Middle East Journal of Family Medicine

ISSN 148-4196

June 2008 - Volume 6, Issue 5

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This is the fifth issue this year. The issue is rich with public health issues in various countries from Malaysia, to Canada, Bangladesh and Nepal.

A paper from Turkey looked at the effects of physical training in motor skills in mentally retarded children. Throughout this process various types of motor skills are used. Statistically significant differences were found in walking, running, jumping, balance, trampoline, rope-ribbon tests and obstacle set skills in pre and post-test results. The authors concluded that training of the fundamental movement skills support motor development of mentally retarded children.

A cross sectional paper from Malaysia attempted to roughly determine the incidences of the various psychiatric disorders presenting to a private psychiatric outpatient clinics at any given time. Anxiety and depression were the most common diagnoses presenting to psychiatrists in private practice. The authors stressed the need for awareness of these incidences as effective treatment depends on early detection of these disorders.

A paper from Bangladesh looked at the MCH Project Intervention Effects on Infant and Maternal Mortality in Bangladesh. Like other developing countries of the world IMR and MMR are reducing in Bangladesh. The authors investigated the impact of the maternal and child healthcare MCH project on infant and maternal mortality using the data collected by MCH. Their analyses and findings indicated that both IMR and MMR are reduced significantly due to the project's intervention.

Barbaro J B, and Matear DW looked at public health dental programs. They stressed that these programs often had great budgets and included services. The objectives of this study were, to determine the proportions of different types of restoration treatments for primary molars in a Public Health Dental Program for children in need of urgent care; to explore the incidence of re-treatments on primary molars by type of treatment and to investigate costs associated with the different treatment options, accounting for re-treatments and to make recommendations. Program data from a Public Health Dental Program in the Simcoe County District Health Unit was extracted and analyzed for this retrospective study. The authors concluded that more specific criteria be followed for the use of metal crowns in public health programs.

A paper from Turkey investigated if there is any difference in sex in the role of learning between mentally handicapped children, normally developing children and children under protection. There were significant differences between three groups, and between girls and boys for some sub-scales.

A paper from Saudi Arabia estimated the level of documentation of vaccination history and its predictors for hospitalized children of = 2 years at the time of clerking. The authors concluded that vaccination history is poorly documented in admission notes, which might reflect a poor recognition and reporting of AEFI by the practicing physicians. Improving the documentation may result in better reporting of AEFI.

A paper from Bangladesh looked at Reproductive Health Problems of Married Adolescents in Bangladesh. The authors based their study on data collected under the project of UNFPA entitled "Strengthening the Department of Population Science and Human Resource Development". The study indicates that the mean age at first birth for adolescent mothers is 16.34 year and on average, each married women aged 10-19 has 0.65 births. It is also observed from the result of MCA that respondent's education, husband's education, husband's occupation and place of residence appears as the most important factor determining the mean number of children ever born. The outputs of the study demonstrate various policy implications that can improve the reproductive behavior of married adolescents.

A paper from Jordan looked at efficacy and side effects of tinidazole compared with metronidazole in the treatment of amoebiasis in Jordanian patients. Entamoeba histolytica is one of the common intestinal protozoans in the Middle East. 27 of 32 patients (87.5%) treated with tinidazole and 23 of 34 patients (67.5%) treated with metronidazole had parasitological cure. The authors concluded that Tinidazole was more effective than metronidazole, produced fewer and milder side effects, and is recommended with high efficacy in treating intestinal amoebiasis.

Finally, World CME (Australia) and the Nick Simons Institute in Nepal announce the launch of a CD based CME program for Nepalese doctors. As well as common health conditions, the program also seeks to cover specific health problems in the country, such as TB, leprosy, dengue fever and a variety of infectious diseases.

Effects of Exercises for Fundamental Movement Skills in Mentally Retarded Children

ABSTRACT

Purpose: The purpose of this study is to test the effects of physical training in motor skills in mentally retarded children. Throughout this process various types of motor skills are used.

Methods: Twelve mentally retarded children aged between 3-6 years participated in this study between March and June 2006. This study was performed in a pretest-training-posttest design. Children were trained and than scored on 11 fundamental movement skills based on the motor development part of the Portage Early Childhood Education Program Control Lists by a single observer. An exercise program was recruited for those children and they participated in this program during 26 sessions.

Results: Statistically significant differences were found in walking, running, jumping, balance, trampoline, rope-ribbon tests and obstacle set skills in pre- and post-test results ($p<0.01$).

Conclusion: In this sample and setting, training of the fundamental movement skills support motor development of mentally retarded children.

Key words: motor development, motor skills, mentally retarded children.

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Introduction

Whether mentally retarded or normally developed children, it's widely believed that fundamental movement skills and habitual physical activity are related in childhood[1, 2, 3, 4, 5]. Second year children relate to their environment and by the end of the second year, they have become skilled in the rudimentary movement skills that are developed during infancy[6]. Preschool and kindergarten children are developing their fundamental movement skills in a wide variety of stability, locomotor and manipulative movements. The development of fundamental movement skills is basic to the motor development of children. A wide variety of movement experiences provide them information on which to base their perceptions of themselves and the world about them. Motor development of the children is related to neurodevelopment[7,8]. Mentally retarded children generally have decreased motor developmental reflexes, increased basic reflexes, delayed upper level balance and balance reaction and slow down of the mental reactions[8]. Insufficient physical activity and problem in body awareness are effective in the motor development of the mentally retarded children[9,10,11]. There is still no consensus in the literature on the methods that should be used to assess the physical activity or the definition of fundamental movement skills in young children. The aim of the current study was to determine the effects of physical training in motor skills in preschool mentally retarded children.

Methods

12 mentally retarded 12 children aged between 3-6 years (7 girls, 5 boys) who are the students of a special government Education School in Ankara were included in this study between March 2006 and June 2006. Informed written consent was obtained from the parent of each child. Fundamental movement skills were measured by using 11 tasks based on the motor development part of the Portage Early Childhood Education Program Control Lists[12,13]. Tests were done before and after treatment. The test involved a set of 11 tasks: walking, running, jumping, cushion, ball, balance, obstacle set, bicycle, stairs, trampoline and rope -ribbon. Walking and running parts were composed of 6 items, jumping and stairs 4 items cushion 10 items, ball 11 items, balance 9 items, obstacle set 5 items, bicycle and trampoline 3 items, and rope-ribbon 11 items. Then children participated into the 26 session's gymnasium education program which was recruited for their individual and motor skill needs. Group gymnasium session included 3 parts:

a. Warm-up movements (5-10 minutes): Movement fascinating activities, functional activities.

b. Group activities (20-30 minutes): Group activities were composed of 11 stations from easy to difficult motor movements, as described below.

c. All class activities (5 minutes): This 26 session's education program

was applied to the children in groups twice a week. Portage Early Childhood Education Program. Control list motor development part was used pre and post education programs[13].

The program was composed of walking, running, jumping, cushion, ball, balance, obstacle set, bicycle, stairs, and trampoline and rope-ribbon stations. Each skill and station was composed of a series of motor skills designed from easy to difficult:

Walking;

1. Forward walking with rhythm tools,
2. Backward walking,
3. Side walking,
4. Forward and backward walking with walking bands, doormat and etc.,
5. Forward and backward walking across the balls,
6. Walking between various types of walking bands

Running;

1. Forward running in slow and fast speeds with rhythm tools,
2. Backward running in slow and fast speeds,
3. Side running,
4. Running with walking bands, doormats etc.,
5. Forward and backward running between balls,
6. Running between various types of walking bands.

Jumping;

1. Jumping with both legs,
2. Standing on one foot,
3. Jumping from higher place to the floor (20 cm),
4. Jumping from the foot-ankle height rope,

Cushion;

1. Creep,
2. Crawl,
3. Jump,
4. Roll,
5. Stand-forward,
6. 6. Glide-side,
7. Crab walking,
8. Wheel barrow walking,
9. Duck walking,
10. Somersault,

Ball;

1. Reciprocal forward ball rolling,
2. Backward ball-rolling,
3. Ball sliding-both hands,
4. Ball sliding -one hand,
5. Kicking the ball-standing,
6. Kicking the ball-moving,
7. Throwing the ball,
8. Catching the ball,
9. Throwing the ball to the target,
10. Jumping the ball while standing on knees,

Balance;

1. Walking between two lines,
2. Walking on the single line,
3. Walking on the balance board (forward-backward),
4. Walking on the balance board while looking forward,
5. Walking on the balance board with the ball,
6. Lift the leg forward on the balance board,
7. Lift the leg backward on the balance board,
8. Creep on the balance board in the prone position,
9. Walking at the bottom on the balance board,

Obstacle set;

1. Passing between the wall and bar,
2. Passing over the obstacle,
3. Passing below the obstacle,
4. Creep under the obstacle in the prone position,
5. Passing through the obstacle,

Bicycle;

1. Moving by pushing feet without using pedals,
2. Putting feet on to the pedals,
3. Moving by pushing pedals,

Stairs;

1. Walking through the stair gaps (fast),
2. Walking through the stair bars,
3. Descending stairs,
4. Ascending stairs,

Trampoline;

1. Vertical jump while supporting with both hands,
2. Vertical jump while supporting with one hand,
3. Vertical jump without support,

Rope-ribbon;

1. Turning the rope in front (left to right),
2. Turning the rope in front (right to left),
3. Turning the rope in front (left to right),
4. Turning the rope in front (right to left)

Each task was shown and demonstrated and each child was tested and scored individually. Single trained observer gave 1 point if the test was not performed or 2 points if the test was performed with help and 3 points if the test was performed correctly.

Data Analysis

Wilcoxon statistical analysis system was used to compare movement skills levels before and after the program. Significance level was set at $p<0.05$.

Results

Statistically significant differences were found in walking, running, jumping, balance, trampoline, rope-ribbon tests and obstacle set skills in pre and post test results ($p<0.01$). Nine of ten cushion movement skill scores were significantly different between pre and post test results ($p<0.05$). Only in the second item (crawling) there was no statistically significant difference found ($p=0.83$). In the statistical analysis of ball skill test results, significant differences were found in 10 out of 11 tests ($p<0.01$). Bicycle skills were significantly different between pre and post test results ($p<0.01$) except in the first movement (moving by pushing feet without using pedals) ($p=0.083$). In stair tests 3 out of 4 items were found significantly different in pre and post test results ($p<0.05$) except in the 4th item (stair climbing) ($p=0.059$) (Table 1).

DISCUSSION

The present study suggests that training of mentally retarded children in functional movements is beneficial for the development of fundamental movement skills[14]. Children who spend time in motor activities as described by their educators, tended to have higher results after the education program.

Our results tend to support the results expressed by Halle[6]. They found a statistically significant increase in physical activity and skills in minimally mentally retarded children aged between 6-11 years. However our observation marked some differences in stair climbing and moving by pushing feet without using pedals on bicycles before and after the education program. In the study of Centers et al, both normal and mentally retarded children were taken to the motor skills educational program for 5 months, 4 days per week during 40 minute sessions[15]. They found a statistically significant increase in motor skills of both groups. When we compare these results with ours, the duration of training in educational program in their study was seen to be longer.

Our findings are also similar to those of Johnson et al[16] who had taken 15 mentally retarded children into the physical activity program. They found improvement both in physical and social skills.

Our observations tend to support the view expressed by Botha, that exercise programs improved the motor skills of mentally retarded children[11].

It is possible that gender differences might exist at the end of the education program based on the fundamental movement skills(1,3,4). Girls performed more successfully in balance and boys performed better in running and jumping tasks. This result has been demonstrated previously in preschool children[3,17]. However we did not analyze gender differences in the main analyses because of the small number of the study group. It can be more beneficial to analyze the gender differences. and future studies are needed in a larger group of mentally retarded children.

It can be said that organization of gymnasium programs, proper to the motor development levels of mentally retarded children can improve fundamental movement skills of these special children. At the same time it's possible to say that these results can positively affect the body awareness and self confidence of mentally retarded children.

CONCLUSION

The present study showed that group exercise programs had positive effects on the improvement of motor skills.

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Table 1: Wilcoxon Rank Test results of motor skills in pre and post test design

Motor Skills	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Z10	Z11
Walking	2.64**	2.64**	2.88**	3.03**	3.36**	3.36**					
Running	2.71**	3.15**	3.15**	3.22**	3.18**	3.36**					
Jumping	3.21**	3.03**	3.22**	3.13**							
Balance	3.02**	3.15**	3.00**	3.16**	2.92**	3.28**	3.15**	2.71**	2.43*		
Trampoline	3.28**	3.18**	3.16**								
Rope-Ribbon	3.15**	3.15**	3.02**	3.18**	3.07**	3.03**	2.65**	3.01**	3.13**	3.36**	3.21**
Obstacle Set	2.97**	3.03**	2.74**	3.22**	3.07**						
Cushion	2.64**	1.73	2.92**	2.45**	3.36**	3.36**	3.36**	3.13**	3.15**	2.89**	
Ball	1.41	3.46**	2.33*	3.13**	2.24*	2.81**	2.43*	2.83**	2.76**	3.04**	3.18**
Bicycle	1.73	2.74**	3.18**								
Stairs	2.81**	3.03*	2.00*	1.89							

* p<.05, ** p <.001

Nitroimidazoles in The Treatment Of Intestinal Amoebiasis

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Key words: Amoebiasis ,Treatment, Nitroimidazole ,Metronidazole.

ABSTRACT

Objective: Entamoeba histolytica is one of the common intestinal protozoans in the Middle East. Treatment of infection has some difficulties by metronidazole because of the long course of therapy and various side effects. The objective of this study was to determine efficacy and side effects of tinidazole compared with metronidazole in the treatment of amoebiasis in Jordanian patients.

Patients and Methods: Over a period of one year duration, starting July 2005 through to July 2006,a randomized controlled clinical trial was carried out on 66 subjects (42 males, 24females) with Entamoeba histolytica infestation who presented to the out-patients clinic or emergency room in Queen Alia Military Hospital in Jordan. Infected patients were treated with either tinidazole or metronidazole(Tinidazole 2gm single dose orally for 3 days and metronidazole 2gm single dose orally for 3 days). Parasitological cure was documented when there were 3 successive negative stool examinations for entamoeba histolytica at 1-2 weeks after therapy.

Results: 27 of 32 patients (87.5%) treated with tinidazole and 23 of 34 patients (67.5%) treated with metronidazole had parasitological cure. Cure rates between the two groups were significant statistically (P<0.01). No major side effects were observed except 13 cases in the metronidazole group who had nausea, epigastric pain, mild headache and some had metallic taste. Three cases in the tinidazole group had nausea, dizziness and headache.

Conclusion: Tinidazole was more effective than metronidazole; it produced fewer and milder side effects, and is recommended with high efficacy in treating intestinal amoebiasis.

