussed in the Purdue University Research Brief (1997) showed that it raised the students' grade point average (GPA) by as much as half a point. It also increased student retention by around 15 percent. The study also showed that the intervention program enhanced students' satisfaction with their social experiences at school.

METHODOLOGY

Research design. A one-group pretest-posttest design was used in this study. The preliminary examination grades served as the pretest results, while the grades for the formative, midterm, and finals examination were considered as posttest result. Intervention sessions were conducted before each posttest result was drawn. To measure the attitude of students towards learning, an attitudinal rating scale was introduced before and after the interventions.

Research procedure. Early reinforcement/ intervention consisted of self-assessment, a learning contract, and filling of gaps.

- *Self-assessment.* For the student to have a realistic understanding of his class standing in Physiology, he is required to check his own paper for the preliminary exams. In this way, he is able to note those items which he answered incorrectly. This method allows him to identify the gaps to his knowledge of the subject matter. Self-assessment also requires that the student articulate a recognition of his particular difficulties in directing, scheduling, and regulating his study activities to maximize his academic performance. This is done at the start of each intervention session.
- *Learning Contract.* A learning contract was instituted with the identified students to ensure their participation in all the scheduled intervention sessions. The stipulations of the contract also allows the student to identify, articulate, and direct his own learning objectives, resources and strategies, schedule, and evidence - both internal and external. Table 1 in the opposite page shows a sample of the learning contract accomplished by the students at the start of the intervention.
- *Filling of gaps.* A total of 10 intervention sessions were conducted during the course of the semester when the students were enrolled in Physiology. These sessions were done for two to three hours each facilitated by a faculty member from the Physiology Department who was trained to handle the feedback sessions for the participants.

The detailed procedure for the early reinforcement/intervention is presented in Table 2. It shows the activities, expected output, time frame, persons responsible, and resources needed and its sources.

Particular critical points in the conduct of the intervention sessions required special attention, as follows:

1. During the first meeting with the students, the following activities had to be undertaken:
   a. Clarification of the purpose of the intervention sessions;
   b. Clarification of roles and responsibilities;

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Table 1. *Learning Contract*

Student: _____

Date Accomplished: _____

What are you going to learn? (Objectives)	How are you learn it? (Re... and Strategies)

Table 2. *Procedure for Early Re...*

Problem: *Low academic perfor...*
Intervention: *Self-Assessment, Lear...*
Outcome Measure: *Improved grade...*

Activities	Expected Ou...
1. Consultation meeting with the department chairs and faculty involved together with the dean and the researcher	All participants agreed to the implementation intervention
2. Planning the feedback sessions with the faculty involved	Discussed and on the details the implementation including activities materials needed policies
3. Gathering of student records from the registrar	Gathered pre grade of all the physiology stu...

Learning Contract

LEARNING CONTRACT FOR COURSE #_____

Student: _____ Facilitator: _____

Date Accomplished: _____

What are you going to learn? (Objectives)	How are you going to learn it? (Resources and Strategies)	What is your target date of completion? (Time table)	How are you going to learn it? (Evidence)	How are you going to prove that you learned it? (Verification by judges)

Procedure for Early Reinforcement/Intervention

Problem: Low academic performance in Physiology
Intervention: Self-Assessment, Learning Contract, Filling Gaps
Outcome Measure: Improved grade and development of positive attitude towards learning

Activities	Expected Output	Time Frame	Person/s Responsible	Resources Needed & Sources
1. Consultation meeting with the department chairs and faculty involved together with the dean and the researcher	All participants agreed to the plan of implementation for the intervention	2nd week of August 2004	Researcher Dean	Intervention plan Venue
2. Planning the feedback sessions with the faculty involved	Discussed and agreed on the details of the implementation including schedules, materials needed and policies	2nd week of August 2004	Researcher Facilitator	Plan of intervention Writing materials
3. Gathering of student records from the registrar	Gathered prelim grade of all first year physiology students	3rd week of August 2004	Researcher Registrar	Authorization letter from the Dean Provision of student records

Activities	Expected Output	Time Frame	Person/s Responsible	Resources Needed & Sources
4. Meeting with the first semester teaching faculty	Discussed and agreed on the schedules, policies and activities to be conducted by the faculty in charge for the feedback sessions	3rd week of August 2004	Researcher Faculty/ Facilitator involved for the feedback sessions	Authorization letter to conduct the intervention Plan for the intervention Research proposal Venue and snacks for participants
5. Sending of invitation letters to all students belonging to the intervention group	All target students received and confirmed attendance in the first orientation meeting	3rd week of August 2004	Researcher Dean	Letter of invitation duly approved by the Dean School letterhead
6. First session with the intervention group	Group is oriented about the objectives of the program Generated commitment of all students to complete the sessions through the execution of a learning contract Group is oriented about the activities to be done in the feedback sessions Gathered expectations and started to discuss learning concerns Agreed on schedules	3rd week of August 2004	Faculty in charge for intervention sessions Researcher Dean	Letter of invitation List of program of activities Classroom with learning resources: board, pens, papers for the learning contract

Activities	Expected Output	Time Frame	Person/s Responsible	Resources Needed & Sources
1. Series of feedback sessions with the intervention group	Conducted sessions as scheduled All target subjects participated in all the sessions	Once a week	Faculty in charge Researcher	Exam papers Venue and learning materials Honoraria of facilitator
2. Series of updating meetings with the faculty in charge, concerned faculty per department, researcher and the Dean	Discussed developments in the implementation Discussed concerns, strengths, weaknesses, and recommendations from participants	Every after term exam	Researcher Faculty in charge Dean and members of faculty concerned per department	Record of students Minutes of the meetings

c. Orientation on the format of the feedback/small group session activities including group rules, policies, etc.;
d. Exchange of contact numbers and resources available for review; and
e. Discussion on the rules in giving feedback.

2. Trigger questions like "What part of the examinations did you find difficulty in answering?" should be used to initiate the mentoring process.
3. The first hour of the session was to be spent for general concerns regarding topics not clear to the majority of group members. The next hour was devoted to dealing with special individual concerns, synthesis, integration, and evaluation on the progress of students in their learning process.
4. Updated list of reading materials was provided for every subtopic discussed in the intervention sessions.
5. Course learning objectives guided the flow of the discussions.

Population and sampling. The 98 first year medical students at the beginning of the first semester of school year 2004-2005 in the Davao Medical School Foundation were identified as the target study participants. Purposive sampling was employed, with the performance in the Physiology prelim examination being the criterion, for selection of participants in the proposed early intervention sessions. Among the 98 students, 22 got 74 percent or lower in the prelim examination and were all included in the group for whom the intervention sessions were conducted.

Data collection procedure. The first step in the data collection involved the retrieval of the preliminary grades of the students in Physiology from the grade sheets submitted by the teachers during the first semester of school year 2004-05 to allow the researcher to draw a list of the target participants. After the participants were identified, their individual academic records were reviewed for triangulation purposes and a measure of these students' attitudes towards learning

was drawn using the attitudinal rating scale. Further student data from the Registrar's Office allowed for the generation of a demographic profile of the low performing students. Posttest measures on the subsequent academic performance of the students were drawn after the midterm and final examinations, This was done by computing their grades for these periods. The attitudinal rating scale was administered at the end of the last intervention session.

Instrumentation. The data for this study were drawn from the students' file, grade sheets for the prelim, midterm, and final period, test results for Quizzes 1-4, and attitudinal rating scale (See Appendix A). Specifically, these sources provided the following data:

- Individual student's file contained in the personal information sheet lodged in the Registrar's Office contained demographic information to include age, sex, colleg degree, and NMAT scores.
- Grade sheets are standard forms fo official report of periodic grades mad by the teacher and submitted to th Registrar's Office.
- The Attitudinal Rating Scale is an 18-iten questionnaire consisting of 10 statement describing the attitude of students toward learning during class and eight statement that pertain to their level of confidence t engage in learning activities during class This form was used for the pretest and posttest. Constructed by the researche specifically for this study, the rating scal was subjected to expert validation and was pilot tested on second year medica students. Further statistical procedure were conducted to test for its validity before it was employed to measure the attitudes of the participants before and after the early reinforcement program.

Table 3. *Guide for Data Analysis*

Objective	Data Needed	Data Source	Instrument	Statistical Tool for Data Analysis
1. Compare the performance of academically low performing students before and after they were given early reinforcement	Prelim grade Midterm grade Final term grade	Grade sheet	Grade sheet	Frequency distributions, percentages, mean, median, standard deviation, variance, and range t-test for matched pairs set at p=0.05. Analysis of variance (ANOVA) to determine significant differences of the pretest (prelim grade) and posttest measures (midterm and final term grades)
2. Describe the attitude of students towards learning after the intervention	Students' attitude towards learning during class Students' level of confidence in participating in learning activities during class	Study participants	Attitudinal rating scale	Wilcoxon signed ranks test employed on the pretest and posttest scores.

Data analysis. Table 3 page shows the particular methodology employed in objectives of the study.

FINDINGS AND DISCU

This section presents t study in terms of meeting the the context of the problem he

Profile of respondents. The this study were between 2 The females outnumber the five. Undergraduate degre predominantly BS Biology percent having graduated f Technology and 9.1 percent The majority showed failing undergraduate transcripts of been conditionally accepted on the condition that they themselves to academic imp they fail to meet the expec standards of the school.