Background and Objectives

Entamoeba histolytica is the etiological agent of amoebic dysentery. Worldwide, 40-50 million symptomatic cases of amoebiasis occur annually and 70,000 to 100,000 deaths are due to this infection[1]. Molecular phylogeny places entamoeba on one of the lowermost branches of the eukaryotic tree, closest to dictyostelium. Although the organism was originally thought to lack mitochondria, nuclear-encoded mitochondrial genes and a remnant organelle have now been identified[2,3]. Unusual features of entamoeba include polyploid chromosomes that vary in length; multiple origins of DNA replication; abundant, repetitive DNA; closely spaced genes that largely lack introns; a novel GAAC element controlling the expression of messenger RNA; and unique endocytic pathways[4-7]. There are two distinct, but morphologically identical species of Entamoeba: Entamoeba histolytica, which is pathogenic and Entamoeba dispar, which is non-pathogenic[15].

Ingestion of the quadrinucleate cyst of E. histolytica from fecally contaminated food or water initiates infection. Infection with E. histolytica may be asymptomatic or may cause dysentery or extra intestinal disease. Asymptomatic infection should be treated because of its potential to progress to invasive disease. Patients with amoebic colitis typically present with a several-week history of cramping abdominal pain, weight loss, and watery or bloody diarrhea. The insidious onset and variable signs and symptoms make diagnosis difficult, with fever and grossly bloody stool absent in most cases[8,9,10]. Therapy for invasive infection differs from therapy for noninvasive infection.

Noninvasive infections may be treated with paromomycin. Nitroimidazoles, particularly metronidazole, are the mainstay of therapy for invasive amoebiasis[11]. Nitroimidazoles with longer half-lives (namely, tinidazole, secnidazole, and ornidazole) are better tolerated and allow shorter periods of treatment. Approximately 90 percent of patients who present with mild-to-moderate amoebic dysentery have a response to nitroimidazole therapy. Parasites persist in the intestine in as many as 40 to 60 percent of patients who receive nitroimidazole. Therefore, nitroimidazole treatment should be followed with paromomycin or the second-line agent diloxanide furoate to cure luminal infection.

Metronidazole and paromomycin should not be given at the same time, since the diarrhea that is a common side effect of paromomycin may make it difficult to assess the patient's response to therapy[12,13,14]. In this study we assess the efficacy of the 2 nitroimidazoles available in Jordan, tinidazole and metronidazole.

Patients and Methods

The efficacy and tolerability of metronidazole and tinidazole were evaluated in a randomized, clinical trial performed with 66 patients who attended the out-patient clinic and emergency room in QAMH .The study period was 12 months from July 2005 to July 2006. The subjects (24 females and 42 males) were randomly allocated to two groups: experiment group (n=32) were given tinidazole and control group (n=34) were given metronidazole [Table 1]. In group one, metronidazole 2gm as

a single dose orally for 3 days), and in group two, tinidazole 2 gm, single dose orally, were prescribed respectively[16]. Patients were followed for three weeks after the end of therapy for the presence of entamoeba histolytica in their stool. Clinical and parasitological follow-up was carried out before, and at 7, 14, and 21 days after treatment and the outcome of treatment was noted. Parasitological cure was documented when there were three consecutive negative stool examinations for entamoeba histolytica at 1-3 weeks after therapy termination.

Results

As illustrated in Table 1 the sample size of both groups was almost identical 32 (48.5%)and 34 (51.5%)of tinidazole and metronidazole respectively. The males constituted the majority of patients at 42 (63.6%) while the females were 24 forming 36.4% of the patients. The male to female ratio was 1.75:1.

Table 1 number of patients allocated to therapy

Drug / Sez	Tinidazole	Metronidazole	Total
Male	19(45%)	23(55%)	42(63.6%)
Female	13(54%)	11(46%)	24(36.4%)
Total	32(48.5%)	34(51.5%)	66(100%)

The age distribution of patients ranged from 16 years to 68 years, the commonest age group was among 20 years - 40 years making up around half of all patients(48.5%) as shown in Table 2.

Table 2 age distribution of patients

Age / Sex	<20 Years	20-40 Years	>40 Years	Total
Male	11(26%)	19(45%)	12(29%)	42 (63.6%)
Female	9(37.5%)	13(54%)	2(8.5%)	24 (36.4%)
Total	20 (30.3%)	32 (48.5%)	14 (21.2%)	66 (100%)

28 of 32 patients (87.5%) treated with tinidazole and 23 of 34 patients (67.5%) treated with metronidazole had parasitological cure. Cure rates between the two groups was statistically significant (P<0.01). No major side effects were observed except two cases in the metronidazole group who had mild headache and abdominal pain for two days and three cases in the tinidazole group who reported nausea, dizziness and headache. Efficacy of the two regimens in term sof drugs, are presented in [Table 3]. Tinidazole appears to be safe having a few ignorable side effects and produces a significant cure rate, more effective than metronidazole.

Table 3 The efficacy of treatment

Efficacy			
Drug	Effective	Non effective	Total
Tinidazole	28 (87.5%)	4 (12.5%)	32 (48.5%)
Metronidazole	23 (67.5%)	11 (32.5%)	34 (51.5%)
Total	51 (77.2%)	15 (22.8%)	66 (100%)

Discussion

A 2gm single dose for 3 days regimen of tinidazole had excellent effectiveness in treatment of amoebiasis as compared with metronidazole. Introduction of nitroheterocyclic drugs in the late 1950s and the 1960s heralded a new era in the treatment of infections caused by a range of pathogenic protozoan parasites[17]. Metronidazole is the drug now most widely used in the treatment of anaerobic protozoan parasitic infections caused by G. intestinalis, Trichomonas vaginalis and Entamoeba histolytica[18,19]. Although various drugs have been available for several decades to treat this infection, none of them is entirely satisfactory due to the high incidence of undesirable side effects and a significant failure rate in clearing parasites from the gastrointestinal tract[19,20]. Some evidence suggests that drug resistance may be responsible for these failures[21,22]. Unfortunately, failures in treatment of amoebiasis with standard metronidazole therapy have been reported in 5 to 20% of cases. In the event of overt clinical resistance to metronidazole in entamoeba histolytica strains, tinidazole could be an alternative treatment. A key issue should be keeping in mind the documented cross-resistance between currently used nitroimidazole drugs .As such the choice of drug will differ in each case depending on the local conditions and keeping in view the sensitivity of parasite strain. Moreover, perhaps treatment of all asymptomatic entamoeba histolytica infections in developing countries hyperendemic for the disease, is doubtful because of rapid reinfection. Clinical metronidazole resistance in Trichomonas vaginalis has also been documented previously[22]. Single dose therapy with tinidazole is effective in the metronidazole-resistant strains of T. vaginalis which could be another advantage of this drug.

Conclusions

Tinidazole was more effective than metronidazole and produced fewer and mild side effects. We recommend tinidazole as the drug of choice for treatment of amoebiasis because of its efficacy, and desirable tolerance. This preparation is preferred to metronidazole in the treatment of entamoeba histolytica infection as a considerable advantage in low socio-economic communities. Moreover, this drug may be tried and used if other agents failed in the treatment of clinical amoebiasis.

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The MCH Project Intervention Effects on Infant and Maternal Mortality in Bangladesh

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Key words: Project intervention, Infant mortality, Maternal mortality, Significance, Pregnancy awareness, Survival chance.

ABSTRACT

Like other developing countries of the world IMR and MMR are reducing in Bangladesh. But these are still alarming in Bangladesh, especially in rural areas and in the poorest section of the country. This study investigated the impact of the maternal and child healthcare MCH) project on infant and maternal mortality using the data collected by MCH. Our analyses and findings indicated that both IMR and MMR are reduced significantly due to the project intervention. We also found the clear difference between project intervened and non-intervened beneficiaries due to pregnancy awareness training from MCH. The factors that cause maternal morbidity and death also affect the survival chances of the foetus and infant. In the present study we also indicated the dominating causes of high IMR and MMR in Bangladesh. High rates of maternal deaths occur in the same countries that have high rates of infant mortality reflecting generally lack of knowledge and medical care.

Introduction

Despite significant improvements in child survival in recent decades, levels of infant and child mortality and morbidity remain unacceptably high in many developing countries (UNDP, 2004; World Bank, 2000). These problems are particularly serious among high-risk pregnancies and births and in many developing countries where the health-care system is still struggling to provide basic public health and maternal and child health to their population (Bryce et.al. 2005; Atiyeh and El-Mohandes, 2005). In such countries, adequate health-care services for managing high-risk pregnancy and delivery are usually available at the referral levels such as regional and national hospitals (Yucesoy et al. 2005; Ravikumara and Bhat 1996). However, access to these facilities remains limited owing to factors such as distance, transportation cost and medical fees; specifically for the poor women and women who live in the rural and remote areas.

Although a remarkable decline in mortality has been observed over the last half of the past century, but within country, mortality both in developed and developing countries varied often by different sub-group (Feachem, 2000; Gwatkin, 2000). Almost everywhere the poor suffer poor health and the gap in health condition by economic group, ethnicity, caste or place of residence remains very wide. In Bangladesh, many positive changes have taken place in various fields (for example, in food production, communication, education, life expectancy, fertility decline) over the past few decades (UNICEF, 2001), but the country still remains one of the world's poorest nations according to World Bank criteria. To improve health of the people, the government has intensified health services over the country since the Alma-Ata conference in 1978. This includes establishment of Health Complexes and provision of free health and family planning services in both the urban and rural areas. But these facilities are yet to create awareness of health to the majority of people in Bangladesh.

In Bangladesh maternal and child health problems pose a serious threat to the improvement of overall health status of the country and thereby negatively affect the socio-economic development. Mortality under age 5 in Bangladesh is 71 per 1000 live births and infant mortality rate is 53 per 1000 live birth (ESCAP Population Data Sheet, 2007). It is still unacceptably high. The reduction in maternal mortality in the past 15 years is 22%, right on target towards the Millennium Development Goal (MDG) of a 75% reduction between 1990 and 2015 (Ali et.al. 2004). The Maternal Mortality Survey 2001 indicates maternal mortality is 3.20 per 1000 live births.

The high mortality rates indicate lack of health facilities and lack of knowledge as the major causes. Though a lot of the NGOs are working to reduce IMR and MMR through providing social and material support as well as government which is also creating awareness through different means like radio and TV programs, leaflets, posters, billboards etc.

In many low-income countries, non-governmental organizations (NGOs) deliver basic health services in particular areas or among certain populations. Their effectiveness in establishing sustainable primary health care (PHC) systems has been linked with promotion of community participation, having close links with the poor, being flexible and having committed staff (Gellert 1996). The comparative advantage of NGOs might be assessed in terms of efficiency, innovation, quality of services, ability to mobilize resources, contribution to the sustainability of the local health system and coverage of grass-roots communities (Gilson et al. 1994; Matthias and Green 1994; Stefanini 1995). However, the need for reliable evidence on the impact and effectiveness of NGO PHC provision has long been recognized (Edwards and Hulme 1995). This paper examines the effectiveness of a MCH project conducted by an NGO to reduce the infant and maternal mortality rate in Bangladesh.

Data and Methodology

In Bangladesh many NGOs are implementing mother and child healthcare projects to reduce infant and maternal mortality. Islamic Relief Bangladesh is one of them and conducting a project, which provides antenatal care, post natal care, pregnancy test, diagnosis risk pregnancy, child growth monitoring, provides safe delivery kits etc. from 1996 at the Mithapukur upazila of Rangpur district, Bangladesh. Reducing maternal and infant mortality, improving overall health situation, promoting health awareness, ensuring preventive measures, encouraging physical and psychological development of the poor in the area are the key concerns of the project.

For this study, information has been collected from selected respondents who have benefited from the project intervention directly or indirectly. Information has also been collected from non-intervened respondents. To collect information, a structured questionnaire, focus group discussion, and case study were used. A three stage stratified random sampling technique has been adopted for this survey with beneficiary as a sampling unit. The size of the total sample was selected at 300. A total of 100 non-intervened respondents were selected from two villages.

Results and Discussion

Health Services Obtained

It is observed from the survey that 84% of respondents including their children have been getting necessary immunization from the MCH project. Other services obtained by the respondents from the MCH project are: 79% received check up facilities during pregnancy, 77% of respondents including their children received facilities to measure weight during pregnancy for women and growth monitoring for below 5 years children. The respondents also received several types of facilities from the MCH project such as urine/pregnancy test, awareness on health education, child care, nutritious food during pregnancy, and awareness of breastfeeding.

Sources, Knowledge and Types of Services Received

From Figure 1 it is observed that 97% respondents said that they are getting effective messages on mother (ANC & PNC) and child health care through MCH health workers/nurses. Besides this 18% if respondents were aware by listening and watching Radio/TV. The most significant findings is that only 10.67% respondents received several lots of information regarding maternal and child health through government health workers, other NGO's health workers, CAP project's staff and poster/leaflet.

Figure 2 represents that the antenatal care is the most imperative assistance for the pregnant woman. The essential services are regular check ups, taking iron tablets, heavy work, careful movement, taking TT vaccines, taking nutritious food, regular rest etc. After getting awareness training regarding antenatal care most of the respective pregnant women have been followed and taken same services (Fig. 3). The mentioned services are provided by MCH project 92%, other NGO's 5.3% and the rest from government hospitals/clinics (Table 3).

Medical Check-up and Realization of Pregnancy

Survey findings indicated that almost all respondents know medical check up is essential for caring for mother and her baby during the antenatal period. Table 4 shows that around 90% of women have had a medical check up before last birth and the remaining 10% could be a first time child bearer so it was not necessary to do that. Since all respondents are conscious about their own health during pregnancy and want to give birth to a healthy baby, 72% of respondents took a medical check up three times and 27% two times before the last child birth.

Table 5 indicates that 90% of women can recognize through vomiting tendency whether she is pregnant. Almost the same results observed both in the intervened and non-intervened group of women. Other pregnancy symptoms felt are dizziness, menstruation cessation, distaste, ill smelling etc. In comparison of both groups, 38% intervened respondents said they have confirmed pregnancy by urine test on the other hand only 2% of non-intervened women ensured by urine test as well.

Complications During Pregnancy

Table 6 shows that about four-fifths of pondents have given birth to their children without any complexity and 19% faced some complexity during delivery. The highest number of respondents (62%) faced excess bleeding following placenta delivery(26%). In contrast the non-project intervened respondents have suffered more excess bleeding and

eclampsia than the intervened group of people. On the other hand about 4 times less response was found on placenta from non-intervened women. This may have happened because of lack of awareness. Among the sufferers they firstly go to project staff and the local TBA to take suggestions and ro solve the problem. A non-intervened woman goes to TBA, UHC and private clinic.

Breastfeeding and Complementary Feeding of Children

It is observed from Table 7 that in experimental groups 100% respondents are aware of breastfeeding the child whereas only 22% are in the non-experimental groups. Among the experimental group the respondents said that on average breastfeeding should be carried out for 25 months whereas 30 months is in the non-experimental groups. It also shows that supplementary foods should be provided to the child after 6 months whereas the non-experimental group responded that supplementary food should be given after 13 months with breastfeeding.

Place of Delivery

Proper medical support and hygienic conditions during delivery can reduce the risk of infection which could lead to serious illness or death to the mother or new born. Table 8 indicates that delivery at home nevertheless remains high (89%) which is close to Bangladesh Maternal Health Services and Maternal Morbidity Survey findings (91%) (NIPORT, 2003). Seven percent of deliveries occur in the private clinic or Govt. hospitals for the intervened groups. All non-intervened respondent's delivery occurs at the home though few number of child births have occurred.

Assistance During Delivery

From Table 9 we found that among the experimental group 43% of respondents delivered their children through the MCH trained TBA and 20% by MCH nurses. It also shows that 25% of respondents among the experimental group completed delivery through relatives, compared to 69% of respondents in the non-experimental group. Only 6% of respondents completed delivery using normal TBA among the experimental group whereas 19% in the non-experimental group did.

Types of Delivery

It is observed from the data given in Table 10, that about 94% of births occur by normal delivery and 3% occur by caesarean and use of forceps. The findings show all deliveries have been done normally for the non-intervened group without using any modern facilities. It depicts that the population of non-experimental group are still unaware regarding modern facilities of delivery than the project intervened areas.

From Table 11 and Figure 5 we found that the infant mortality rate for the experimental group is 27 per 1000 live births which is less than half of non-experimental group 60. Under five year child mortality for the experimental group is only 18 per 1000 live births whereas for the non experimental group it is 71 per 1000 live births, which implies that the result for ther experimental group is about one-fourth of the non-experimental group. We also found that the maternal mortality rate is also lower for the experimental group than that of the non-experimental group. Significant changes have been found for IMR and under five child mortality due to MCH project intervention.

Conclusion and Recommendation

A nation's maternal mortality ratio is now widely considered to be an important indicator of the overall health status of women. High MMR represents failure of a health system to effectively provide services and care for women, and the failure of society to keep women in good health. The services most often linked to reduction of maternal mortality include antenatal care during pregnancy, tetanus toxoid vaccination, professional child delivery (including emergency services access), postnatal care and family planning services (UNICEF, 1999).

The main aim of the aforesaid project is to reduce maternal and infant mortality rate, improve the overall health situations, promotion of health awareness, ensure preventive measures, encouragement of physical and psychological development of the poor. We observed that most of the deliveries occurred by the project trained TBAs, relatives, project staff and general TBAs in the home. Risk delivery cases are brought to the government hospitals or private clinics for giving birth as suggested by the health worker and nurse. People said and also study findings say that maternal and infant mortality is reducing gradually after project intervention. Planners and policy makers should take all necessary actions to keep reducing the IMR and MMR throughout the country as did the MCH project.

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Table 1. Sample sizes of the selected areas

Union	Village	Number of Sample
Payrabandh	Tokeya Kesabpur Shalmara Latibpur	30 30
Balarhat	Kutubpur Kismot Kale	30 30
Bhangni	Krisnapur Thakurbari	30 30
Khoragach	Siraj Khorgch Southpara	30 30
Ranipukur	Habibpur Tajnagar	30 30
Total		300

Table 2. Type of facilities received by the beneficiary from MCH Project

Types of benefits	Number	Percent on total respondent
Immunization (mother & child	253	84.33
Check-up during pregnancy	236	78.67
Weight of pregnant mother	200	66.67
Urine test/pregnancy check-up	123	41.00
Awareness of health education	119	39.67
Nutritious foods for child	111	37.00
Medicine support	98	32.67
Awareness training on child care	60	20.00
Nutritious foods during pregnancy	33	11.00
Weight of child	32	10.67
Normal treatment during pregnancy	20	6.67
Iron tablets	18	6.00
Delivery kits	15	5.00
Care progenitress	14	4.67
Additional foods of child	13	4.33
Diarrhea	7	2.33
Awareness on breastfeeding	6	2.00
Care of newborn baby	2	0.67

Table 3. Sources of Services

Services	Number	Percentage
Mother and Child Health (MCH) project	277	92.33
Upozila health centre/govt. hospitals	7	2.33
Other NGO's	16	5.33
Total	300	100.00

Table 4. Number of medical check ups before last child birth

Status of medical check up	Experimental group (%)	Non-experimental group (%)
Yes	90.00	2.00
No	10.00	98.00
Total	100.00	100.00
No. of medical check up		
One time	3.70	100.00
Two times	27.07	-
Three times	72.22	-
Total	100.00	100.00

Table 5. Understanding or realization level of pregnancy by the respondents

Level of understanding	Experimental group (%)	Non-experimental group (%)	Total
Vomiting	92.00	83.00	89.75
To feel dizzy	79.33	56.00	73.50
Ceasing menstruation	66.67	69.00	67.25
Distaste	64.67	38.00	58.00
Urine test	38.33	2.00	29.25
Feel weight fall	14.00	3.00	11.25
Ill-smelling of food	12.67	6.00	11.00
Weakness	6.33	1.00	5.00
Develop/increase breast	6.67	-	5.00

Table 6. Complexity faced and sources of treatment

Status of complexity	Experimental group (%)	Non-experimental group (%)	Total
Faced	21.00	14.00	19.30
Not faced	79.00	86.00	80.70
Total	100.00	100.00	100.00
Complexity type			
Excess bleeding	57.60	71.43	62.30
Placenta	32.20	7.14	26.00
Perinial tear	10.20	14.29	10.40
Eclampsia	-	7.14	1.30
Total	100.00	100.00	100.00
Shared problems			
MCH doctor at HCwith nd sources of treatment y the pregnant women	22.22	-	-
Staff nurse at MCH union clinic	12.70	-	-
TBA	17.46	50.00	-
UHC	6.35	35.71	-
Private clinic	41.27	14.29	-
Total	100.00	100.00	

Table 7. Knowledge about breastfeeding and supplementary food of the children

Status of breastfeeding	Experimental group (%)	Non-experimental group (%)	Total
Knowledge about shawl breastfeeding	100.00	22.00	80.10
Average months continue to breastfeeding	25.00	30.00	26.00
Provide supplementary food including breastfeeding (Months)	6.00	13.00	7.00

Table 8. Birth places of children

Birth places	Experimental group	Non-experimental group	Total
Home	88.06	100.00	89.15
Private clinic	3.36		3.05
Govt./UHC	3.73		3.39
MCH union centre	0.37		0.34
Others	4.48		4.07
Total	100.00 (n=268)	100.00 (n=27)	100.00(n=295)

Table 9. Personnel who assisted to deliver child

Personnel	Experimental	Non-experimental	Total
MCH trained TBA	42.54	-	49.15
Relatives	24.63	69.23	28.47
MCH nurse	19.78	-	6.10
Normal TBA	5.60	19.23	3.05
Govt. physician	-	3.85	5.42
Others	7.84	7.69	7.80
Total	100.00 (n=268)	100.00 (n=27)	100.00(n=295)

Table 10. Delivery Type

Type	Experimental (%)	Non-experimental (%)	Total
Normal	93.28	100.00	93.56
Caesarian	1.87	-	2.37
Forceps	0.75	-	0.68
Others	4.10	-	3.39
Total	100.00 (n=268)	100.00 (n=27)	100.00 (n=295)

Table 11. Status of Infant, Child and Maternal Mortality (Per 1000 Live Births)

Type	Experimental	Non-experimental
Infant mortality (per 1000 live births)	27	60
Under five child mortality (per 1000 live births)	18	77
Maternal mortality (per 1000 live births)	5.3	6.5