Except for a lone case percent in the National Medi Test (NMAT), the rest of the pa did not take the NMAT (9.1% the 40 percent required by t (36.4%). Fifteen participants in the lower 20 percent on eight (36.4%) among them sc 10 percent. While the studie this study had the right acade their NMAT scores predicted find attendance in medical s challenge.

Academic performance. The exam ion (considered as study) was a 2-hour, 100- choice written test that covere subtopics: Introduction

Data analysis. Table 3 in the preceding page shows the particulars of the research methodology employed in order to meet the objectives of the study.

FINDINGS AND DISCUSSIONS

This section presents the results of the study in terms of meeting the objectives and in the context of the problem being investigated.

Profile of respondents. The 22 participants in this study were between 21 to 24 years old. The females outnumber the males at 17 to five. Undergraduate degrees earned were predominantly BS Biology (72.7%), with 18.2 percent having graduated from BS Medical Technology and 9.1 percent from BS Nursing. The majority showed failing marks in their undergraduate transcripts of records and had been conditionally accepted into the DMSFI on the condition that they would submit themselves to academic intervention should they fail to meet the expected performance standards of the school.

Except for a lone case who scored 53 percent in the National Medical Attendance Test (NMAT), the rest of the participants either did not take the NMAT (9.1%) or scored below the 40 percent required by DMSFI for admission (86.4%). Fifteen participants (68.2%) scored in the lower 20 percent on the NMAT, with eight (36.4%) among them scoring lower than 30 percent. While the students included in this study had the right academic background, their NMAT scores predicted that they would find attendance in medical school a difficult challenge.

Academic performance. The preliminary examination (considered as pretest in the study) was a 2-hour, 100-item multiple-choice written test that covered the following subtopics: Introduction to Physiology, Physiologic Principles, Functional and Body Control Systems, Cell Structure, Organization Membrane Transport Systems, Reproduction, and Cell-to-Cell Communication. The minimum passing level determined by criterion-reference system was set at 60 points, equivalent to 75 percent.

Among the 22 students who scored below 75 percent, the pretest scores ranged from 57 to 74 percent, with the mean at 71 percent and the median at 72 percent. The standard deviation was computed at 4.85, indicating that the 22 students were almost homogeneous in their performance in this exam.

Early reinforcement. During the conduct of the intervention program, some useful information were brought to light that clarified the nature of academic adjustment of low performing students to the rigorous demands of medical school attendance. On the matter of self-assessment, for example, the students were made to identify the difficulties they had in coming up to the requirements of the course. The most common reasons they cited involved fear of failure and their perception of being in a situation where they had little control resulting in inefficient use of time, lack of sleep, difficulty in memorizing new terms, and feelings of inadequacy and anxiety. Some diagnosed themselves with poor reading ability and integration skills, such that they were barely able to cope with the volume of material they needed to cover for the subjects they were taking. Problems with adjusting to teaching strategies and the manner of feedback also surfaced.

After the students were able to articulate their difficulties, they were further asked to propose ways by which their concerns could be addressed, with particular attention to what they themselves could do. The facilitator guided the students to envision an ideal situation to

what they had. The students were encouraged to set specific goals intended to overcome their particular learning problems.

As input in response to the concerns shared by the students, the facilitator discussed tips on how to study effectively by paying attention to their biorhythm and regulating their study activities to maximize gains from time devoted to studying. The sessions also examined ideal physical arrangements for studying, as well as the necessary resource materials to have at hand. Tips on note-taking and enhancing memory retention were also shared. As examples, the facilitator used his own experiences as a medical student to illustrate the effectiveness of the tips, thereby presenting to the group a role model with whom they could identify.

Performance on the formative quizzes. Formative evaluation was the assessment done at regular intervals of a student's progress. It was accompanied by feedback intended order to help improve the student's performance. This consisted of two 50-item multiple-choice quizzes to be answered in one hour. The minimum passing level determined by criterion-reference system was at 29 points, equivalent to 75 percent. The group's mean performance in these formative quizzes are shown in Figure 2.

One week after the first intervention session, the students had to take a quiz on cardiac physiology, which seven students (32%) passed. The mean average was 64 percent. Two weeks later, they took the quiz on hemodynamics, which six (27%) were able to pass. The group's mean average performance in the second quiz was pegged at 72 percent.

After the midterm examination, the formative evaluations were again resumed. At this time, the students expressed that they were already feeling overwhelmed with trying t cope with too much information. It fell upo the facilitator to provide emotional support o top of providing the remedial information o the topics identified by the students is thos where they needed extra help. By this time, th study group became a more solid arrangemen and the school provided a session room when resource materials, including a microscope were housed for the use of the learners.

The third quiz was given after the fifth session and the fourth quiz was right after th seventh intervention sessions. Seven (32% passed the third quiz, while only five (23% hurdled the fourth quiz. Overall, the grou performed better on these quizzes than the did on the prelim exam. For the third quiz, th scores ranged from 64 percent to 80 percen while for the fourth quiz, the scores range from 47 percent to 82 percent.

Performance on the midterm and final term examinations. Like the prelim examinatio that was used as the pretest, the midterm examination consisted of 100-item multiple choice test to be completed within tw hours. By the time the students took th midterm examination, they had already gon through four intervention sessions. No more comfortable with each other, they wer individually initiating more effective stud habits. But what was more remarkable w the emergence of social support among th group's members, as evidenced by more ope disclosure during the sessions and the sharin of books and other resources, as well as givin and soliciting for help from each other.

Ten students (45%) were able to pass th midterm examinations. As a group, the mea average performance on the test registered 71 percent, with the scores ranging from 5 percent to 79 percent.

After the last inter time for the student examination, a 100-item consisting of 30 percent f percent from midterm, and 4 final term coverage. The was 60, transmuted to 75 nine students (41%) who group scored from a low of of 82 percent, with both the measures pegged at 73 per group's performance in the proved to be their best (See

The effect of early intervention

To examine the effect of the performance of the t-test was employed to examination ratings against in the formative quizzes and and final examinations. A compare the performance of all the seven tests.

Table 4 shows the gr the students' performance over their prelim examinat for matched pairs yielded a

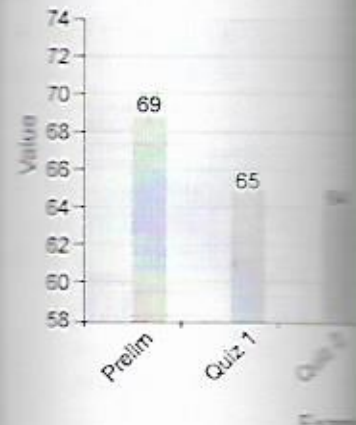

Figure 2. *Summary graph showing*

After the last intervention session, it was time for the students to take their final examination, a 100-item multiple-choice test consisting of 30 percent from prelim topics, 30 percent from midterm, and 40 percent from the final term coverage. The standard passing score was 60, transmuted to 75 percent. There were nine students (41%) who passed this test. The group scored from a low of 63 percent to a high of 82 percent, with both the mean and median measures pegged at 73 percent. In general, the group's performance in the final examination proved to be their best (See Figure 2).

The effect of early intervention on performance. To examine the effect of early reinforcement on the performance of the students, the t-test was employed to compare prelim examination ratings against actual ratings in the formative quizzes and in the midterm and final examinations. ANOVA was used to compare the performance of the students in all the seven tests.

Table 4 shows the general improvement in the students' performance in the posttests over their prelim examination rating. The t-test for matched pairs yielded a t-value of -0.089. With the level of significance set at p=0.05, this value indicates that the students differed significantly in the ratings they got from their prelim and final tests. Except for Quiz 4, the rest of the results revealed that performance of students are significantly associated with attendance in intervention sessions.

Further analysis was done to compare the performance of the students in the seven tests using Analysis of Variance or ANOVA. Obtained results for all posttest measures were lower than the p value of 0.05, except for Quiz 2 where the F-value is 2.238 at p=0.095. This indicates that except for Quiz 2, the intervention sessions had a significant effect on the performance of academically low performing students.