Fig 1 Sources of Maternal and Child Health Care Services

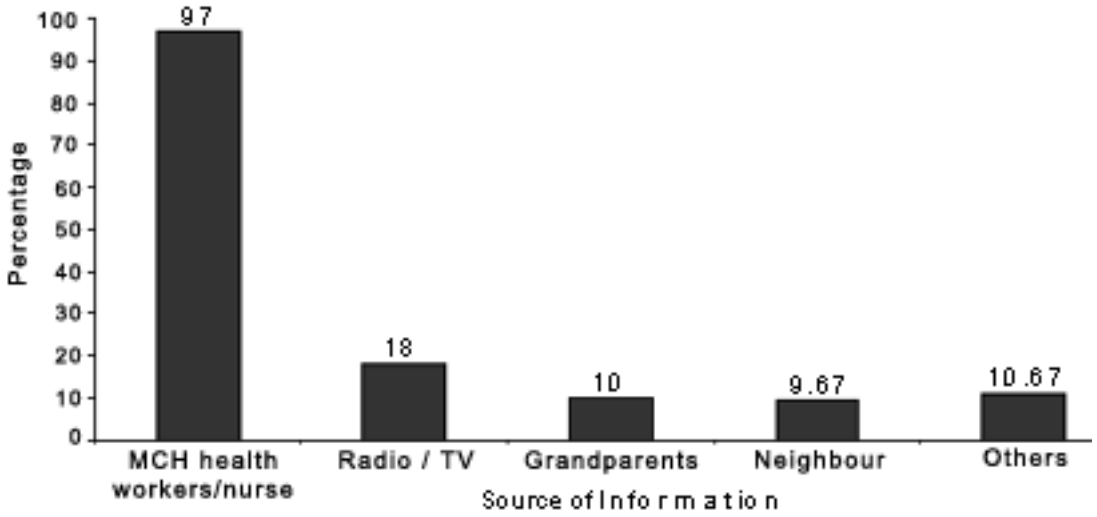


Fig 2 Perception of Respondents about Services Needed by Pregnant Mother

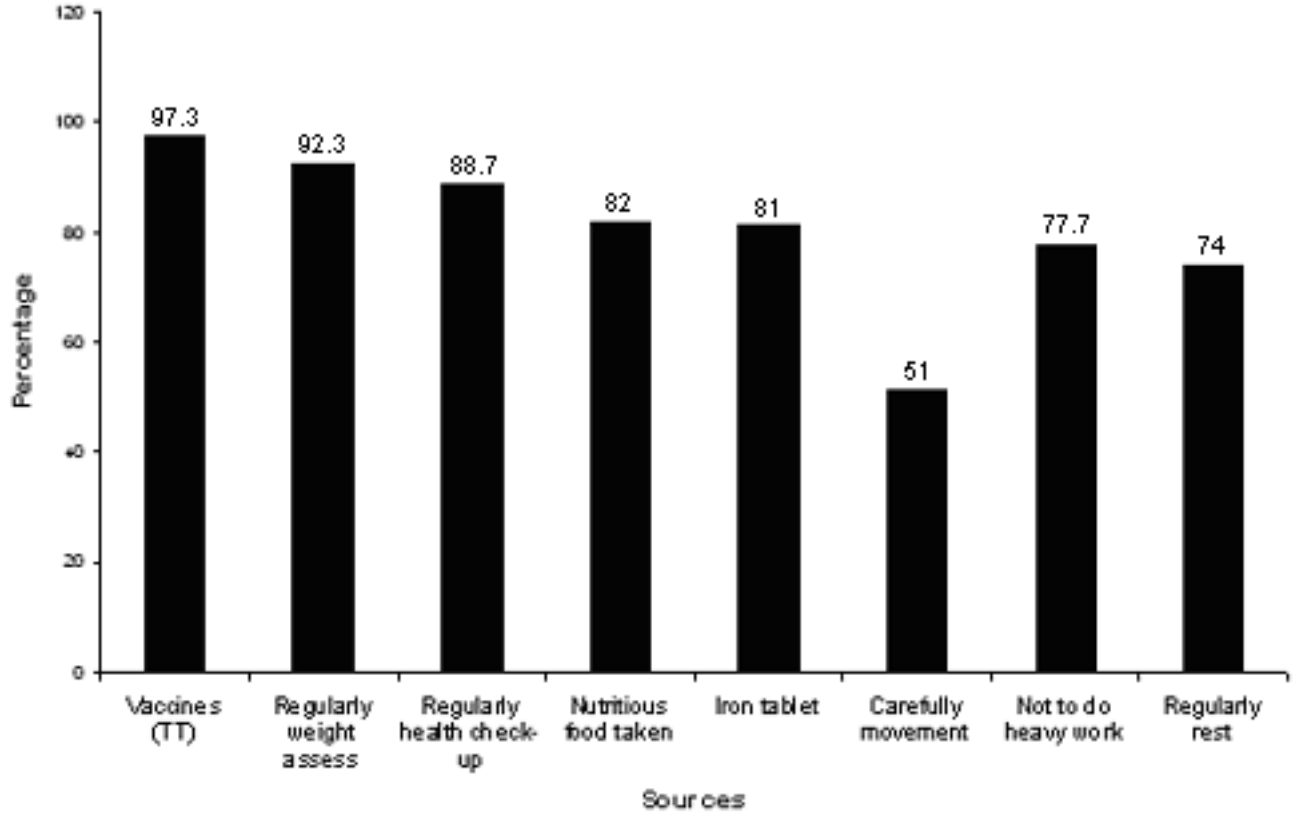


Fig 3 Types of Services

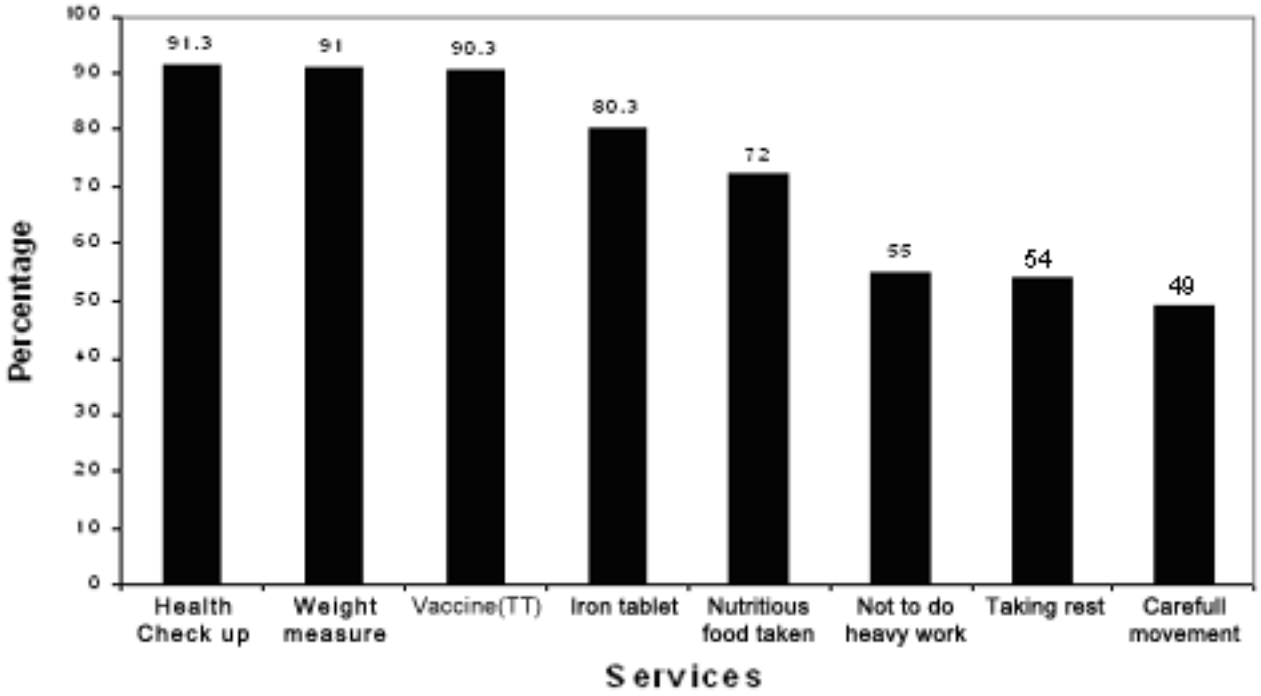


Fig 4 Types of Complexity Faced by the Mother During Delivery

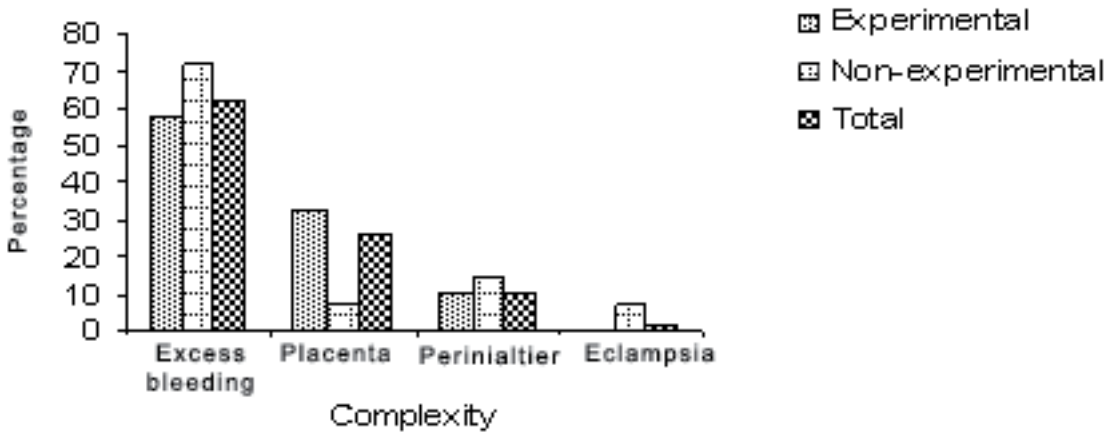
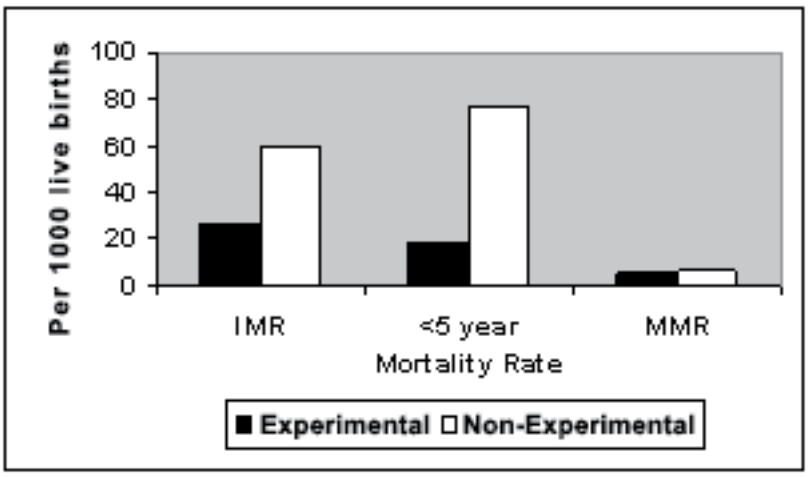


Fig 5 Comparison IMR, MMR and under 5 year Mortality Rate between Experimental and non experimental population



A Comparison Between Preformed Stainless Steel Crowns and Simple Restorations On Primary Molars In A Public Health Dental Program

Key words: Practice Location, General Practice Training, Recruitment.

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ABSTRACT

Public health dental programs often have large budgets and included services. The design of the programs has been influenced strongly by the funding available to support the initiatives in the short and long term. Cost containment has been an ongoing challenge with competing health needs vying for, sometimes, dwindling resources. Metal crowns are examples of such higher cost alternatives to lower cost simple restorations. Studies examining the alternatives may demonstrate more favourable clinical outcomes related to particular treatment modalities1, but do not look at the programmatic consequences of providing certain treatment types. Where oral health treatment programs are concerned cost considerations become increasingly important.

The objectives of this study were, to determine the proportions of different types of restoration treatments for primary molars in a Public Health Dental Program for children in need of urgent care, to explore the incidence of re-treatments on primary molars by type of treatment and to investigate costs associated with the different treatment options, accounting for re-treatments, and to make recommendations.

Program data from a Public Health Dental Program in the Simcoe County District Health Unit was extracted and analyzed for this retrospective study. The data was extracted from the Main CINOT (Children in Need of Treatment) database in January of 2004. Included was treatment information from the CINOT Children Program, from January, 1990 to December 2000. Data from the claims table and treatment table was extracted from the database and linked based on a unique child identifier, using SPSS 12.0 software. All analysis was performed using SPSS and Excel software.

The results showed that simple restorations and metal crowns were highly successful in restoring all sizes of lesions with success rates of 90+%. Metal crowns had the highest success of over 96%. Average costs of restoring primary first molar teeth were lowest for single surface restorations and highest for metal crowns. Cost comparisons of simple restorations and metal crown treatments including additional and re-treatment costs showed that simple restorations were more cost effective than metal crowns. Simple restoration treatment options can be utilized to provide significantly more treatment under dental public health programs. This study suggests that more specific criteria be followed for the use of metal crowns in public health programs. The approach suggested is similar, though more stringent, to that advocated in the UK National Clinical Guidelines in Paediatric Dentistry2 and the American Academy of Pediatric Dentistry Guidelines3. Criteria for use of metal crowns in a dental public health program are suggested.

Introduction

Oral health strategies have been published for many countries with the intention of setting a strategic pathway for the development of dental health in the following years (England, 1994, 2000; Scotland, 1995). An oral health strategy allows an understanding of the issues to be openly recognized and targets attributed to those that are deemed most important. An oral health strategy gives direction to local planning in provinces and districts with specific goals and objectives, which form the basis of the provision of oral healthcare services.

Oral health strategies occur at the national and local levels in many countries to address national and local oral health issues. Many of the initiatives have included young children as a priority group with the aim of improving the oral health of the entire population in the future. The oral health status of children has improved over the last 50 years. There are now more children that have not experienced any dental decay than ever before and the average number of cavities per child has reduced dramatically.

However, there remains a section of society that continues to exhibit high levels of dental decay. A more representative measure of prevalence of dental diseases can be demonstrated by corrected levels of disease by excluding those in the population who do not suffer from the disease. The level of dental decay in this part of the population is

significantly higher when examined in this manner. High risk strategies have been used to target those most in need of care in the community. This approach has often been used in public health initiatives with limited resources.

Treatment of children in need under social services and public health programs has been a key activity in addressing urgent oral healthcare needs and preventing dental disease in many developed countries. Public health programs are usually defined by resources - budgets and included services.

The design of the programs has been influenced strongly by the funding available to support the initiatives in the short and long term. Cost containment has been an ongoing challenge with competing health needs vying for, sometimes, dwindling resources. Such programs define eligibility and range of available services. Both of these components can be used as cost containment measures either when the program is developed or during implementation of the program when resources are diminished and cannot support the cost of services originally planned.

Effectiveness of available clinical care options becomes critical when range of services is considered. The alternatives under consideration may differ in cost and effectiveness. In order that the most effective services are provided at the lowest cost, analyses must be undertaken to assess the options available to the program administrators and care providers.

Of particular interest are the service alternatives which are of higher cost. Metal crowns are examples of such higher cost alternatives to lower cost simple restorations. Studies examining the alternatives may demonstrate more favourable clinical outcomes related to particular treatment modalities1, but do not look at the programmatic consequences of providing certain treatment types. Guidelines promulgated by professional organizations such as the American Academy of Pediatric Dentistry3 are based upon clinical indications and objectives rather than cost effectiveness. Clear guidelines on the placement of specific restorations are described in the reporting of the UK National Clinical Guidelines in Paediatric Dentistry2, which are considered effective. The introduction of such treatments as professional standards is useful. However, where oral health treatment programs are concerned cost considerations become increasingly important.

The aim of this study is to examine relative cost effectiveness of a high volume high cost treatment option (placement of stainless steel crowns on primary molar teeth) compared to a lower cost option (simple restorations on primary molar teeth) from a public health program database (CINOT program, Simcoe County, Ontario, Canada) over a ten year period.

Objectives:

The objectives of this study were:

- To determine the proportions of different types of restoration treatments for primary molars in a Public Health Dental Program for children in need of urgent care.
- To explore the incidence of re-treatments on primary molars by type of treatment.
- To investigate costs associated with the different treatment options, accounting for re-treatments.
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Methods

Program data from a Public Health Dental Program in the Simcoe County District Health Unit was extracted and analyzed for this retrospective study. The data was extracted from the Main CINOT (Children in Need of Treatment) database in January of 2004. Included was treatment information from the CINOT Children Program, from January, 1990 to December 2000. All individual identifiers were excluded to maintain anonymity for the children treated. Each case in the data set was an individual primary molar treated through the CINOT Program. Treatment data tracks treatments for an individual child's primary molar over time.

Data Analysis:

The main CINOT database is a Visual FoxPro application owned by the government of Ontario, Canada, and maintained by the Simcoe County District Health Unit. Data from the claims table and treatment table was extracted from the database and linked based on a unique child identifier, using SPSS 12.0 software. The child identifier was a randomly generated hexadecimal number; no personal identifiers of the child were included in the data set. This unique child identifier was combined with the tooth code for the tooth treated, to create a unique identifier for each tooth treated. Only primary molars were included in the data set (tooth codes: 54, 55, 64, 65, 74, 75, 84, and 85). Procedure codes for metal crowns and filling restorations were used to determine type treatment. The data set was cleaned of all incorrectly coded data (i.e. codes that should not have been used for primary molars). The dataset was restructured so that each individual case (record) in the data set was a unique primary molar. All analysis was performed using SPSS and Excel software.

Results

From the CINOT database for children CINOT claims from January 1, 1990 to December 31, 2000: 20,915 primary molars were treated for a total cost of $1,283,822.64. During that same period of time, a total of $2,871,637.00 was spent on the CINOT (children's) program.

The most common procedures paid to treat primary molars were: two-surface fillings (35%), followed by metal crowns (16%), single-surface fillings (12%), extractions (12%) and 3-5 surface fillings (10%). The above treatments accounted for 86% of all procedures paid to treat primary molars during this 10 year period of time. (Table 1)

Total fees for the above mentioned procedures totaled more than a million dollars over this ten-year period. Over 9,000 two-surface restoration procedures were paid for, at a total cost of more than $460, 000. Over 4,200 metal crown procedures were paid for, totaling nearly $370,000. (Table 1)

When looking at individual molars treated, 43% were treated with at

least one two-surface filling at some point in time, 20% received at least one metal crown, 15% received at least one single-surface filling, 15% were eventually extracted, and 12% were treated with a 3-5 surface filling on at least one occasion (NB: several teeth were treated with a combination of treatments, so the treatment types add to more than 100%). (Table 2)

Re-treatment rates were highest for single-surface fillings, with 11% needing additional treatment at a later date (7.6% needed further simple restorative procedures, 1.5% eventually needed a crown, and 2% were finally extracted). Just over 9% of teeth initially treated with a two-surface restoration required additional treatment (5% needed further simple restorative procedures, 1% eventually needed a crown, and 3% were finally extracted). Just under 11% of teeth that were initially treated with a 3-5 surface restoration needed additional treatment later (5% needed further simple restorative procedures, 1.4% eventually needed a crown, and 4.5% were finally extracted). For primary molars initially treated with metal crowns, 3% needed subsequent work (0.6% were replaced by additional crowns and 2.4% were finally extracted). (Table 3)

The total cost of treatment for primary molars treated with two-surface fillings was more than $500,000; and for those treated with metal crowns the total cost exceeded $450,000. When looking at the cost of teeth that needed to be re-treated, molars initially treated with a two-surface filling that needed additional work at a later date cost more than $85,000 (17% of the original cost), with more than half ($46,000) of this cost coming from additional fillings. This was more than three times the $26,000 paid for teeth initially treated with metal crowns that needed additional treatment. Total costs for single-surface and 3+ surface re-treatments were about $30,000 for each. (Table 3)

The average cost to treat a primary molar was $61.39. Primary molars treated with metal crowns cost, on average, $108.06 to treat; this average increases to $142.51 if the tooth was eventually extracted, and to $189.00 if the crown was replaced. Primary molars treated with a single-surface filling cost, on average, $35.92 to treat; this increased to $79.86 if additional fillings were needed, and finally to $128.67 if a metal crown was eventually put on. This escalating pattern of cost was true for all multi-surface restoration procedures. Specifically, the average cost of a two-surface restoration was $52.07, if additional fillings were needed this cost doubled to $102.97, and if a crown was put on, the average cost tripled to $152.07. This was also true for 3+ surface fillings, where the average cost was $62.52, nearly doubling to $114.79 for additional fillings, and nearly tripling to $164.02 when a crown was finally used. Interestingly, the least expensive type of re-treatment for teeth initially treated with a filling was an extraction. (Table 3)

Discussion

The CINOT program in Ontario has delivered much needed services for children with urgent or significant treatment needs, who would otherwise perhaps not receive care. The program was developed as a strategic approach to improving access to care for those children in need, without insurance coverage and for whose families dental treatment would cause financial hardship.

Changes in the eligibility criteria for other social service programs have resulted in increasing demand for care under the CINOT program and so putting financial pressure on the program throughout Ontario. This financial pressure has caused the program to be modified or limited by service or treatment type, for example emergency care only. The program is funded 50% provincially and 50% from municipalities. Overspends are the sole responsibly of the municipality and so budget control is seen as a priority at the Health Unit level. Thus proactive management of program resources is of critical importance if children are to be treated and funds are to remain available for the entire financial year.

The Simcoe County CINOT database shows that metal crowns are the second most common restoration on primary molar teeth, representing 1 in 5 of all restorations placed on primary molar teeth (Table 1). In addition metal crown restorations are the most expensive restoration option for deciduous teeth. Therefore the placement of these restorations represents a significant proportion of the budget expenditure. $370,000 is over one quarter of the budget spent on primary molar teeth (Table 1).

The data reveals that the 'success' of metal crown restoration at 96%+ is the highest compared to the other restorative options, though 90% of all restorations were 'successful'. These figures are approximately in line with those reported in the literature[1, 4]. Just over 1% of all simple restorations placed on primary molar teeth warranted a metal crown at a later date (Table 3). The crux is whether the cost of providing metal crowns is economical to a public health program. Any dental public health program aims to provide necessary treatment to the maximum number of eligible people.

The cost of repeated treatments involving a metal crown was $90,000. Does this indicate that more specific criteria for placement of metal crowns would minimize this cost and so effectively save program resources? Given the success criteria of metal crowns, if no other treatment was necessary for a deciduous molar tooth, metal crown placement may be the restoration of choice.