Attitudes towards learning. Pretest and posttest were conducted respectively before and after the intervention program. This consisted of an attitudinal rating scale consisting of ten items on their attitudes towards learning while attending classes and eight items that explored their perceived level of confidence in participating in class activities. Using the Wilcoxon signed ranks test, the results yielded

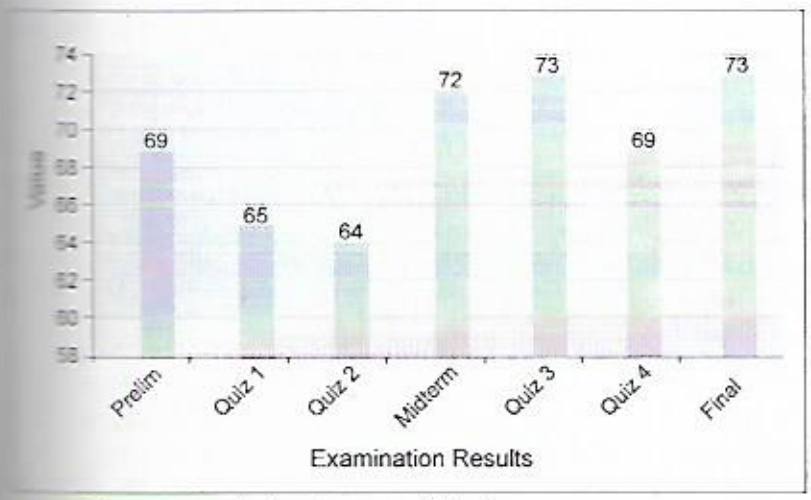

Figure 2. *Summary graph showing mean of all tests*

Table 4. *Actual Ratings of Students in the Pretest and Posttests*

Student	Pretest (Prelim)	POSTTESTS					
		Quiz 1	Quiz 2	Midterm	Quiz 3	Quiz 4	Final
1	71	69	58	78	76	70	81
2	74	71	73	78	72	78	76
3	66	64	61	69	70	58	66
4	73	66	66	77	74	79	82
5	69	62	67	72	70	68	73
6	74	72	66	76	74	82	71
7	74	72	61	73	80	73	73
8	73	68	66	76	78	67	70
9	68	70	60	75	70	67	72
10	73	69	63	69	78	70	77
11	57	65	63	77	69	80	81
12	61	61	49	57	67	52	67
13	71	63	63	68	77	67	76
14	73	67	60	79	80	71	78
15	74	66	76	74	76	71	77
16	67	65	64	76	70	61	71
17	66	62	57	68	71	67	73
18	61	61	60	62	64	47	66
19	66	56	57	64	72	64	63
20	71	63	67	62	74	71	71
21	69	35	70	66	67	74	67
22	73	72	71	77	71	79	78

that there indeed is a significant difference between the students' attitudes towards learning and their level of confidence before and after the intervention sessions.

Behavioral changes started to manifest as early as after the first intervention session. The students were attending class more often and on time. Focus and note-taking improved and more purposeful actions were undertaken with the aim of improving their performance.

The intervention sessions also lent to the students the confidence needed to participate more in class discussions and to engage willingly in learning activities.

To see whether the quality of performance in the different tests is significantly associated with the attitudes of students toward learning, a test of correlation between the final examination and posttest attitudinal ratings was run using Pearson r. The obtained value was r=0.019 at p-0934. This shows that the attitudes of students are independent of their cognitive performance.

CONCLUSIONS

There is strong evidence to show that instituting an intervention program or early

reinforcement would improve the performance of academically low performing medical students and redound to inculcating in them more positive attitudes towards learning. Early reinforcement also helped erode the stumbling blocks that prevented students from fully participating in learning activities and evaluation exercises. Improvement in knowledge, however, is independent of improvement in attitude.

This study also suggests that if teachers would provide immediate feedback to students, even poor performers could improve their class standing and enhance the likelihood of their retention in the medical school.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are offered:

1. In order to help the students improve their academic performance, the school should institute an intervention program to cater to the learning needs of admitted students identified to be at risk of not surviving medical school. The preliminary examination results should be used in identifying the students who would be subjected to intervention.
2. The teachers must be given seminars and training in teaching strategies so that they will be able to meet the learning styles of students. When teaching style complements learning style, the student benefits in ways that impact on his performance on evaluation exercises to test what he knows. Providing the classroom climate that allays fear of embarrassment would go a long way in assuring that students find the confidence to take control of their own learning, initiate clarificatory interactions, and participate in group activities.
3. Prompt feedback and giving reinforcement to students should be a matter of policy in the school. This is to instill in the minds of the teachers that giving reinforcement or early feedback to students is an integral aspect of an educator's role.

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APPENDIX A.

Questionnaire on Attitudes Towards Learning

Instruction: Please encircle the response that is most applicable to you as indicated in the scale below. Your response will be considered confidential.

Strongly Agree (SA)	Agree (A)	Disagree (D)	Strongly Disagree (SD)
1	2	3	4

STATEMENTS	SA	A	D	SD
Attitudes towards learning during classes				
1. I make sure that I come to class on time.	1	2	3	4
2. At the start of the class, I take not of the points to be learned.	1	2	3	4
3. I ask questions to clarify points	1	2	3	4
4. I share relevant ideas during discussions	1	2	3	4
5. I listen attentively to the ideas of others	1	2	3	4
6. I take note of the main points discussed all throughout the class	1	2	3	4
7. I refrain from doing unnecessary things such as side taking, sleeping, going out of the room during class.	1	2	3	4
8. I take note of possible references to enhance my learning	1	2	3	4
9. I consult people who are knowledgeable on my study interest	1	2	3	4
10. I make sure that I covered and achieved the points to be learned set at the start of the class.	1	2	3	4
Level of confidence				
11. I feel that I am willing to engage in the learning activities in the class.	1	2	3	4
12. I am afraid to ask questions during the discussions.	1	2	3	4
13. I believe that I can perform the task expected of me as well as I could.	1	2	3	4
14. I believe that I can share my ideas in the class discussions	1	2	3	4
15. I am aware of what is to be covered for the class	1	2	3	4
16. I believe that I can learn individually as well as in a group	1	2	3	4
17. I am confident that I am ready to discuss the next topics to be covered.	1	2	3	4
18. I do not feel threatened when I have to take evaluation exercises.	1	2	3	4

War Experience among Childre of Armed Conf

Geraldine Jainar-Arend

ABSTRACT

This is a descriptive study mechanisms employed by the had been displaced from their Republic of the Philippines (... study, sporadic encounters were

The primary data were ... by trained community-based ... tongue of the respondents. ... Childhood War Trauma Q... that is used by the World Hea...

Findings showed the ... psychological impact on child... in war situations. These ... separation from family, friend... deprivation.

RQC scores indicated that ... scored in the range of false p... mental or psychiatric disorder... children manifested psychol... headaches, and sleep distur...

The importance of social ... coping alternatives available ... Other coping mechanisms ... bonding and maintenance) ... peers and fellow evacuees.

This study recommended ... evacuees, especially for food ... livelihood opportunities for ... displaced. The peace process ...

War Experiences and Psychological Symptoms among Children in Evacuation Centers of Armed Conflict Areas of Carmen, Cotabato

Geraldine Jainar-Arendain, RN, MCH

ABSTRACT

This is a descriptive study of the war-related experiences, psychological symptoms, and coping mechanisms employed by the children who were living in evacuation centers a year after their families had been displaced from their homes by the 2000 all out war declared by the Government of the Republic of the Philippines (GRP) against the Moro Islamic Liberation Front (MILF). At the time of the study, sporadic encounters were still occurring in the home communities of the evacuees.

The primary data were drawn with the use of a structured interview schedule, administered by trained community-based data gatherers who could communicate the questions in the mother tongue of the respondents. The interview schedule incorporated modifications of Macksoud's Childhood War Trauma Questionnaire and the Reporting Questionnaire for Children (RQC) that is used by the World Health Organization (WHO).

Findings showed the prevalence of war-related experiences that have potential adverse psychological impact on children, as established by several studies done previously on children in war situations. These experiences include: bereavement; witnessing violent events; forced separation from family, friends, and neighbors; war and combat exposure; and extreme poverty and deprivation.

RQC scores indicated that the children were relatively well-adjusted, although more than half scored in the range of false possibles, indicating that they may still be at risk of developing fullblown mental or psychiatric disorders should their life conditions remain stressful and uncertain. The children manifested psychological symptoms such as nervousness, troubled socialization, frequent headaches, and sleep disturbances.

The importance of social support agencies was magnified in the children's perception of the coping alternatives available to alleviate the stress and hardship that they were experiencing. Other coping mechanisms this study turned up include religious affiliation, family-centered (bonding and maintenance) activities, and conscious attempts to improve social relations among peers and fellow evacuees.

This study recommended that concerned agencies should address the basic needs of the evacuees, especially for food and medicine. Rehabilitation efforts should be directed at enhancing livelihood opportunities for the family and providing safe water sources for the internally displaced. The peace process must also be nurtured in order to bring a lasting peace.

INTRODUCTION

Armed encounters in Mindanao. For more than thirty years, localized armed conflicts have featured in certain places in Mindanao. War first came to Carmen, Cotabato in 1974 when the town became the site of violent clashes between government forces and Moro rebel groups. Since then, sporadic skirmishes break out between these two groups, putting the town and its residents in the path of crossfire.

As in other communities that played unwilling host to the Mindanao wars, the encounters caused untold suffering on the Carmen residents. They were therefore among those who hopefully welcomed the peace negotiation that was going on between the GRP and the MILF in 1999.

However, in November that year, the peace talks broke down over a dispute on the nature of MILF operations on the highway connecting the provinces of North Cotabato and Bukidnon. North Cotabato Governor Manny Piñol accused the MILF of trying to gain control of the highway and setting up new camps.[1] The MILF, on the other hand, through its Vice Chair for Military Affairs Al Haj Murad, claimed that their presence in the highway was in defense of Camp Usman, an MILF stronghold established in 1985 that in 1999 covered portions of Carmen, President Roxas, Kabacan, Matalam, Antipas, and Arakan towns in North Cotabato (PDI, 20 November 1999).

On 8 November 1999, government forces commenced air and ground assaults on the barangays of Tacupan and Manarapan, both along Sayre National Highway in Carmen, to flush out the MILF elements that had reportedly taken control of these barangays. The heav shelling resulted to the displacement of at lea 6,000 residents on the first day alone of th military offensive that was meant ultimatel to destroy Camp Usman (PDI, 11 Novembe 1999). The MILF fought back. In the comin days, the internally displaced would finall reach 21,000 as the war spread to other part of Carmen and in the neighboring towns o Mlang and Matalam.