The average cost of restoring teeth in this way is, however, markedly higher creating a drain of limited program resources.

The average cost of treating a primary molar tooth ($61.38) is significantly lower than placing a metal crown ($108.06), so the placement of such crowns must be limited from a program cost standpoint.

Considering the treatment cascade scenario:

Single surface restorations cost $35.92 to treat; increased to $79.86 if additional work was needed, and finally to $128.67 if a metal crown was required (Table 3). Although 11% of all

single surface restorations required additional treatment, any treatment option other than a metal crown (placed on only 1.5% of these teeth) ultimately cost less than placement of a metal crown. The relative cost does not support the more frequent use of a metal crown for treatment of single surface lesions, even as an initial re-treatment option. The same is true for 2 and 3+ surface restorations, though the cost difference is less. Consideration can be given to a number of potential options for the use of metal crowns.

Multi-surface restorations

Should all multi-surface restorations be substituted with crowns if metal crowns were placed on all teeth requiring multi-surface fillings?

If 20,000 primary molars that needed restorations were treated with multi-surface fillings the following costs would be expected:

- One multi-surface and no other treatments occurred 86.5% of the time with an average cost of $54.25, for an expected cost of $983,793.78.
- Multiple-treatments arising from a multi-surface filling occurred 13.5% of the time with an average cost $108.29, for an expected cost of $291,738.33.
- Therefore, the total expected cost if all teeth were treated with multi-surface filling procedures would be $1,230,532.10. If these 20,000 primary molars were treated with full metal crowns the following costs would be expected:
- One full metal crown and no other treatments occurred 97% of the time with an average cost of $104.44, for an expected cost of $2,026,136.00.
- Multiple-treatments arising from a full metal crown occurred 3% of the time with an average cost $151.36, for an expected cost of $90,818.05.
- Therefore, the total expected cost if all teeth were treated with full metal crowns would be $2,116,954.05.

This is an $886,421.95 or 42% increase over exclusive multi-surface filling restorations. So, even though full metal crowns are more reliable than multi-surface fillings, it would not be financially prudent to treat all teeth requiring multi-surface fillings with a stainless steel crown.

Even if metal crowns were placed on all teeth requiring additional or replacement treatments, the cost of this is not justifiable. There were 1086 primary molars initially treated with a multi-surface restoration that required additional treatments. The average cost of these treatments was about $102, which was still lower than the average cost for a metal crown ($108).

Conversely, if the 4,190 primary molars that received a metal crown were treated instead with multi-surface restorations a total cost of $257,796.48 would be expected (following the logic stated above). This is nearly half the amount actually spent to restore these teeth ($452,773.91).

Consideration of Simcoe County CINOT data

Taking each type of restoration in turn and the costs of repeat or additional treatments metal crowns still do not appear to challenge simple restorations as the restoration of choice.

Table 3 shows that the total cost of restoring single surface lesions is $111,712.81 no matter which treatments are delivered. Comparison with a metal crown treatment option shows that the cost would be $336,066.60 for the same number of teeth - a 300% increase in treatment costs, with the same outcome.

The total cost of restoration of 2 surface lesions was $518,677.61 for 8927 teeth, irrespective of the treatment delivered to these teeth. A comparison with an initial metal crown treatment option shows that the total costs would increase by 186% to $964,651.61.

Similarly, 3+ surface restorations total $181,093.74 for 2513 teeth, again regardless of repeat or additional treatments required, including metal crowns on retreated teeth. A comparison with a metal crown treatment option shows that the cost would rise to $271,554.78, which is a 149.95% increase.

The comparisons above represent different treatment approaches to achieving the same treatment outcome. That is, teeth are treated with an acceptable treatment option whenever necessary. The comparison underlines the premium cost of the metal crown treatment option and flags the potential impact on a public health program.

Of major importance to any public health programs is the opportunity cost, or that which is not done as a result of the provision of a particular program or intervention. To examine this further the treatment costs of teeth treated with metal crowns as an initial treatment can be compared to the cost of treating the same number of teeth as lesions of 3 or more surfaces. This offers the worst case scenario of disease on the teeth treated and so may be viewed as the minimal difference in compared treatment costs.

Metal crowns were used to treat 4190. At an average cost of $108.06 the total cost of treating these teeth with metal crowns is $452,773.91. If simple restorations were used instead and the average cost was the equivalent to teeth with lesions of 3+ surfaces then the total cost would have been $301,931.40. This represents 2/3rds of the cost of metal crowns and would have saved $150,842.51 of program funds. This represents the opportunity cost of providing metal crowns.

If these funds were used to provide more treatment in the same program, using the average costs attributed to the treatment of first deciduous molar teeth, then large numbers of additional treatments could be provided (Table 4).

As the cost comparisons do not favour treatment with metal crowns for programs operating with fixed budgets, specific criteria are required from guideline development or review.

Current guidelines indicate that metal crowns are preferable to amalgam restorations in multi-surface situations1, though cost is not considered in the analysis. Based on success rates the conclusion would be corroborated in this study.

Fayle (1999) in the development and reporting of the UK National Clinical Guidelines in Paediatric Dentistry and the revised guidelines for pediatric restorative dentistry3 listed a number of situations where metal crowns should be used. The majority of these criteria would appear to be sensible even from a programmatic view point. The advocated use of metal crowns on all multi-surface lesions is too general and from this study is not cost effective.

Table 5 is a summary of adapting the most severe criteria listed in both these guidelines and suggests an approach to the use of metal crowns for public health programs. The guidelines are based on risk of caries development rather than number of surfaces involved in the disease process or tooth fracture.

Conclusion

Metal crowns are clinically superior to other restorations in primary molar teeth though success rates for all restorations on these teeth are impressive and over 90%. Metal crowns are a high cost and potentially high volume restorative option for primary molar teeth and so a potential drain on public health program financial resources. Programmatically it is not cost effective to advocate that either all primary molar teeth or all multi-surface lesions be restored with metal crowns, though around 10% of all restored primary molar teeth required additional or re-treatment and 1% required a metal crown to be placed at a later date.

Closer examination of the data suggests that more specific criteria be followed for the use of metal crowns in public health programs. The approach suggested is similar, though more stringent, to that advocated in the UK National Clinical Guidelines in Paediatric Dentistry[2] and the American Academy of Pediatric Dentistry Guidelines[3]. Criteria for use of metal crowns in a dental public health program are suggested (Table 5)

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Table 1: Total fees paid by procedure code used, CINOT (1990 – 2000) on primary first molar teeth

Type of Restoration	# of Procedures	% of all Procedures	Total Fees Paid
Metal crowns	4218	16%	$ 367,930.45
1 surface fillings	3215	12%	$ 81,332.44
2 surface fillings	9257	35%	$ 462,124.74
3+ surface fillings	2557	10%	$ 151,071.16
Extractions	3213	12%	$ 106,248.90
Other	3685	14%	$ 115,114.95
Total	26145	100%	$1,283,822.64

Table 2: Teeth treated by treatment type, CINOT (1990 – 2000)

Treatment Type	# of teeth	% teeth	Amount Paid
Crowns	4190	20%	$ 452,773.91
Single surface	3110	15%	$ 111,712.81
Two surfaces	8927	43%	$ 518,677.61
Three+ surfaces	2513	12%	$ 181,093.74
Extractions	3211	15%	$ 145,187.73
Other	189	1%	$ 7,206.82
Total	20914	100%	$1,283,822.64

Table 3: Summary of treatments and cost for primary molars, CINOT (1990-2000)

Type of Restoration	Teeth Treated	% of Type	Total Cost	Average Cost
1 surface only	2691	86.5%	$74,422.04	$27.66
Later extracted	66	2.1%	$4,870.44	$73.79
Additional fillings	236	7.6%	$18,847.59	$79.86
Later crowned	46	1.5%	$5,918.71	$128.67
Total single-surface	3110	100%	$111,712.81	$35.92
2 surface only	7840	87.8%	$408,260.26	$52.07
Later extracted	270	3.0%	$24,797.78	$91.84
Additional fillings	452	5.1%	$46,544.10	$102.97
Later crowned	95	1.1%	$14,446.67	$152.07
Total two surfaces	8927	100%	$518,677.61	$58.10
3+ surface only	2059	81.9%	$128,729.78	$62.52
Later extracted	112	4.5%	$12,118.50	$108.20
Additional fillings	123	4.9%	$14,118.82	$114.79
Later crowned	34	1.4%	$5,576.67	$164.02
Total three or more surfaces	2513	100%	$181,093.74	$72.06
Metal crown only	3837	91.6%	$400,726.58	$104.44
Later extracted	102	2.4%	$14,535.82	$142.51
Replacement crown	24	0.6%	$4,535.97	$189.00
Total metal crowns	4190	100%	$452,773.91	$108.06
Extraction only	2672	83.2%	$89,469.76	$33.48
Total extractions	3211	100%	$145,187.73	$54.34
Total teeth treated	20914	100%	$1,283,822.64	$61.39

Table 4. Additional services which could be provided by not placing metal crowns

Type of restoration	Number of teeth treated
Single surface	4199
2 surface	2596
3+ surface	2078

Table 5: Criteria for placement of Metal Crowns in Dental Public Health Programs (adapted from Guidelines for Pediatric Restorative Dentistry2)

Indications:
Developmental problems (e.g. enamel hypoplasia, amelogenesis imperfecta, dentinogenesis imperfecta etc.)
Extensive (>80%) tooth surface loss from attrition, abrasion or erosion
In patients with high caries susceptibility
As an abutment for appliances such as space maintainers
For patients with impaired oral hygiene measures and so are at higher risk of caries development

Reproductive Health Problems of Married Adolescents in Bangladesh

ABSTRACT

Adolescent reproductive behavior is a much publicized concern among both the developed and developing nations and recently it has become a major topic of demographic research. Considering its importance, an attempt has been made in this study to investigate the reproductive behavior of married adolescents in some selected areas of Rajshahi district, Bangladesh. The study is based on data collected under the project of UNFPA entitled "Strengthening the Department of Population Science and Human Resource Development". The study indicates that the mean age at first birth for adolescent mothers is 16.34 year and on average, each married women aged 10-19 has 0.65 births. It is also observed from the result of MCA that the respondent's education, husband's education, husband's occupation and place of residence appears as the most important factor determining the mean number of children ever born. In particular, it is found that the mean number of children ever born is higher for adolescents who were from the lower household asset index (1.09) and the rural adolescents (0.95) than the other classifications. Fertility preferences or birth expectation or desire for more children is found to be higher among adolescent mothers. The outputs of the study demonstrate various policy implications that can improve the reproductive behavior of married adolescents.

Key Words: Adolescent, reproductive behavior, age at marriage, children ever born, fertility preferences.

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Introduction

Fertility refers to an actual reproductive performance of a woman or group of women, that is, fertility is the frequency of childbearing among the women. Fertility behavior is an important indicator for understanding the trend of population dynamics of any region as well as country. Fertility in Bangladesh is high even by the standards of developing nations. In recent decades, adolescent childbearing has emerged as an issue of increasing concern throughout the developing and the developed world (Jones, 1997; Shaikh, 1997; Islam and Mahmud, 1996). Over the past four decades the developed and developing worlds have been witness to important changes in reproductive behavior among their adult and adolescent populations. Accompanied by a higher level of schooling, better health care, increased urbanization, and greater exposure to modern forms of mass communication, fertility has dropped rapidly in many regions. There is a growing awareness that early childbearing is a health risk for both mother and the child. Also, it usually terminates a girl's educational career, threatening her future economic prospects, earning capacity and overall well-being (United Nations, 1995). However, wide variations in reproductive behavior persist at the national and sub-national levels, and across social groups.

While research and analysis have been conducted on the causes and consequences of such differential behavior among adults, until recently adolescents have received relatively little attention. The factors that influence adolescents to behave similarly, or differently, than their older counterparts remain less well understood.

Adolescent childbearing has significant ramification at the personal, societal and global level. At the personal level, child bearing at an early age can shape and alter the

entire future life of an adolescent girl. From the perspective of societies and government, adolescent pregnancy and childbearing have a strong and unwelcome association with low levels of educational achievement for young women, which in turn may have a negative impact on their position in and potential contribution to society (Islam, 1999). Usually, in both developed and developing countries, the rates of population growth are more rapid when women have their first child before they are in their twenties (Senderowitz and Paxman, 1995; Mazur, 1997).

The period of adolescence encompasses the transition from childhood to adulthood during the second decade of life. It is one of the most crucial periods in an individual's life, because during adolescence many key social, economical, biological and demographical events occur that set the stage for adult life.

Although the socio-economic consequences for an adolescent of having a baby will depend on her particular culture, familial and community setting, the physical or health consequences for the mother and her child are more universally recognized as problematic (Buvinic and Kurz, 1998; Acsadi and Johnson-Acsadi, 1986). As adolescent pregnancies occur before a young woman has reached full biological, physical and emotional maturity, they face a number of problems which include anaemia, retardation of foetal growth, premature birth and complications of labor. Pregnancy of a girl who is still growing means an increase in nutritional requirements, not only for growth of the foetus but also for the mother herself (Friedman, 1985). Teenage mothers have a higher incidence of low birth-weight babies, who are associated with birth injuries, serious childhood illness and mental and physical disabilities (Islam et al., 1995). Children born to teenage mothers are also at higher risk of infant and child mortality (Mahmud and Islam, 1999).

The age below which the physical risks of childbearing are considered to be significant varies depending on general health conditions and on access to good prenatal care. In societies where anaemia and malnutrition are common and where access to health care is poor, childbearing of teenagers involves enormous health risks. However, in societies with good nutritional levels and widespread access to high quality prenatal care, the physical risk of having a child during adolescence may not be considered quite so seroius (Makinson, 1985). The severity of the social and personal consequences of adolescent childbearing is also likely to be greater the younger the mother is at the time she gives birth.

Child birth before the age of 20 is more dangerous to mother and infant than it is for older women. In addition to the social and economic consequences, early fertility often jeopardizes the life and health of both the mother and the child. Pregnancy during adolescence poses an increased risk of maternal and infant morbidity and mortality resulting in an increase in cumulative fertility and restricts the opportunity for socioeconomic advancement.

Here we examine the fertility and fertility preference of the adolescents in Bangladesh. On the basis of the related questions, we try to study in brief the reproductive behavior of them. We also try to focus on the young adults aged 20-29 years to have a comparative study of fertility performance of the adolescents.

Materials and Methods

The data of this study was collected under the project of UNFPA entitled "Strengthening the Department of Population Science and Human Resource Development" of University of Rajshahi. The pattern of data was collected in three main sections namely, fertility, mortality and migration along with socio-economic characteristics of the respondents. These data were collected from three residential areas, which are rural, urban and sub-urban areas of Rajshahi district. We collected information from 6000 ever-married women by interview method from the rural, urban and sub-urban areas. From the total collected information of 6000 ever-married women, we found 426 married adolescents (6.39%). All the information was taken by purposive sampling method. The data of this study was collected in June 2004.