The children's experience of war. The Children Rehabilitation Center (CRC), a non-government agency that works to restore th psychosocial health of young victims of wa in Mindanao reported that sixty percent o the 180,000 people displaced by the 200 all out war of the Estrada Administratio were children (Rivera, 2000). Arguill (2000) noted that the war brought physic deprivation and profound disruption of famil and community life among residents. Th exposure to "events beyond the boundarie of human experience" may have been mor traumatic and psychologically woundin for highly vulnerable groups, especially th children, who had yet to develop the copin skills to deal with adverse life situations.

In 2001, as community condition remained volatile and displaced resident continued to face an uncertain future, a nee to determine the nature of the children's wa experiences and the psychological effects o these became imperative. Hence, this stud was conducted.

Problem

How did the children in evacuation cente of armed conflict areas of Carmen, Cotaba experience the 2000 war?

[1] The GRP Peace Panel had acknowledged seven MILF camps existing in 1999, including the disputed Camp Usma Piñol was of the opinion that the MILF operations in the national highway constituted a belligerent act of extendi the perimeters of the camp, in violation of what was already agreed by the GRP-MILF peace negotiations for an MI freeze in setting up new camps.

Objectives

Specifically, this study sought to:

1. Determine the demographic characteristics of children in terms of age, sex, ethnic group, residence, level of education, parents' occupation, household income, source of income before and after the war, nutritional status, and perceived health status;
2. Examine the extent of the children's war-related experiences in terms of war-related separation, bereavement, witnessing war-related violence, war and combat exposure, and extreme poverty and deprivation;
3. Find out the psychological symptoms among children aged 7-18; and
4. Determine the coping mechanisms use by the respondents in dealing with the traumatic stresses they experienced.

Significance of the study

It is important to document the war-related experiences and the psychological state of children in Carmen, Cotabato to provide useful data for policy makers in the local government units (LGUs) of Carmen and Cotabato, as well as to provide accurate information to groups that are engaged in providing relief operations to the internally displaced in the evacuation centers. These data could be used to remind interested parties of the full range of needs these children may have. The provision of these data may hopefully lead to the development and adoption of appropriate intervention strategies to rehabilitate and sustain the emotional, intellectual, psychological, and social wellbeing of the children.

Scope and Delimitation

While nearly all barangays in the municipality of Carmen were considered war-torn areas, this study was limited only to six barangays, namely; Kimadzil, Kitulaan, Manarapan, Poblacion, Gen. Luna, and Ugalingan. The study sites were purposively selected because of their accessibility and relative security given the unstable peace and order situation in the area. The study was undertaken within a four-week period in 2001.

This study intended to assess the direct impact of war on the respondents' nutritional status. However, it could not do so since there was no baseline data on their nutritional status before the war.

Conceptual Framework

Following Macksoud's seminal work on the war experiences of children in armed conflict situations (1992), this study examines the war experiences of children in evacuation centers of Carmen, Cotabato according to the following categories of traumatic war-related experiences: war-related separation; bereavement; witnessing violent victimization of nuclear family; witnessing violent victimization outside of nuclear family; war and combat; being victim of a violent act; and extreme poverty or deprivation.

REVIEW OF RELATED LITERATURE

This section discusses the relevant studies and literature on war experiences, psychological symptoms, and coping mechanisms of the child victims of war.

War related experiences of children. The United Nations International Children's Education Fund (UNICEF) estimate that in 1995 there were ten million children worldwide who had suffered psychological trauma in civil and international wars. In the last quarter of the 20th century, the UNICEF (1997) believes that two million children had been killed in armed conflicts around the globe.

All over the world, studies have increasingly and consistently shown how children bear the heaviest cost of war. Youssef (1995) and Macksoud and Nazar (1993) reported that during the early Iraqi occupation of Kuwait in 1989, the Iraqi army performed indiscriminate massacre, detention, and torture of Kuwaiti citizens, subjecting thousands of children to become unwilling victims and witnesses to the destruction of their homes and community and the violent death of family members. In Lebanon, Macksoud and Aber (1993) documented an alarming number of children who experienced war and combat exposure, bereavement, displacement, separation from parents, and extreme deprivation. In Sarajevo, Syed (1998) reported that 66 percent of children had lost family members due to war.

But perhaps the more alarming information to be found in recent literature on the effects of war on children is the documented existence of child soldiers in conflict areas all over the world. Bengyawan (2000) put the number of child soldiers in Asia alone at a conservative estimate of 80,000, not counting those that are in Aceh and the Timor territories. There are disquieting reports of this phenomenon most notably in Mozambique (McCallin, 1991) where children as young as ten were reported to have been forcibly removed from their homes and trained to be killing machines by the Mozambican National Resistance (MBR). Child soldiers in El Salvador, Liberia, Sri Lanka, the Philippines, and the Palestine Occupied Territories were also the topic of a study done by Goodwin-Gill and Cohn in 1994. In the Philippines, media footages show youngsters in MILF and Abu Sayyaf enclaves and the New People's Army (NPA) camps brandishing or training in the use of high powered weapons.

The impact of the Mindanao wars on children. In Mindanao, Abreu (2000) noted that war escalated and peaked between November 1999 and April 2000, with heavy military operations in the major MILF mass base areas of Camp Bila in Lanao del Norte, Camp Busra in Lanao del Sur, Camps Rajamuda and Usman in North Cotabato, and Camp Abubakar in Maguindanao. Heavy aerial and surface bombings followed by ground assaults and mopping up operations devastated several towns, causing massive evacuations of residents. Looting, desecration of mosques, and atrocities committed on civilians, to include rape of women and harassment of residents, were reported and sketchily documented. Most affected by the internal displacement were the children. Juvida (2000) reported that 60 percent of the displaced persons who had sought refuge in cramped makeshift evacuation centers were Muslim children.

Kalinaw Mindanaw, a consortium of church groups, human rights organizations, peace advocates, and other civil society organizations found that the 2000 war had devastating effects on children, rendering them "unwilling witness to the killing of their parents and neighbors, the burning of their houses and devastation of their farm lands." An untold number of children died on the arduous road to the safety of the evacuation centers as bombs fell and bullets flew in their path. In evacuation centers where supplies were scarce, children went hungry and succumbed to diseases like respiratory tract infection and skin diseases (Reyes, 2000), diarrhea, and other preventable diseases (Kalinaw Mindanaw).

Psychological symptoms. Several studies have supported the notion that the exposure of children to intense stress aggression and heightened fear might be causally related to

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increased risk of developing psychosocial problems (Parsons, 1990; Chimienti, et al., 1989). The seminal study of Youssef (1992) revealed that children in war torn areas have been noted to suffer from psychosomatic disorders, anxiety and depression signs, aggressive and regressive behaviors, withdrawal from society, and emotional instability.

In their study on family situation and psychosocial adaptation of refugee children to displacement, Ajkovic and Ajkovic (1993) turned out stress symptoms like sleeping and eating disorders, separation fears, withdrawal and aggression. It was indicated that the children's stress symptoms were a function of their mothers' difficulty in coping with displacement. Children in collective shelter were indicated to be at greater mental health risk than their peers housed with host families.

Sikic, et al. (1997) also found that depression, violence and antisocial behavior were consequences of experiences of extreme violence - such as torture - among war-displaced children below 15 years old. Other symptoms include hyperactivity, anxiety, and psychosomatic disturbances.

The UN study done by Conanan, et al. on the psychological profile of Filipino children in conflict areas (1989) pointed to displacement as one of the more traumatizing consequences that the young experienced. Emotional traumatization was indicated not to be necessarily an effect of armed conflict per se, but rather of its more long-term disruption of the affected community's family, economic and social life.

At a glance, the children in evacuation centers appeared to be asymptomatic, but in the course of psychosocial processing, their horrible cognitions and grave emotional trauma surfaced. Mae Templa, a social work program consultant for CRC who conducted therapy session for children at the Dawah evacuation center in Maguindanao described their situation as "psychologically very alarming" (Cyber Dyaryo, 2000). Meanwhile, a medical team sent to evacuation centers in Kapatagan, Lanao del Sur, reported that 10 percent of the 269 patients treated were suffering from war-related illnesses, with many children diagnosed with post-traumatic stress disorders (PTSD).

In a Cyber Dyaryo article, Juvida observed that Moro children who had been caught in armed conflict situation expressed hatred for soldiers and Christians. A social worker proposed that this strong dislike resulted from the horrors these children experienced during hostilities between GRP and MILF forces. The CRC staff validated this observation of the Muslim children's "collective hatred" for Christians and generalized distrust for non-Muslims (Rivera, 2000).

The psychological symptoms of children victims have been little studied two years after they started arriving in the evacuation centers.

Coping mechanisms. The findings of the Ajkovic and Ajkovic study indicate that the child's coping is significantly enhanced by the mother's adjustment to the conditions of displacement. Aneshensell and Jeffrey (1982) determined that social support, age, sex, and education mediate the impact of the stressful situation on the individual and on the family. Moreover, a high level of social support helps the individual against the negative consequences of stressors. Social network and social support systems blunt the effect of stressful life events by providing a sense of security, sharing of concerns, and feelings of belongingness.

As with their psychological symptoms, the coping mechanisms of children that had been caught in armed conflict in Mindanao or anywhere else have not been studied extensively.

METHODOLOGY

Research design. This study utilized a descriptive design to document the war experiences and psychological reactions of children in armed conflict areas.