Multiple Classification Analysis (MCA)

In 1934, Yates developed the multiple classification analysis and it was later elaborated on by Anderson and Bancroft in 1952. In 1963, the computerized MCA program was prepared by a group of researchers at the Survey Research Center at the University of Michigan. Since then, the MCA program has been widely used in social science research. It is a technique for examining the interrelationship between several predictor variables and one dependent variable in the context of an additive model.

Unlike simpler forms of other multivariate methods, MCA can handle predictors with no better than nominal measurements and interrelationships of any form among the predictor variables or between a predictor and dependent variable. It is however essential that the dependent variable should be interval-scale variable without extreme or a dichotomous variable with frequencies which are not extremely unequal. Technically, the MCA prediction model can be described as having the overall mean as its constant term and main effects on a series of additive coefficients for the category. The additivity assumption implies that differences according to one predictor are the same for all values of the other predictors included in the model.

There are two effects in MCA: gross/unadjusted effect and net/adjusted effect. The coefficients, which are estimated by solving the normal equation systems, are called the adjusted or net effects of the predictors. These effects measure those of the predictors alone after taking into account the effects of all other predictors. If there is no interrelation among the predictors, the adjusted and unadjusted effects of the predictors will be the same. The unadjusted, eta-square (η^2) coefficients is a correlation ratio, which explains how well the predictor

variable explains the variation in the dependent variables and is usually estimated by solving the normal equation with only one predictor.

This unadjusted coefficient indicates the proportion of variance explained by a single predictor alone. Similarly, the beta-square (ß2) coefficient indicates the proportion of variation explained by the other predictor variables. The beta coefficient is compared to the partial correlation coefficient in multiple regressions. Besides the adjusted and unadjusted effects, there are several computed statistics, which reveal the closeness of the relationship between the predictors and the dependent variable (Yates, 1934). For instance, the statistics R2 measures the amount of variation about the mean explained by the predictor variables.

In statistical terms, the MCA model specifies that a coefficient be assigned to each category of each predictor, and that each individual's score on the dependent variable be treated as the sum of the coefficients assigned to categories characterizing that individual, plus the average for all cases, plus an error term.

$Y_{ij}...n = a_i + b_j + ... + e_{ij}...n$

$Y_{ij}...n$ = The score on the dependent variable on individual n who falls in category i of predictor A, category j of predictor B, etc

$\bar{Y}$ = Grand mean of the dependent variable

a_i = The effect of the membership in the ith category of predictor A

b_j = The effect of the membership in the jth category of predictor B

$e_{ij}...n$ = Error term for this individuals

Results

1 Age at First Birth

The ages at which women start and stop childbearing are important demographic determinants of fertility. The higher median age at first birth and a lower median age at last birth are indicators of lower fertility. Age at first birth may also affect child spacing by affecting the risk of pregnancy. That is, those having their first birth at young ages when fecundity is likely to be high may experience more rapid fertility than those having their first birth at later ages when fecundity is declining.

Table 1.1 presents the percent distribution of women by age at first birth according to current age. For women age 20 and over, the median age at first birth is presented in the last column of the table. Childbearing begins early in Bangladesh, with the large majority of women becoming mothers before they reach the age 20. The median age at first birth is between 18 and 19. The data shows that the median age at first birth has increased slightly from around 18 for older women to around 19 for women in their 20s. This slight change to later age at first birth is reflected in the smaller proportion of younger women whose first births occurred before age 15.

Comparison with data from other sources confirm that the age at which women in Bangladesh have their first child has increased steadily over time, in line with increases in age at marriage, with the exception of the past few years. For example, in 1975, the median age at first birth among women age 20-24 was 16.8; in 1989, it had risen to 18.0 and by 1996-97, to 18.44 (Huq and Cleland, 1990). The mean age at first birth among adolescent women (age <20) is 16.34 and the mean age at first birth among young adult women (age 20-29) is 18.14.

2 Mean Number of Children Ever Born and Mean Number of Living Children

The number of children a woman has ever born is a cohort of fertility measurement. Because it reflects the past, it provides a somewhat different picture of fertility levels, trends, and differentials than do period measures of fertility such as CBR and the TFR. It is obvious that fertility is directly proportional to current age. That is, for women of higher ages, number of children ever born and number of living children will be high as compared to women of younger ages.

Table 1.2 presents the percentage distribution of adolescent and young adult mothers by number of children ever born. For the age group 10-19, 41.3% of them have no children and 53.5% have one child. The proportion of adolescents decreases as the number of children ever born increases. For young adults, only 6.1% of women have no children 32.2% have one child and 35.6% have two children. The mean number of children ever born to the adolescent women is 0.65. The corresponding figure for young adult and overall married women is 1.61 and 2.35 respectively.

Table 1.3 shows the percentage distribution of adolescent and young adult mothers by number of living children. For the adolescent mothers about 43.7% have no children and 52.1% have one child. The corresponding figure for young adults is 6.6% and 34.3% respectively.

About 35.6% young adults have two children. The average number of living children for adolescents is 0.61 and for young adult is 1.54. For overall women, it is 2.23.

3 Determinants of Children Ever Born: MCA

Table 1.4 presents the mean number of children ever born by selected socio-economic characteristics. The result indicates that the proportions of variance explained by MCA is not very high for adolescent and young adult women (Multiple R^2;=0.33 and Multiple R=0.57, for adolescent; Multiple R^2;=0.29 and Multiple R=0.54, for young adult). The low value of R^2; may be due to some intercorrelations among the predictor variables considered here or there may be some other factors, which may affect the mean number of children ever born. Of all the variables respondent's education, husband's education, husband's occupation, place of residence appears as the important determinants of children ever born. Types of family, household asset index, religion, current working status, bank account and property owned play a relatively less important role on children ever born.

It is often observed that in developing societies that a husband's occupation is closely related with social status. Among the selected factors husband's

occupation is the most effective one and shows the strongest association (η^2;=0.25) with children ever born for adolescent women. The effect of husband's occupational level remains high even after adjusting for the effect of all other predictors in the model (ß²=0.23). Adolescent women whose husbands are laborers (0.91) and other category (1.00) tend to have a higher fertility than the average followed by farmer (0.59), servicemen (0.55) and businessmen (0.51). For young adult women the same pattern is followed.

Among adolescents, while higher levels of education are associated with lower probability of giving birth, the direction of causality is less clear. Findings indicate that educational attainment has another strong association

(η^2=0.16) with mean number of children ever born. The effect of educational levels remain high even after adjusting for the effect of all other predictors in the model (ß²=0.14). It is important to note that highly educated women have been found to have lower fertility than the illiterates. The mean number of children ever born is 0.71 for adolescent women who are illiterate and 0.57 for highly educated women, that is, adolescent women of 11 or more years of education.

For young adult women respondent's education is found to be the strongest association (η^2=0.32) with mean number of children ever born and it remains very high after adjusting for all other factors in the model (ß²=0.31). We also see that like adolescent women, higher educated young adult women have lower fertility than the illiterate ones. The mean number of children ever born is 2.00 for illiterate young adult women and 1.23 for higher educated young adult women.

Husband's education seems to be a less effective factor than women's education in explaining the variation in mean number of children ever born among adolescent women (η^2=0.15; ß²=0.11). For adolescent women of higher education the mean number of children ever born is 0.56 while for illiterate husband's it is 0.73. Though there is virtually very low significant difference in mean number of children ever born by husband's educational level except for unadjusted mean for higher education, husband's education plays another strong association (η^2=0.249) with mean number of children ever born for young adult women, but again the effect of husband's educational level is very low after adjusting for the effect of all other predictors in the model (ß²=0.071).

Another socioeconomic variable that emerges from the literature as an important influence on fertility behavior is place of residence. Fertility levels are expected to be lower in urban areas than in rural.

We find that place of residence has a strong effect on mean number of children ever born (η^2=0.25) for adolescent women. Adolescent women who are currently living in the rural area have a higher mean number of children ever born (0.95) than their counterparts in urban (0.54) and sub-urban (0.61) areas. The effect of place of residence remains strong (ß²=0.23) when other socio-economic factors are controlled.

Although young adult women from rural areas have higher fertility than their urban and sub-urban counterparts, place of residence becomes less important (η^2=0.07; ß²=0.058) when other socio-economic variables are controlled.

Types of family shows a moderate effect on children ever born (η^2=0.13) for adolescent women, but its effects are low after adjusting for the effect of all other predictors in the model (ß²=0.082). The mean number of children ever born for adolescents of a nuclear family is little advanced than the adolescents of combined or other families. This may be the reason why adolescents of a combined family are more conscious about family planning and get guidance from other older members of the family. For young adult women types of family also shows moderate effect on children ever born (η^2=0.124 and ß²=0.111). The mean number of children ever born for young adult women of a nuclear family is (1.33) which is less than the young adult women of combined and other families (1.64).

The household asset index shows weak strength in explaining variation in mean number of children ever born

(η^2=0.087), but the effect of household asset index increases after adjusting for the effect of all other predictors in the model (ß²=0.126). The mean number of children ever born for the lower class adolescent women (1.09) is much higher than the adolescent women of the upper class (0.61). For young adult women household asset index has a moderate effect on children ever born (η^2=0.116), but its effect becomes low after adjusting for the effect of all other predictors in the model (ß²=0.067). There is virtually no significant difference in mean number of children ever born by household asset index except for unadjusted mean for upper class young adult women.

Among adolescent women's property owned (η^2=0.008 and ß²=0.013) shows the least effect on children ever born. Adolescent women who have any property of their own have lower fertility than adolescent women who have no property of their own. For young adult women property owned (η^2=0.021) also appears as a less important predictor of children ever born. This factor also becomes insignificant (ß²=0.013) when adjusted for other predictors considered in the model.

4 Fertility Preference

Information on the fertility preferences provides a measure of the overall attitudes of society towards childbearing and the general course of future fertility. The interpretation of survey data on fertility preferences is often difficult, since it is understood that respondents' reported preferences are, in sense, hypothetical and thus subject to change and rationalization. Still, the utility of information on the desire for children to anticipate changes in actual fertility behavior, has been demonstrated in a wide range of contexts. The fertility preferences among the adolescents and young adults are discussed in detail here.

4.1 Desire for More Children

The desire for more children lends some insight into the process of changing family size norms. Desire of having one, two or more live born children or birth expectation bears a significant value in fertility study and projection. Adding the number of additional children desired to a woman's actual number of living children gives a surrogate measure of prevailing individual family size norms. Family size norms may have a programmatic value since the decision to adopt contraception is likely to be, in part, influenced by individual family size norms.

Table 1.5 shows that the percentage distribution of adolescent and young adult mothers having desire for more children. All currently married women were asked whether or not they want to have additional children and if so, how many more they want to have. About 89.0% of adolescents want to have another child and only a small proportion (11.0%) of them said no more children. On the contrary, the corresponding figures for young adults are 48.9% and 50.1%.

Overall, for all the ever married women the corresponding figures are 69.7% and 30.3% respectively. Thus we see that, adolescent mothers are keener to increase their family size as compared to their older counterparts, which consequently affect fertility to be higher.

To have a clear idea about future fertility preference, we make analysis by controlling the current number of living children, which is shown in Table 1.6. Desire to have more children is closely related to the number of living children. A woman is more likely to desire more children, if she has fewer living children. The proportion desiring more children is 82.8% among adolescent women who had one living child, while it is 79.9% among the young adults. It declined steadily to 33.3% among those adolescents who had three or more living children, while for the young adults it declined to 13.8%.

As expected, the proportion of currently married women who want to stop childbearing rises with the number of living children. Thus it is evident from the findings that, the percentage desiring more children according to the number of living children, is higher among the adolescent mothers than younger adults.

4.2 Opinion About Ideal Family Size

In this study all ever married women were asked the question: "how many children should be contained in a family and how many of them are male and how many of them are female?" Table 1.7 shows the results of this question for the adolescents and young adults. Among them 92.5% adolescents stated that they prefer two children, 5.9% prefer one child and only 1.6% adolescents prefer three and more children. Among young adults 91.6% prefer two children, 3.9% prefer one child and 4.5% prefer three and more children. So, it can be said that both adolescents and young adults are not likely to increase their family size. It may be due to the fact that all of them are more aware of family planning. Overall about 89.2 percent women prefer two children in their life. Again we also see that, 1.4% of adolescent want no male children and 4.5% wants no female children. While among young adults 0.9% want no male children and 3.3% want no female children. So we can say that adolescents prefer less female children than young adults, that is male sex preference among adolescents is higher than young adults.

A strong preference for sons has been found to be pervasive in Indian society, affecting both attitudes and behavior with respect to children (Arnold et. Al., 1998; Arnold, 1996; Basu, 1989).

4.3 Expected Gap of Next Child

In this study, opinions of the ever-married women were sought on the matter of the expected gap of next child. That is how long they think they should wait before having another child. Data are analyzed by controlling current age and age at marriage and the results are presented in Table 1.8.

The table shows that, among women whose current age is less than 20, exactly 25.1% preferred a delay of 3-4 years before the next child, followed by 62.8% with a delay of 5-6 years, 8.0% with a delay of 7 years and over, and only 4.1% with a delay of 0-2 years. While among young adults the corresponding figure is 23.1%, 61.3%, 9.4% and 6.3% respectively. The overall average gap of next child is 4.90 years among the adolescents while 4.85 years for the young adults. Thus it is seen that adolescent mothers prefer a slightly higher gap of next child than their older counterparts.

When we control age at marriage, we see a slightly different situation. About 23.8% women preferred a delay of 3-4 years before the next child followed by 61.3% with a delay of 5-6 years, 5.6% with a delay of 0-2 years and 9.3% within 7 years and more, among women whose age at marriage is less than 20 years. The corresponding figures for women whose age at marriage is 20-29 years is 30.6%, 56.6%, 6.6% and 6.2% respectively. The average gap of next child for women of age at marriage less than 20 years is 4.86 and for women of age at marriage 20-29 years is 4.57.

Finally, it can be said that both adolescents and young adults are found to be more conscious about their birth spacing which may indicate that fertility control has been a common practice among them.

Conclusion

Anxiety and depression appear to be the main diagnoses presenting to psychiatrists in private practice. This is an important observation as anxiety and mood disorders can be effectively treated if detected early.

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Table 1:

Current age	Women with no birth	Age at first birth						Total	Number of women	Median age at first birth
		<15	15-17	18-19	20-21	22-24	25+			
15-19	47.5	23.3	58.8	16.7	NA	NA	NA	100.0	245	A
20-24	25.8	13.7	33.0	32.2	16.4	4.6	NA	100.0	1001	18.79
25-29	14.3	13.1	28.0	27.8	16.5	11.6	3.0	100.0	1214	18.44
30-34	7.4	12.6	31.1	25.5	14.1	8.5	8.2	100.0	1159	18.64
35-39	3.0	15.6	24.3	25.9	16.5	9.3	8.4	100.0	978	18.60
40-44	1.6	18.4	25.6	20.6	15.8	11.8	7.8	100.0	626	18.72
45-49	.3	21.2	29.0	16.4	20.6	7.2	5.6	100.0	359	18.24

NA: Not applicable
A: Omitted because less than 50 percent of the women in the age group x to x+4 have had a birth by age x.

Table 2

Children Ever Born	Adolescents	Young Adults	All
0	41.3	6.1	6.0
1	53.5	32.2	23.0
2	4.5	35.6	32.6
3+	0.7	26.1	38.4
Total	100.0	100.0	100.0
(N)	(426)	(2379)	(6000)
Mean	0.65	1.61	2.35

Table 3

Number of Living Children	Adolescents	Young Adult	All
0	43.7	6.6	6.4
1	52.1	34.3	24.6
2	3.7	35.6	33.7
3+	0.5	23.5	35.3
Total	100.0	100.0	100.0
(N)	(250)	(2234)	(5640)
Mean	0.61	1.54	2.23

Table 5

Desire for more children	Adolescents	Young adults	All
Yes	89.0	49.9	30.3
No	11.0	50.1	69.7
Total	100.0	100.0	100.0
(N)	(426)	(2379)	(6000)

Table 6

Number of living children	Adolescents	Young adults
0	97.3	96.4
1	82.8	79.9
2	48.3	17.9
3+	33.3	13.8
All	85.9	49.9
(N)	(366)	(1185)

Table 4

Explanatory Variables	Adolescents				Young Adults			
	Unadjusted Mean	Adjusted Mean	Correlation Ratio		Unadjusted Mean	Adjusted Mean	Correlation Ratio	
			η^2	β^2			η^2	β^2
Respondent's Education			0.16	0.14			0.321	0.312
Illiterate	0.76	0.71			1.98	2.00		
Primary	0.75	0.75			1.81	1.79		
Secondary	0.63	0.68			1.54	1.53		
College/University	0.56	0.57			1.21	1.23		
Husband's Education			0.15	0.11			0.249	0.071
Illiterate	0.74	0.73			1.80	1.59		
Primary	0.71	0.69			1.81	1.71		
Secondary	0.55	0.58			1.61	1.61		
College/University	0.55	0.56			1.31	1.54		
Husband's Occupation			0.25	0.23			0.160	0.153
Farmer	0.59	0.60			1.66	1.69		
Service	0.55	0.58			1.41	1.41		
Business	0.51	0.50			1.64	1.63		
Labor	0.91	0.86			1.78	1.74		
Others	1.00	1.07			1.19	1.21		
Current Residence			0.25	0.21			0.070	0.058
Urban	0.57	0.54			1.54	1.62		
Rural	1.02	0.95			1.70	1.68		
Sub-urban	0.59	0.61			1.65	1.55		
Household Asset Index			0.087	0.126			0.116	0.067
Lower	1.00	1.09			1.67	1.68		
Middle	0.64	0.71			1.58	1.65		
Upper	0.64	0.61			1.31	1.55		
Types of Family			0.13	0.082			0.124	0.111
Nuclear	0.68	0.67			1.30	1.33		
Combined/Others	048	0.54			1.65	1.64		
Religion			0.041	0.059			0.058	0.045
Muslim	0.65	0.65			1.61	1.61		
Non-Muslim	0.50	0.44			1.22	1.30		
Currently Working			0.040	0.056			0.056	0.026
Yes	0.80	0.86			1.37	1.49		
No	0.64	0.64			1.62	1.61		
Property Owner			0.008	0.013			0.021	0.013
Yes	0.62	0.69			1.54	1.65		
No	0.64	0.64			1.61	1.60		
Bank Account			0.035	0.012			0.061	0.026
Yes	0.53	0.60			1.46	1.55		
No	0.80	0.64			1.63	1.62		
Grand Mean	0.65				1.61			
Multiple R2	0.32				0.29			
Multiple R	0.57				0.54			

Table 7

Opinion about number children	Adolescents	Young adults	All
1	5.9	3.9	2.7
2	92.5	91.6	89.2
3+	1.6	4.5	8.1
No. of respondents	426	2379	6000
Mean	1.96	2.01	2.06
Male			
0	1.4	0.9	0.9
1	97.2	94.6	91.5
2+	1.4	4.5	7.6
Female			
0	4.5	3.3	2.2
1	94.8	95.2	94.3
2+	0.7	1.5	3.5

Table 8

Gap of next child (years)	Current age		Age at marriage		All
	10-19	20-29	10-19	20-29	
0-2	4.1	6.3	5.6	6.6	5.8
3-4	25.1	23.1	23.8	30.6	24.5
5-6	62.8	61.3	61.3	56.6	60.8
7+	8.0	9.4	9.3	6.2	8.9
No. of respondents	426	2379	5656	679	6000
Mean	4.90	4.85	4.86	4.57	4.82

Low Documentation of Vaccination History in Hospitalized Children

Key words: adverse events; vaccination; Saudi; chart documentation.

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ABSTRACT

Background: Reporting of adverse events following immunization (AEFI) is very low. This might be related to low recognition and documentation by the practicing physicians.
Objectives: To estimate the level of documentation of vaccination history and its predictors for hospitalized children of = 2 years at the time of clerking.
Settings: Hospitalized children of = 2 yrs admitted in 4 governmental and private hospitals in Eastern Saudi Arabia.
Results: Out of 299 admission notes, 91.6% used were in pre-designed forms. Detailed vaccination history was documented in 1.7% only. "Up-to-date vaccination" statement was common in 58.5%, while 39.8% contained no vaccination history at all. Documentation tends to be more succinct in pre-designed admission forms holding a predefined field for vaccination history. Authors identified 18 (5.8%) cases with possible AEFI which were missed by the practicing physicians.
Conclusion: Vaccination history is poorly documented in admission notes, which might reflect poor recognition and reporting of AEFI by the practicing physicians. Improving the documentation may result in better reporting of AEFI.

Introduction

A wide range of adverse events follows vaccination. These include different local, behavioral and systemic effects, which vary from frequently occurring minor effects to occasional serious effects[1]. Monitoring of adverse events following immunization is essential and beneficial as shown in Box 1[2].

Box 1: Benefits of monitoring adverse events following immunization[2]

1. Detect new, unusual, or rare vaccine adverse events
2. Monitor increases in known adverse events
3. Determine patient risk factors for particular types of adverse events
4. Identify vaccine lots with increased numbers or types of reported adverse events
5. Assess the safety of newly licensed vaccines.

WHO has recommended that all cases requiring hospitalization that occurred within a month of immunization to be reported[3]. However, such monitoring relies on spontaneous reporting by clinicians, which is very low in many countries, including Saudi Arabia, where it, seldom, approaches zero[4,5]. This might be related to low recognition of the problem, as a possible indication for hospitalization[6,7]. This low recognition might be reflected by the level of documentation of vaccination history at clinical encounters. Our search failed to trace any work done to assess the level of documentation of vaccination history in pediatric admission notes. However, Philip Kum-Nji and colleagues in Tennessee showed that admitting physicians failed to document the immunization status of 22% of the pre-school patients8.

Objectives

This study aims to estimate the level of documentation of vaccination history and its predictors for hospitalized children of = 2 years at the time of clerking.

Methodology

Two private and two governmental hospitals were selected from 13 private and Governmental hospitals working in the main cities of the eastern province of Saudi Arabia. Ten percent of pediatric admittances to the medical pediatric wards were selected using systematic random sampling.

Children transferred from other pediatric wards such as nursery, intensive care units, and surgical

wards were not included. Medical records of children of 2 years and below admitted in the period March 2001 - March 2002 (Hijri year 1422) were reviewed. Data were collected from clerking sheets and discharge summaries of every admittee, by the authors. Data collected included demographic data, level of documentation of vaccination history, discharge diagnoses, whether a pre-printed form has been used for clerking and whether a specific field for vaccination is pre-defined.

Documentation of last vaccination shot was categorized as either "detailed" when type and timing of the shot was documented in clerking sheet; "up-to-date" when statement of up-to-date was documented only; or "no vaccination history" when no history related to vaccination was documented. Three of the authors, individually, reviewed discharge diagnoses and categorized them upon their likelihood of being vaccine-related, as defined by WHO2,3. Diagnosis was categorized as likely, unlikely or indeterminate once agreed by two authors out of the three.

Categorical data were cross-tabulated, while continuous data were recorded into groups of interval.

Data were tested for significance, using Pearson Chi Square2? and Fisher's exact test, where applicable. Stepwise multinomial logistic regression was used to predict the level of documentation of vaccination history, while binary logistic regression was used to predict the documentation of detailed vaccination history (DVH) and to predict no documentation of vaccination history as well. Intra-hospital data analysis was carried out after controlling for name of the hospital. A p-value of < 0.05 was considered statistically significant. Statistical Package for Social Sciences version 11 was used for analysis.

Results

Out of 303 medical records reviewed, four were excluded due to incomplete data. The characteristics of the 299 medical records included are shown in Table 1. Admission notes of hospitalized children were recorded in pre-designed forms in 274 (91.6%) of admittees, out of which 250 (83.6%) forms had a specific field for vaccination history. Admission notes contained DVH, "up-to-date vaccination" statement and no history of vaccination at all in 5 (1.7%), 175 (58.5%) and 119 (39.8%) charts, respectively. Bivariate analysis of the association of different variables with level of documentation is shown in Table 1.

Logistic regression showed no predictive effect of any of these variables for the level of documentation of vaccination history, the documentation of DVH and the absence of any documentation. Controlling for the name of the hospital did not affect the result of the analysis.

Only two admittees had a discharge diagnosis of AEFI. These were a case of BCGitis and post vaccination convulsion, respectively. Discharge diagnoses that the authors have labeled as "possibly-missed AEFI" are summarized in Table 2. None of their charts hold DVH .

Discussion

This study demonstrated a very low documentation of DVH, which was less than 2% of admittees in the study period. Worth noting is that no specific factor could predict this behavior. This might be due to the low frequency of admittees with documented DVH, or to other factors that were not included in our study, such as practitioner's awareness.

However, DVH tends to be documented in clerking forms holding a vaccination field, which might work as a reminder. Earlier studies have shown that chart reminders and pre-printed forms have resulted in more complete and more succinct admission notes9,10. DVH is found to be more in admittees less than one year of age, which clearly reflects the perception that most vaccination shots are accumulated in this age group.

No vaccination history was documented in high proportion (39.8%) of admittees. This is in comparison with 22% failure to document vaccination status reported by Philip Kum-Nji and colleagues in Tennessee. Low levels of documentation of vaccination history is likely to result in missed recognition of AEFI and missed opportunity to catch missed immunizations for possible catch-up correction.

Interesting to note is that all admittees with no clerking forms and all clerking forms with no pre-defined vaccination field have no documentation of vaccination history. This would emphasize the role of such forms and their design in directing the practitioners towards better documentation.

None of the likely AEFI had DVH. This might reflect the low recognition of practitioners towards AEFI.

Expected post-vaccination admissions in studied districts have been calculated using the local vaccination data and an attributable risk of admission in vaccinee less than 2 years of age of 22.5/100,000 vaccinee11. The number of vaccinees in studied districts is almost 160,00012. Thus the expected post-vaccination number of admissions in studied districts is 36 vaccinees. The expected number in our sample is 3 to 4 admittees. This study could elicit only one discharge diagnosis of an AEFI, i.e. less than one third of the expected number.

This low number, in addition to the very low documentation of DVH, suggests low recognition of this problem as a reason for hospital admission.

Conclusion

Documentation of vaccination history is poor and diagnosis of AEFI is low. It is possibly due to low recognition and inertia of practitioners. This poor practice might be a reason for the very poor reporting of AEFI.

Recommendations

Improve the quality of AEFI recognition by modalities such as:

1. Increasing awareness of

practitioners towards AEFI in undergraduate and postgraduate training.

2. Re-tailoring clerking forms to include a pre-defined field for DVH, i.e. type and timing of last shot.
3. Improving consumer awareness towards the problem by educating the parents towards the possible AEFI and to take a vaccine chart with them on every visit to the doctor.

Acknowledgement

We would like to thank all doctors and nurses working in the sampled hospitals for their contribution in collection of data. Particular thanks to Mr. Abdullah Abdulaal for his valuable secretarial work.

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Table 1: Level of documentation of vaccination history among different variables in pediatric admissions.

	n (%)	DVH	"Up-to-date" statement	No vaccination History	p value 1 Level of Vaccination Hx	p value 2 DVH	p value 3 No Vaccination Hx
Sex							
Female	113 (37.8)	1 (.5%)	115 (61.8%)	70 (37.6%)	.068*	.062	.195
Male	186 (62.2)	4 (3.5%)	60 (53.1%)	49 (43.4%)			
Age							
<1 year	206 (68.9)	5 (2.4%)	121 (58.7%)	80 (38.8%)	.418*	.153	.351
≥1 year	93 (31.1)	0	54 (58.1%)	39 (41.9%)			
Hospital							
A	21 (7)	0	0	21 (100%)	<.001*	.173	<.001
B	37 (12.4)	2 (5.4%)	0	35 (94.6%)			
C	212 (70.9)	3 (1.4%)	148 (69.8%)	61 (28.8%)			
D	29 (9.7)	0	27 (93.1%)	2 (6.9%)			
Hospital Property							
Government	249 (83.3)	5 (2.0%)	148 (59.4%)	96 (38.6%)	0.506*	.398	.205
Private	50 (16.7)	0 (.0%)	27 (54.0%)	23 (46.0%)			
AEFI Probability							
Likely	19 (6.4)	0 (.0%)	12 (63.2%)	7 (36.8%)	.870*	.295	.925
Unlikely	242 (80.9)	4 (1.7%)	142 (58.7%)	96 (39.7%)			
Indeterminate	38 (12.7)	1 (2.6%)	21 (55.3%)	16 (42.1%)			
Use of Clerking Form							
Yes	274 (91.6)	5 (1.8%)	175 (63.9%)	94 (34.3%)	<.001*	.644	<.001
No	25 (8.4)	0	0	25 (100.0%)			
Predefined Vaccination Field							
Yes	250 (83.6)†	5 (2.0%)	175 (70.0%)	70 (28.0%)	<.001*	.630	<.001
No	24 (8.0)	0	0	24 (100.0%)			
Total	299 (100.0%)	5 (1.7%)	175 (58.5%)	119 (39.8%)			

*Fisher's Exact Test. † Out of 274 Clerking Forms. DVH= detailed vaccination history

Table 2: Discharge diagnosis likely to be an AEFI.

Diagnosis	n (%)
Afebrile convulsion	4 (1.3)
Cervical abscess	1 (0.3)
Cervical lymphadenitis	1 (0.3)
Febrile convulsion	2 (0.6)
Fever	8 (2.7)
ITP	1 (0.3)
Occipital abscess	1 (0.3)
Total	18 (5.8)

ITP = Idiopathic Thrombocytic Purpura

A Comparative Study On Sex Role Perception of Mentally Handicapped Children, Normal Developing Children And Children Under Protection in Turkey

Key words: Mentally handicapped children, children who are not mentally handicapped, children under protection, gender role, sexual development, sexual education.