Locale of the study. The study was conducted in six out of 28 barangays of Carmen, Cotabato. The barangays are Kimadzil, Kitulaan, Manarapan, Poblacion, Gen. Luna, and Ugalingan, all considered to be in the war-torn areas that sit along the Sayre National Highway from Cotabato to Bukidnon.

The municipality of Carmen is bounded on the south by the municipality of Kabacan, on the east by Pres. Roxas, and on the west by Pikit town, all in Cotabato. On the north lies the province of Bukidnon.

Population and sampling. Based on Part I, Article 1 of the main provision of the Convention on the Rights of the Child adopted by the United Nations General Assembly on 20 November 1989, children are considered to be below 18 years old. This study had children with ages ranging from seven to 18 as the primary respondents. They were staying in the evacuation centers at the time of their participation in this study. Secondary respondents include the mothers or caregivers of the primary respondents.

A combination of purposive and random sampling procedures was used in this study. All the barangays located in Carmen, Cotabato were considered war-torn areas. However, due to the unstable peace and order conditions of some barangays, considerations for accessibility and personal security were factors

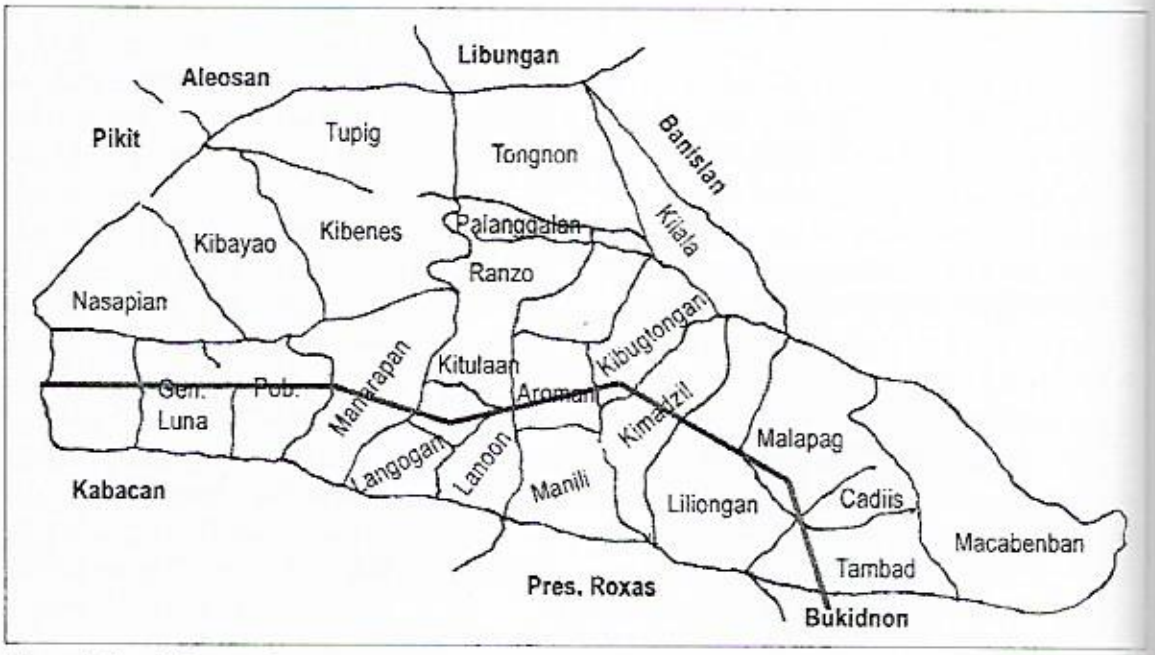

Figure 1. *Map of Carmen, Cotabato.*

War experiences and psy

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Table 2. *Variables and Measu*

VARIABLE
Age
Sex
Ethnic group
Level of education
Parent/guardian occupation
Household income
Nutritional status
War-related separation
Bereavement
Witness to war-related violence

Barangay Captain

purposively selecting the six barangays included in this study.

In the selection of the respondents, a list of evacuees from the Department of Social Welfare and Development (DSWD) municipal office was secured. The list was reviewed and validated by the *punong barangay*[2] to determine the number of households and dependents per evacuation center in the identified survey sites. Having determined the evacuation center-based population of each survey site, Slovin's formula was then employed to get the required sample. The required 98 respondents were proportionally allocated to the each of the six survey sites, as shown in Table 1. Respondents were chosen through systematic sampling procedure in which every kth unit from a population was chosen:

Table 1. *Distribution of the children respondents by survey sites, Year 2001*

Survey Sites	Household	Population	Sample (Children)
Kimadzil	76	380	6
Kitulaan	317	1585	24
Manarapan	800	4000	61
Poblacion	24	120	2
Gen. Luna	50	250	4
Ugalingan	10	50	1
Total	1277	6385	98

Variables and measures. Table 2 shows the variables and their corresponding measures.

Table 2. *Variables and Measures*

VARIABLE	MEASURE USED
Age	Actual age of the child at the date of interview
Sex	Male or female
Ethnic group	Actual response given by the child
Level of education	None, elementary undergraduate, elementary graduate, high school undergraduate
Parent/guardian occupation	Actual response given by the child
Household income	Actual monthly income of the family
Nutritional status	Severely underweight, moderately underweight, mildly underweight, normal, and overweight according to the DOH FNRI chart for age weight and height
War-related separation	Number and proportion of children having experienced war-related separation to include forced separation from parents, separation from a family member due to his being a soldier, or forced separation due to circumstance.
Bereavement	Number and proportion of children having war-related incidence of death of family member, a relative, or a close friend.
Witness to war-related violence	Number and proportion of children who witnessed the killing, torture, arrest, and threat to a family member, a relative, or a close friend.

[2] Barangay Captain

VARIABLE	MEASURE USED
War and combat exposure	Number and proportion of children who experienced being at the combat zone during the war and witnessing gunfight, bomb shelling mine explosion, and massacre.
Extreme poverty	Number and proportion of children who experienced inadequate basic survival needs such as food, water, clothing, shelter, and health care.
Psychological symptoms	Number and proportion of children who experienced at least one of the following symptoms: sleep disturbance, speech disturbance, socialization problems, stealing from home, fits or falling, frequent headaches, learning disturbance, bedwetting/soiling, nervousness, and running away.
Coping mechanisms	Actual response given by the respondent as the means used to alleviate stressful life conditions and war trauma.

Data Collection. The data for this study were gotten from individual records of the children's responses to a 5-part interview schedule. Answers for Parts I, II, IV, and V were gotten from the child respondents, while the data in Part III were supplied by the respondent's mother or caregiver. The questions on the interview schedule appeared both in English and in Visayan. However, the conduct of the actual interviews was done by Muslim barangay health workers who were oriented to administer the interview schedule and translate it, when deemed necessary, in the language used by the respondent. There was close monitoring of actual field interviews to minimize field recalls.

Instrumentation. A structured interview schedule consisting of five parts was designed to gather data needed for this study. The interview schedule was a modification of the Childhood War Trauma Questionnaire used by Macksoud in his 1992 study documenting the war experiences of children in Lebanon, Kuwait, El Salvador, and Mozambique. In particular, Parts I and II of the interview schedule, which dealt with demographic information and the occurrence of five war-related events known to have potential adverse psychological effects, were patterned from Macksoud's instrument.

Questions from Part III were modified from the Reporting Questionnaire for Children (RQC)[3] used by the World Health Organization (WHO) to assess psychiatric and mental health needs in developing countries. This section consists of 10 questions that were to be administered to any adult accompanying the child.

Parts IV and V of the questionnaire consisted of one open-ended question each, which dealt with the child's coping strategies

[3] Ladrigo (1983) and Giel (1981) have cited this instrument as an adequate tool in the identification of mental disorders in pediatric patients. The RQC has a sensitivity rate of 100 percent and specificity of 62.5 percent. This means that a positive response in just one of these items was considered significant. With a score of five or more, specifity is raised to 100 percent, leaving no doubt as to the child having a mental or psychiatric disorder. The RQC was used by Conanan, et al. in their study on the psychological profile of Filipino children in armed conflict areas. They suggest a more intensive evaluation process for children with an RQC of one or more is recommended to remove false positive cases and to arrive at a more specific diagnosis.

and prescription for government action in response to his situation.

The interview schedule was pretested on fifteen children within the population being studied. The pretest results were not included in the final report.

Data Analysis. This report makes use of descriptive statistics, to include mean, median, mode, frequency and percentage distributions, and range of scores, where appropriate.

FINDINGS AND DISCUSSIONS

This section presents the demographic profile of the respondents, their war experiences, psychological symptoms, and coping mechanisms employed.

Demographic profile. The 98 respondents had ages ranging from seven to 18 years old, with the mean age computed at 12. There were slightly more girls (53.3%) than boys (46.7%). Findings show that 86 percent of the respondents belong to Muslim groups, suggesting that the affected areas were generally Muslim barangays. Only 9.37 percent of those surveyed were Manobos,[4] while the Christians made up 4.7 percent.

In terms of educational level, 65.3 percent reported that they had not finished elementary education, with 14.3 percent of them not having entered into the school system at all. The armed conflict had disrupted the children's schooling and may help account for the 70 percent literacy rate reported in the province of Cotabato.

At the time of the interviews, it was indicated that the displacement had significantly affected family life among the war victims. However, the evacuee families had found a somewhat workable arrangement that allowed for the livelihood activities to be carried on while the family was based in the evacuation centers. Some fathers tended to the family farms during the day and headed back to the evacuation centers at night. Mothers and children stayed in the evacuation centers the whole time.

On the whole, around 13.1 percent of the fathers and 38.8 percent of the mothers were not any more able to do any income earning activities and were therefore reliant on the institutional and nongovernment organizations' (NGOs) support to be had at the evacuation centers for their family's wellbeing. It is noted though that there were three mothers who earned as vendors during their stay in the evacuation centers, something that they did not do before the war.

Given the number of parents who lost livelihood opportunities with the displacement, it is surprising to note a minimal decline in the reported family income. Monthly family income dropped from an average of Php1,747.00 before displacement to Php1,313.00 since the move to the evacuation centers. It seems to imply that woman labor carries very little remuneration, as the mothers' loss of income earning potential had relatively little effect on the reduction in family income.[5] Be that as it may, both pre- and post-war figures are well below the poverty line on Php5,000.00 for a family of five, set by the National Economic Development Agency (NEDA) in 1995. The reduction in income does show that a marginalized sector had been further marginalized because of the war.

The children's nutritional status was determined by comparing their individual

[4] Manobo is one of the tribes of Indigenous Peoples in Mindanao.

[5] While proportionally, the reduction in mean income represents close to 25 percent, in actual figures the opportunity cost lost per month is only Php434.00 or about Php14.50 lost per day.

weight and age against the Food and Nutrition Research Institute (FNRI) chart.[6] It was determined that 44.9 percent of the respondents were underweight to varying degrees. Without baseline data of the respondents' weight before their entry into the evacuation centers, the impact of displacement on their nutritional status could not be determined. However, in comparison against the municipal figures of Carmen on the nutritional status of its children, it is shown that only 12.5 percent of the whole child population are malnourished. The data then from the evacuee population shows that the incidence of malnutrition is more than triple the municipal incidence figure.

Nearly half (42.9%) of the respondents had experienced illness while staying at the evacuation centers. The most frequently reported sicknesses were preventable but also more likely to occur and be communicated in cramped and crowded quarters. These include fever (76.2%), diarrrhea (73.8%), respiratory tract infection (71.4%), and conjunctivitis (54.8%). Bouts of malaria[7] were reported by 42.9 percent, while 38 percent complained of having developed deafness, most probably from exposure to the artillery explosions at close range.

Among the respondents who had been ill, 92.9 percent identified lack of food as the cause; 85.7 percent cited war and gunpowder residue in the air; 54.8 percent implicated the unsanitary living conditions; and 38.1 percent identified fear as the primary cause. In majority of the cases (88.1%), the respondents noted that the barangay health workers (BHWS) responded to and managed their health concerns. According to the children, their health concerns were also treated by medical missions conducted by the diocesan staff (66.7%) and, on one occasion, by the AFP medical team (26.7%).

War experiences. It is indicated that the respondents had been exposed to multiple traumatic experiences. The respondents reported experiencing an average of three categories of war-related events that had potential adverse psychological effects. Table 3 below summarizes the reported categories of war-related experiences that the respondents had undergone.

Table 3. *War related experiences of children respondents, Carmen, Cotabato Year 2001*

Category/Event	Frequency (n=98)	Percentage
1. War - related separation	66	67.3
2. Bereavement	23	23.5
3. Witness to a violent event	20	20.4
4. War and Combat exposure	75	76.5
5. Extreme Poverty and Deprivation	98	100

War-related separation. There were 66 out of the 98 children who experienced separation from their family, close friend, or neighbor. It was reported that 10.6 percent of the respondents were forcibly separated from their parents by the military elements. There were about a quarter of the respondents who signified that the separation with a family member was due to the fact that he was a soldier and had to report to his unit. Separation from soldier friends was reported by a third of the children.

[6] The FNRI chart is used by the Department of Health as a tool to measure nutritional status.

[7] Malaria as used by the respondents may refer to the experience of malaria-like symptoms of fever and chills. There is no verification of the presence of malaria-bearing mosquito in this area.

Bereavement. The experience of having a family member, close friend, or neighbor die due to war-related events happened to 23 respondents. Of this, death in the extended family registered at 73.9 percent, while death in the nuclear family happened to 21.7 percent. Emotional responses to bereavement included generally adverse feelings of fear for their own lives (69.6%), anger and vengeful thoughts directed at the parties that caused it (56.5%), sadness (43.4%), and worry (30.4%). Thirteen percent reported that they felt unmoved by the experience of bereavement.

Witnessing a violent event. Twenty out of the 98 respondents reported that they had seen firsthand an act that resulted to killing (80%), destruction of homes (50%), ambush (35%), and torture (15%) inflicted on the immediate family, their relatives, neighbors, and on people they did not know. There were 13 among the 20 respondents who saw more than one violent victimization event. The children report experiencing fear (80%) and anger (50%) in reaction to the violent experiences.

War and combat exposure. Seventy-five of the 98 respondents reported exposure to shelling and artillery fire (86.7%), running gun battles or gunfight (61%), and massacre in the aftermath of armed encounters (17.3%). Data indicated that 44 percent of these respondents had multiple exposure to the violence of war. Hiding was the most predominantly reported response, with the children using grassland, culverts, and foxholes when they could not yet get to the safety of the evacuation centers. There were times when the children had to remain in hiding for more than 24 hours.

Extreme poverty and deprivation. Only three respondents reported that their family had the purchasing power to acquire food from the market. Food for the evacuees were generally sourced from government, church, and civil society relief agencies that serviced the evacuation centers. Relatives and friends reportedly supplemented the nutritional sustenance of 26.6 percent of the respondents. The evacuees perceived that the prevalence of food shortage was the reason why they got sick.

A significant proportion of the respondents (43.8%) could not eat three meals a day. Limited rice, rationed by relief agencies to families in the evacuation centers, was constantly in short supply and was available in the daily diet of only 56.7 percent of the respondents. Rice substitutes included banana (40%), cassava (26.7%), and gabi (3.3%). Viands generally came in the form of vegetables (23.3%) given by relatives and neighbors, canned sardines (13.3%), dried fish (3.3%), or salt (16.7%) from the meager stock rationed by the diocese and other relief agencies.

Conditions at the evacuation centers made it difficult for the family to obtain their basic needs. The children cited crowding, sharing space with the sick, lack of food and clothing, lack of privacy, and uncomfortable sleeping arrangements among the difficulties that they had to contend with on a daily basis. About three quarters volunteered that they had less than three changes of clothing. In addition, water sources were suspect, and treatment for potability were inadequate. Only 13.3 percent resorted to boiling water from deep or open pit wells. Chlorination was done by 26.7 percent. The majority (63.3%) did not use any intervention.

At the time of the interview, 79.6 percent of the respondents had been based in the evacuation centers for over a year. It is noted that moving to the evacuation centers had initially held little appeal to many of the respondents and that 43.3 percent of the respondents held

out for six months or more before being driven by poverty and intermittent harassment to seek the safety of the evacuation centers.

Although there were 83.3 percent who were optimistic about eventually going home, 16.7 percent had already lost hope. The majority (62.4%) viewed their homecoming with fear as they could not trust the fragile peace to hold (18.8%) and because the dreaded soldiers were still in the vicinity (18.8%).

Psychological symptoms. On the Reporting Questionnaire for Children (RQC), a screening instrument for childhood mental disorders, 42.8 percent of the respondents scored zero, indicating that they did not have any psychiatric problem. Altogether, the respondents got a mean RQC of 1.07, 57.2 percent of the cases scored from 1 to 4, putting them in the region of potential false possibles. However, it is observed that children who experienced more traumatizing events got higher RQC scores (see Table 4).

An examination of the extent of traumatic experiences in relation with psychological symptoms revealed that those children who had witnessed war-related violence (80%) and bereavement (39.2%) got the highest proportion of children who had RQC symptoms.

Among the most frequently reported psychological symptoms experienced by the children were nervousness (36.7%), withdrawal or unwillingness to socialize (26%), frequent headaches (20.4%), and sleep disturbances (11.2%). Learning disturbance (5%), bedwetting (1%), and speech disturbance (1%) were also reported.

This study also registered the children's fear, anger, and violent thoughts directed at government soldiers. In many instances,

Table 4. RQC *symptoms of respondents in relation with trauma, Carmen, Cotabato, 2001* (n=98)

Number of RQC	Number of Trauma					Total	
	1	2	3	4	5		
0	3	**19**	18	2	0	42	**42.8**
1	1	6	**10**	6	0	23	23.5
2	1	1	**12**	5	1	20	20.4
3	0	1	3	**5**	1	10	10.2
4	0	0	0	1	**2**	3	3.1
Mean RQC = 1.07 Mean trauma = 3							
Total	5	27	**43**	19	4	98	

Table 5. *Proportion of* RQC *Symptoms in relation to war experiences, Carmen, Cotabato, 2001*

Experience (A)	Without RQC (B)	With RQC (C)	Gap (C-B/Dx100)	Total (D)
Separation	25	41	24.2	66
Bereavement	7	16	39.1	23
Witness to violence	2	18	80.0	20
Combat Exposure	27	48	28.0	75
Deprivation	42	56	14.3	98

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When asked about
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(46.9%), with housing
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this had just cause as the children who manifested these had stood witness to losses, injury, and harassment committed by the soldiers against their person, their family, or neighbors and against other non-combatants. Many of them were put in situations where they feared for their lives due to the actions taken by the soldiers.

What is remarkable about this development is that a third reported that they had friends who were soldiers and about a quarter of them claimed they had family members also who served in the war. The development of fear and anger toward the soldier may signal the breakdown of the child's social support system as mistrust for the soldier replaces trust for someone who was a friend or relative.

Coping mechanisms. Data was gotten from the respondents about the measures used to cope with the stresses and difficulties of life in the evacuation centers. An overwhelming majority of them gratefully acknowledged the effectiveness of social support provided by the relief missions (92.9%) and the provision of religious activities (91.8%). A fatalistic streak was expressed by 84.7 percent of the respondents who claimed that the best way to get through their ordeal was just to bear it until it passed. There were 80.6 percent who recognized that good relations with fellow evacuees made the situation bearable. Shoring up family bond was used by 77.6 percent, 75.5 percent channeled their stress in the accomplishment of household chores, while 59.2 percent of the respondents battled the difficulties of their life circumstance by playing with friends.

When asked about the ideal government response to their plight, the children indicated an overriding concern for economic alleviation (46.9%), with housing needs and farm start-up foremost among their perceived priorities. Health interventions were the second highest concern (36.7%), with the provision of additional medicines seen as an immediate need to be addressed by the government. Interestingly, the cessation of hostilities through political intervention was ranked last (29.6%) among the responses given.

CONCLUSION

The war experiences of children in Carmen, Cotabato echoed much of the reported experiences of other children all over the world who had been similarly caught in armed conflict situations. War disrupted family life and social services and brought with it the loss of family livelihood, food sources, and opportunities for education. Displacement was the most traumatic consequence of war, bringing with it untold difficulties and stresses that, in as little as a year's time and coupled with the painful memories of war-related experiences, could result to psychological symptoms among the young.

Coping was aided by outside support agencies, religious affiliation, and the immediate family, as the young victims had yet to find their own inner strengths and harness their individual resources to get them through the vicissitudes of being war evacuees. Sociability and the art of getting along with others in close quarters, as well as the fortitude to bear the abject life circumstances, were important in allowing the child to survive the conditions of the evacuation centers.

Most notable in their perceived priorities are their individual felt needs and those of their immediate family that they would wish the government to address. The children could not yet engage the political mechanisms that could have been put to use to gain a more permanent and long-term solution to the war that was adversely affecting their communities.

RECOMMENDATION

The following recommendations are made in the light of the findings of this study:

1. Concerted government action should be directed at providing for the basic needs of the evacuees and their families. As the affected communities were all farming communities, rehabilitation of these areas should include agricultural support and start-up;
2. Safer water sources should be provided to minimize the incidence of diarrhea and gastrointestinal tract infections. Improved sanitation and the construction of water facilities should be among the priorities of rehabilitation plans being drawn up by pertinent agencies like the DOH and the Carmen LGU;
3. The gathering hatred that the child evacuees express for Christians and government soldiers ought to be addressed through appropriate therapeutic and cathartic interventions that would assuage the children's feelings of anger and other negative emotions;
4. The respondents were more concerned about stopping the war at hand than in the long-term vision of achieving a separate autonomy in Mindanao. The warring parties must exert serious effort to realize a lasting peace in Mindanao;
5. A healthy and strong social support system had been recognized as an effective measure to help children cope with their life situation at the moment. It is recommended that those actively engaged in relief operations should enact necessary means to sustain and improve social support to war-afflicted communities;
6. A separate study should be conducted to compare the nutritional status of children who experienced war against the nutritional status of those who did not experience war;
7. A separate study should likewise be conducted to compare the mean RQC of the respondents against the mean RQC of their counterparts who did not experience war. The findings of this proposed study would reveal the relationship between war experience and psychological symptoms; and
8. Psychotherapeutic interventions are indicated to be desirable to help the children cope with painful memories, adjustment to life conditions in the evacuation centers, and the process building hope in a future after the limbo of war-enforced displacement.

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Fluoride Concentration and Rinsing Time Among Kindergarten Children[1]

Rodolfo B. Mariano II, DMD, DDPH

ABSTRACT

In Japan, fluoride mouthrinses have been employed in school and at home to prevent dental caries. Upon recommendation of the Japanese Society for Dental Health in 1996, school-based fluoride mouthrinsing programs were started at the pre-school education. Most pre-schools require a weekly 30-second fluoride mouthrinsing for their pupils.

Experts, however, view rinsing for children aged 4-6 years old with caution as some studies have shown that fluoride mouthrinsing among pre-schoolers may be related to the perceived risk of dental fluorosis.

Inasmuch as experts disagree on the advisability of fluoride mouthrinsing among young children, this study set out to explore the possibility of reducing the rinsing time to lower than the 30 seconds used extensively in Japanese kindergartens.

Forty-three children, age 4-5 years, from an Okazaki municipal kindergarten, Aichi-ken, Japan were the subjects in the study. Mouthrinsing was carried out for 20 and 30 seconds with 5 ml of 225 ppm NaF solution. After rinsing, the participants spat the liquid out into paper cups. The F concentrations of the liquid expectorate were measured to determine how much fluoride was retained in the mouth.

To measure F concentrations, 0.3 ml of TISAB III was added to 3 ml of the expectorate using a 96-06 fluoride ion multiple electrode. The differences in F concentration were then subjected to two-way analysis of variance with post hoc comparisons by the Scheffé test.

The data showed that no significant difference in the retained fluoride was observed between rinsing times. The average total retained F was 0.13 mg after 20-second rinsing and 0.17 mg after 30-second mouthrinsing.

It was concluded that once-a-week fluoride mouthrinsing in Japanese kindergartens can still be shortened from 30 seconds to 20 seconds without significantly lowering the benefits derived from it.

[1] This paper reports on a part of the composite study entitled *Intra-Oral Fluoride Retention 3 Minutes after Fluoride Mouthrinsing in 4- to 5-Year-Old Children: Effects of Fluoride Concentration and Rinsing Time* undertaken by K. Adachi, H. Nakagaki, S. Tsuboi, S. Maruyama, M. Goshima, T. Shibata, M. Mukai, C. Robinson & RB Mariano for Caries Research 2005 (39):48-51. Accessible online at www.karger.com/cre.

Organizing Community-Based Peer Educators for Adolescent Reproductive Health

Josephine Littaua-Quianzon, MPD

ABSTRACT

The Institute of Primary Health Care (IPHC) of the Davao Medical School Foundation, Inc. in partnership with the Development of People's Foundation (DPF) undertook the Reproductive Health Empowerment of Adolescent (RHEA) Project[1] which was aimed at increasing youth awareness on adolescent reproductive health (ARH). To meet this objective, the IPHC initiated the organization and training of core groups of peer educators in selected communities through a program of activities that were undertaken from October 2002 to July 2004.

The RHEA project covered the municipalities of New Corella in Davao del Norte, Montevista in Compostela Valley, Tampakan in South Cotabato, and San Miguel in Surigao del Sur. The RHEA project set out to establish in these communities core groups of peer educators who were equipped to handle information, education, and communication (IEC) activities on ARH in the various barangays. Efforts were made to link the core groups with LGU and Sangguniang Kabataan (SK) officials.

At the close of the program, the IPHC conducted an evaluation through a series of focus group discussions (FGDs) with the various stakeholders, participants, and beneficiaries of the project. A survey of the knowledge, attitudes, and practices (KAP) of the peer educators similarly provided data for the evaluation.

Data from the FGD with representatives of the various LGUs revealed that the RHEA project was perceived to bring a positive influence on the wellbeing and community participation of the youth, especially those selected to be part of the core groups of peer educators. In many cases, the SK and the barangay officials translated their support in terms of funding and facilitating IEC activities in various barangays.

Among the youth, the RHEA project provided the venue for them to talk about ARH issues without shame or embarrassment. The participants reported that they were able to clear up their misconceptions about sex, sexually transmitted diseases, the consequences of unprotected sex, and gender issues.

A review of the RHEA project indicated that problems with communication and time constraints affected project implementation. Many barangay officials had yet to know about the services of the core group of peer educators. Mostly, the RHEA project undertakings only involved the youth sector – the SK, the core group, and the community youth participants to the IECs.

[1] Funding for the project was provided by the Ford Foundation under its Strengthening Reproductive Health Approach and Gender Mainstreaming in Primary Health Care Project.

It is recommended that peer educators be [illegible] educators in the [illegible] institutionalization [illegible] of ARH activities [illegible]

In the FGD [illegible] them more confident [illegible] KAP survey on [illegible] and the prevention [illegible] expressed their [illegible]

[2] Out of the 44 who were [illegible]

It is recommended that the ARH IEC activities of the community-based core groups of peer educators be sustained. This could be accomplished through the involvemen. of the peer educators in the Barangay Council for the Protection of Women and Children (BCPWC), the institutionalization of ARH projects at the municipal and barangay levels, and the integration of ARH activities in the plans of the SK, LGUs, Rural Health Units, and other line agencies.

In the FGD for peer educators, they reported that their involvement in the project made them more confident, articulate, and aware of the social situation confronting the youth. The KAP survey on 36 peer facilitators[2] showed that they had extensive knowledge about ARH and the prevention of sexually transmitted diseases. In terms of attitudes, the peer educators expressed their intention to make responsible choices.

[2] Out of the 44 who were active at the close of the RHEA project.

The Behavioral Patterns of Groups at High Risk to HIV Transmission in Davao City

Victoria T. Lupase, RMT, MPH, PhD, Rosita C. Cueto, MD, Ruperto Hector A. Lindo

ABSTRACT

With Acquired Immunodeficiency Syndrome (AIDS) threatening to become a pandemic at the turn of the century, the National Epidemiology Center of the Department of Health (DOH) initiated the National HIV/AIDS Sentinel Surveillance System to monitor the behaviors of high risk groups (HRGs). Under this program, the HIV Serologic Sentinel Surveillance (HSS) and the Behavioral Sentinel Surveillance (BSS) were conducted in key urban centers. Davao City was included for the BSS which was intended to assess the emerging trends in risky behavior and the prevalence of condom use among HRGs.

Every year from 1997 to 2001, repeated surveys were conducted among registered female sex workers (RFSWs), freelance sex workers (FLSWs), clients of female sex workers (CFSWs), and men who have sex with men (MSMs). Given the delicate nature of the data sought, one-on-one interviews were done using the DOH standard interview schedule translated in Visayan.

The final report shows that most in the HRGs were in their 20s, single, and have had obtained at least secondary education. Between 1997 and 2001, the median number of sex partners among the respondents increased, with the FLSWs consistently getting the highest number of sex partners at four per week. Oral sex was more practiced than anal sex among MSMs.

The prevalence of sexually transmitted diseases (STD) symptoms was highest among FLSWs (25%). Medical treatment for STD symptoms was sought by the RFSWs and FLSWs from the Social Hygiene Clinic. CFSWs and MSMs, on the other hand, were more likely to seek medical help from private clinics.

While knowledge about AIDS and HIV transmission increased to almost 70 percent, less than half of the respondents reported consistent condom use. Media, health workers, friends, and peer educators were the most common sources of information on HIV/AIDS.

Findings indicate a need to intensify the campaign on strict condom use, especially directed at male HRGs. There is also a need to introduce female condoms. Training of more peer educators and the conduct of qualitative studies to identify barriers to condom use are likewise recommended.

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Deanna Corinne

ABSTRACT

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Treatment Outcome of TB Patients under Directly Observed Treatment Short Course and Conventional Treatment Strategy[1]

Deanna Corinne T. Delima, Diji Ann Marie D. Hernaez, Kristela S. Imboy

ABSTRACT

The Philippines ranks fourth in the world for the number of cases of tuberculosis (TB). Up to five million people are infected yearly. The increasing incidence of TB has become an economic burden not only for the patient's family, but also for the country.

Recognizing this concern, the World Health Organization (WHO) introduced the Directly Observed Treatment Short Course (D.O.T.S.) to ensure completion of treatment and to reduce the incidence of TB. The effectiveness of the D.O.T.S. has been touted in various places in the country, but is yet to be fully documented.

In New Corella, Davao del Norte, TB ranks as one of the top 10 causes of morbidity. This study examined the prevalence of TB patients in the municipality from 1999 to 2001 to compare the effectiveness of D.O.T.S. against conventional strategy in the treatment of the diseases.

This is a retrospective cohort study design utilizing the records of the New Corella Municipal Health Center on the National Tuberculosis Program (NTP) enrollees. Since the D.O.T.S. strategy was introduced in New Corella only in 2000, those enrolled in 1999 were classified under conventional treatment strategy while those who enrolled later were classified under the D.O.T.S. strategy.

This paper was able to determine that the 1999-2001 TB prevalence in New Corella was 59 per 10,000. There was no significant difference as to cure rate across the two strategies, with the prevalence odds ratio computed at 0.86 (at 95% CI, 0.37<OR<2.06) and a p-value of 0.714.

Those under the D.O.T.S. were 2.52 times more likely to get lost to follow up as compared to those who underwent conventional treatment, with the prevalence odds ratio measured at 2.25 (at 95% CI, .01<OR<6.61).

Age and sex are not likely to be important variables to cure rate and prevalence odds as stratum-specific prevalence odds ratio does not differ significantly with summary prevalence ratio.

[1] This study was undertaken in July 2003 in partial fulfillment of the requirements of Community Medicine IV.

Treatment Outcomes of the Registered TB Patients in Carmen, Davao del Norte, 1998 to 2002[1]

Karissa Salazar-Go, Rojim Sorrosa, Jake Valeroso

ABSTRACT

The Philippines ranks eighth among the 22 high burden countries in the world in terms of tuberculosis (TB) cases. Everyday, about 75 Filipinos die of TB despite the availability of the technology to detect and treat it.

Consistently, the Philippine TB case detection rate and cure rate are below the epidemiologic targets. In response to these constraints and in pursuit of the Millenium Development Goal (MDG) to halve the incidence of TB, the World Health Organization (WHO) adopted the Directly Observed Treatment Short Course Chemotherapy (D.O.T.S.). In the Philippines, the National Tuberculosis Program (NTP) was created to control the disease. Under this program, the D.O.T.S. was implemented in Carmen in 1996.

This paper is a descriptive study on the performance of D.O.T.S. in Carmen with the data taken from the NTP TB registry in the main health center of the municipality. The data only cover D.O.T.S. figures for 1998 to 2002 as the records for 1996 and 1997 were not available.

The records show that the registered TB patients tended to be older, with the incidence of pulmonary TB greater after 40 years old. All of the cases involved the respiratory type of TB, with males more commonly infected than females. Prior to treatment, the majority of these patients never had radiologic examination.

The detection rate of TB in Carmen was consistently lower than the target rate of 70 percent. However, the overall death rate of patients with TB was kept to a minimum, although mortality cases were observed to be higher in the older age group.

Findings also showed that the treatment was successful for half of the registered patients, and that 38.7 percent completed the treatment without proof of cure.

This paper recommends that a study comparing the effectiveness of the D.O.T.S. with the conventional TB treatment be conducted.

[1] This study was undertaken in September 2003 in partial fulfillment of the requirements of Community Medicine IV.

Concepts of [illegible] in Carmen, [illegible]

Pinky A. Cabuling, [illegible]

ABSTRACT

The 1987 [illegible] Philippine society, [illegible] subsequent family [illegible] data provided by the [illegible] revealed that vasectomy [illegible] (FP) methods.

This study investigated on vasectomy and [illegible] the acceptability of [illegible] obtained with the [illegible]

In general, the respondents [illegible] vasectomy. However, [illegible] in particular, and only [illegible] the procedure.

From the FGDs, it was [illegible] synonymous with castration, [illegible] were the need to counsel [illegible] that would be suitable [illegible] inhibiting factors included [illegible] site, and some of the respondents [illegible] wife sexually, or the [illegible]

While many participants [illegible] to reconsider their position [illegible] spouses regarding the procedure, [illegible] the respondents who underwent [illegible] discussion with the spouse [illegible] assurance that the procedure [illegible] between them and their [illegible]

Based on the data gathered, [illegible] No-Scalpel Vasectomy [illegible]

[1] This study was undertaken [illegible] of Community Medicine IV.

Concepts of Vasectomy Among Married Males in Carmen, Davao del Norte[1]

Pinky A. Cabahug, Chrisalie Althea P. Puno, Danna Jill U. Tablante

ABSTRACT

The 1987 Constitution provides for the strengthening of the family as the basic unit of Philippine society, thus the implementation of the National Population Program. In the subsequent family planning program, male participation is generally encouraged. The most recent data provided by the Davao del Norte Provincial Health Office on the municipality of Carmen revealed that vasectomy as a method of choice ranked sixth in the list of seven family planning (FP) methods.

This study investigated the perception of 100 married men in Barangay La Paz, Carmen on vasectomy and their knowledge on family planning. This was also designed to probe into the acceptability of the recently launched DOH program for No-Scalpel Vasectomy. Data were obtained with the use of questionnaires and focus group discussions (FGDs).

In general, the respondents were able to recognize common myths and misconceptions about vasectomy. However, only 27 percent had a good understanding of FP methods and of vasectomy, in particular, and only 23 percent allowed themselves to consider the possibility of undergoing the procedure.

From the FGDs, it was established that the majority of the participants viewed vasectomy as synonymous with castration. The factors that would cause them to agree to undergo the procedure were the need to control the number of children in the family, the lack of any other FP methods that would be suitable to them and their partners, and the need to augment their budget. The inhibiting factors include the "ill effects" of vasectomy, such as infection on the post-operative site, and some of the myths regarding vasectomy, like physical weakness, inability to please the wife sexually, or the conversion of a male into a "sex maniac."

While many participants did not find vasectomy a palatable alternative, they were willing to reconsider their position under the following conditions: (1) a serious discussion with their spouses regarding the procedure; (2) time to weigh things; and (3) more children. Among the respondents who were willing to undergo vasectomy stated that they would require (1) a discussion with the spouse regarding the decision, (2) the assurance of the wife's fidelity, (3) the assurance that the procedure would be safe and painless, and (4) the reaffirmation of the trust between them and their spouse.

Based on the data gathered, it is indicated that the acceptance rate of the recently launched No-Scalpel Vasectomy among married men in Barangay La Paz would be low.

[1] This study was undertaken in September 2003 in partial fulfillment of the requirements of Community Medicine IV.

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The manuscript submitted should be double-spaced all throughout, left-justified, with 1-inch margin on every side, and printed using Arial 12 points on 8 1/2 x 11 inch bond paper.

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