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ABSTRACT

Çetin Z, Yükselen A, Dogan Ö. A comparative study on sex role perception of mentally handicapped children, normal developing children and children under protection.

Aim: This study aims to investigate if there is any difference in sex role learning between mentally handicapped children, normally developing children and children under protection.

Methods: The study covers 40 mentally retarded children, 40 children who are not mentally retarded and 36 children under protection. Children taken into this research are selected by simple random sampling method from special/private education institutions in the centrum, from kindergartens located at the centrum of Ankara province, and from orphanages at the centrum of Ankara province. Parents and teachers are given and requested to fill in a questionnaire about the factors that can affect the gender roles of the children. All the children included in the study were applied The Sex Role Learning Index (SERLI) about the acquisition of gender role.

Results: There were significant differences between the three groups, and between girls and boys for some sub-scales.

Introduction

One of the most important parts of development in human life is the development of sex role. Sexuality begins before the birth of a child and shows continuous development. The development of sexuality, a common field of debate, is one of the fundamental issues for parents, students and researchers. A primary reason for this centrality is that gender attracts attention and is the first perceived feature of a person. The female or male nature of a person is a crucial feature. Another reason for its importance is that gender is a primary factor in the relationship of a person with other people and with the physical environment; by this means a person has experience of his or her self. An individual's preferences of friends, toys, jobs and professions are always related with his or her sexuality[1].

The child first of all takes his or her mother and father as a gender role model while having his or her first social experiences. There are many theories concerning acquiring sexuality. Freud (1915) defends that a child by passing certain development stages shapes the role of sexuality, and that this process is the basis for sexual development. Freud thinks that the human body has a physiological energy, which he called "libido." He also suggests that this energy is focused in different parts of the child and adult body in various stages of life. According to Freud's theory sexual development stages are completed in five periods[2].

Oral period (Age of 0-1): In this period the "libido" gathers up around the mouth and by this way it satisfies the feelings of happiness such as sucking, hunger and thirst.

Anal period (Age of 1-3): In this period as libido gathers up at the anus and rectum, the collecting and disposing of urine and excrement are the most important issues in a child's interests. With this toilet training comes into the agenda. Generally in this period, the children begins to perceive the concept of female and male.

Phallic period (Age of 3-6): In this period "libido" is in the child's genital area. The most important feature of this period is that the process of acquiring the sexual role begins now. Freud explains this "identity" as the admiration of a girl for her father and oppositely seeing the mother as a rival to herself, a phenomenon that he named "Electra Complex." The boy, on the other hand, admires the mother, a behavioral trait called the "Oedipal Complex." By identifying with the mother or father, the child tries to acquire those sexual roles.

Latent period (Age of 6-11): In this

period the "libido" is used for looking around and for building efficient relationships with other people. Sexual instincts are almost dormant in this period. Teachers and friends also are very important in this period.

Adolescence period (Age of 11-18): The sexual instincts that disappear in the latent period again come on the scene. With the beginning of interest in the opposite sex, the feelings of participating in group activities, socializing and the wish to become married become evident.

Resembling Freud's theory, Bandura (1984) defends that boys learn by observing their fathers and girls learn by observing and copying their mothers. Opposite to these theoreticians, Lawrence Kohlberg (1966) says that before the age of six or seven, children do not focus on their own sexual constancy[3].

While acquiring their sexual roles, children pass through certain well-defined stages, as in other developmental progressions. But the progress through these stages differs for each child. However, as shown below, the succession always remains the same during the progress through the stages[4,5].

First Stage (0-18 months): From birth, a child continously hears descriptions for girls and boys such as "my sweet girl, my lion-like boy." By this way the parents begin to form different environments for girls and boys.

Second Stage (18 months- age of 3): In this stage, children learn the descriptions related to girl/boy genders. Related with this they can show their differences of sexuality by their appearances related to the difference of sexuality. Thus children begin to perceive the concept of "sexual identity".

Third Stage (Age of 4-6): The main point in this stage is; the boys believe that they will be boys and the girls believe that they will be girls forever.

Fourth Stage (Age of 4-8): This stage is the one in which the meaning of the continuity of sexuality is totally formed. This concept means that the children accept the continuity of sexuality and that it will not change in spite of their clothes, appearance, activities or personal wishes.

Fifth Stage (Age of 6-8): In this stage the identifying process continues and the children themselves begin to use terms related to the opposite sex such as "boys are aggressive, girls are nice."

In the sexual role-acquiring stages explained above, the features such as family, education, culture, socio-economic level, visual and written media are important[6].

Family and environment play important roles in the development of children. The children always watch what their mothers and fathers do and then imitate them. In families with only one parent the children watch either their mother's or father's sexual role behaviour. These single-parent children learn that boys and girls do similar work. Some families choose traditional chores for their children to do (for example girls can wash the dishes and boys can take the garbage outside)[7].

Children also take their brothers or sisters as a model. The children generally imitate their brothers and sisters, especially their elder brothers' and sisters' actions and behaviours. Sisters continuously tell each other what they do and how they do it. Sisters teach each other what they should do in certain circumstances[7].

Besides the family, friends also serve as models for acquiring the sex role. Resembling the brother and sister relationships, friends also influence the behaviour and views of the children. Especially in primary school, children generally prefer to play with children of the same sex.

Visual and written media can also be used as a means of acquiring sex role. Especially television affects the children's social and anti-social behaviours. During their growth, the children enlarge their information repertoires very fast. The children get information about the world they live in and have different experiences by means of television. Television, radio, magazines and computers contain examples of female and male sexes and show explicitly the concepts of a woman being nice and a man being strong.

On television, the "woman" is usually shown as a housewife, mother, secretary or nurse, while the "man" is shown as a husband, father, athlete or big workman. The children, besides having their own sexual preferences, make up the role suitable to their own gender by putting together the information that they acquired from the met behaviours[8].

Kolbe and Meuhling (1995;50-59) in their research determined that television advertisements have a direct contribution in defining the children's sex roles[9].

Many researchers in this subject dispute the sexuality of man. As a result of these arguments, it is pointed out that mentally handicapped children and normal children follow the same sequence in their stages of sexual progression. However, mentally handicapped individuals, owing to their mental maturity level, go through these sexual progression periods more slowly than their normal peers[10].

It is thought that mentally handicapped children and teenagers have limited information in sexual subjects, which may cause problems in their behaviours, both for themselves and for their environment[11].

Acceptance of the sexuality of mentally handicapped children is realized as the children evolve sexually.

Although the parents seem to accept this reality, in practice they experience problems. It is thought that once they accept this reality, the role of the parents is very important in the sexual progression of the mentally handicapped children[10]. As the mental maturity levels of these children differ, they have very little chance to take as a model their mothers and fathers, to get information from their friends, to observe, to develop suitable social and sexual behaviour and to acquire experience. In addition to this, they have limited ability to evaluate the information they get, due to their limited level of reading. However, these children need to get support in sexual development, as in all development areas. For this reason it is very important that subjects

concerning sexuality take place in their special education programmes. Lin (1991;23-36) in his study defends that mentally handicapped children can get sexual education. He defined that even mentally handicapped children may accept sexual roles in a happy way and that they can also get married[12]. McCabe (1993;157-170) remarks that, in the research made by Schulz and Adam (1987), they emphasized that the sexual training given to the mentally handicapped children is efficient on their acquiring sexual roles and learning other subjects appropriate to their age, such as pregnancy, marriage, etc.[13].

Some families cannot fulfil their duty of raising and educating their children. In these cases the care and training of the children must be done by some institution. These children who live in institutions are called "children under protection." These children under protection are those who in some part of their lives have lived a long or short term deprivation or disorder, some traumatic or disturbing events that would threaten their physical, mental, moral or personal security. These children form a risk group in terms of healthy personal development[14,15].

It is not possible to say that all needs of these children directed towards their total development areas are met. Especially their psychological needs are inadequately met. Therefore their personal development is not healthy. As is known, a healthy sexual development depends upon a healthy personal development[6].

If the family is thought to be the most efficient model when acquiring a sexual role for normal developing children, this fact is insufficient for children under protection. The reason for this is that in their lives before they begin to live in the institution, or after they come to the institution, they face the phenomenon of not having a mother or a father to take as a model. As a result they cannot see a model in front of them with whom they can identify. However, Baran (1995) in his work remarks that children who have regular visitors to their institution have more chance to identify.

Besides their real families, other adults also play an important part in children acquiring a sexual role. But people working in the institutions cannot communicate one-to-one with each child in the institution. Nevertheless, the chances and experiences given to children in their early stages of socialization have great importance. The experiences that will be lived in Freud's "identity" process, crucial factors in the socialization process, affect the child in adopting his or her own sexual role and shaping behaviours. Baran (1995) in his research noted that the children under protection often have insufficient information about the sexual roles. For this reason, it is important that personnel throughout the institutional present their satisfaction with their own sexuality and present correct models to the children under protection[16].

Equipments and Methods

Sample and Model of Research

The study was made in the provincial centre of Ankara. Study participants included 36 children under protection, age of 5-6 from the institutions' nursery schools, 40 mentally handicapped children from private education centres of age 5-6 regarding their language development (according to the Denver Progressive Scanning Test), and 40 non-mentally handicapped children of age 5-6 from the pre-school education institutions. The children were selected by simple random sample method.

This research was made as a comparative type of research, descriptive in character.

Means of Data Collection

The means of data collection: Before the research, a questionnaire was filled out with information about the family and the facts that could affect the children's acquiring of sexual role. When filling these forms, the information about the families of the children under protection was taken from the children's records and the information concerning their acquisition of sexual role was taken from experts in child development and education. The information for mentally handicapped children and non-mentally handicapped children was supplied by their families.

Afterwards, the "SERLI" index has been applied to all the groups and later according to the "SERLI" score tables the scores have been calculated and the data evaluated statistically.

The Sex Role Learning Index (SERLI) has been made and used by Edelbrock & Sugawara (1978)(17). SERLI is a means of selecting a picture aiming at evaluating the acquiring of sexual role in children aged three to eight. SERLI is prepared to calculate the three dimensions explained below.

1-SRD (Sex Role Discrimination):

Sex role discrimination comprises the child's discovering of the sexual role models. This dimension has two sub-dimensions.

a-) Discovering the sexual role related to his or her own sexuality (SRDOwn).

b-) Discovering the sexual role related to the opposite sex (SRDOpposite).

In the context of these two sub-dimensions, children continuously hear the descriptions of girl-boy that are made for themselves, and with these descriptions they combine their own characteristics of sexual type. They realize how themselves and others are classified from the aspect of sexuality. As a result of this classification, in the direction of the society's traditions and customs, the behaviours appropriate to their sexual roles are taught to the children, beginning from the start of their lives. In SERLI the dimension of relating with a sexual role and the degree of classifying the roles are seen by distinguishing different pictures suitable to a child's own sexual role.

2- SRP (Sex Role Preferences):

The dimension of sex role preference includes determining the models of sex roles suitable with male and female behaviour. This dimension has two sub-dimensions:

a-) To prefer the sex role concerning childhood (SRPChild).

b-) To prefer the sex role concerning

the adult period (SRPAdult).

Children imitate adults having the same sex and they adapt clothes, games and behaviours of this sex.

Sex roles cover clothes, professions, games, toys, room order and the whole life of a person. In the specializing period, the sex roles of children are reinforced by their families and other sources. The child learns the values, norms and expectations of his or her own and the opposite sex. In the SERLI determination of sex role preference, the score is tested by looking at the cards chosen by the child that are suitable to his or her own sex.

3- SRC (Sex Role Confirmation):

The child's adoption of a sex role is related to the adaptation to sex, also defined as the tendency to determine his or her own gender.

Mothers and fathers have to present to their children that they are satisfied with their own sexual identities. Thus, by looking at these models, the children can healthily adopt their own sex roles.

The SERLI dimension of adoption of a gender by a child shows the degree of the child's own choice of decisions related to which sex is appropriate to the cultural patterns.

There are two sub-dimensions of confirmation of a sex role:

a-) The confirmation of a sex role concerning to the childhood (SRCChild).

b-) The confirmation of a sex role concerning to the adult period (SRCAdult).

In the process of measuring this development, the research looks at the test-retest correlation of credibility and the scores in the dimension of discriminating the gender. The score to discriminate the gender that belongs to own gender is 0.69, to discriminate the gender that belongs to the opposite is 0.65.

In the dimension of preferring the genders; the score of preference of the gender that belongs to the childhood period is 0.90, while that of preferring the gender that belongs to the adult period is 0.84. In the sex role confirmation dimension, the score in confirmation of the gender that belongs to the childhood period is 0.69, and confirmation of the gender that belongs to the adult period is 0.51.

The SERLI index contains 30 black-and-white photographs collected in 3 parts.

1-) Child figures

2-) Adult figures

3-) Objects

The photographs of child and adult figures are similar, but show different activities. In the photographs for the girls there are representations of stereotypical women and women's activities (ironing, sweeping, feeding etc.), while photographs for the boys include only representations of stereotypical men and men's activities (soldier, holding pickaxe, police etc.)

In the part of child and adult figures there are 10 activities. Half of these activities include manly figures and the other part includes the feminine figures. The part of objects contains 20 photographs of objects that are inside the activities of the child and adult figures.

The child figures for boys show activities related to carpentry, boats and playing football and objects related to these such as hammers/nails, paddle and ball/goal.

In the part of the adult figures for boys there are depictions of figures like carpenter, police and soldier, with objects related to these such as; saw, badge and rifle.

Application: When beginning to implement the index, the researcher puts the three boxes side by side; the first box is named as the "boy" in which there are pictures of boys, the last one is named as the "girl" in which there are pictures of girls and the one in the middle is named as "both girl and boy". Afterwards, sitting in front of the child, the researcher asked the child to choose some pictures and tell the researcher whether these pictures belong to the "girls," "boys" or "both girls and boys" category. The pictures of objects are shown to the child one by one. At the same time as showing the pictures, a question is asked such as "this is a .....picture. Who uses this? Girls or boys or both of them?" All verbal explanations made to the children remained the same throughout the study. After the child verbally answered the questions the related picture was given to him/her to put the picture into whichever of the three boxes he/she thought it belonged to. After the pictures were put in the boxes, the "girls" and "boys" boxes are put out of sight. The third box "both girls and boys" was the box with pictures chosen according to both sexes.

These pictures were again shown to each child, taken out one by one from the box. While showing them the question was asked, "This picture is for both girls and for boys, but which one uses this picture more, girls or boys?"

After the objects part was finished, pictures showing figures having the same sex with the child from different ages (girl-female) and doing the same activities were put on the table.

To make comparison between the groups, the findings obtained were analyzed statistically by using the non-parametric Mann Whitney U and Kruskal Wallis tests.

Finding and Discussion

The results obtained in this study, planned to determine the differences of the sex role acquisition between mentally disabled children, normal developing children and children under protection, is discussed within light of similar studies in this area.

When the points of the sample group of mentally handicapped children, normal developing children and children under protection from the SERLI sub-dimensions are compared with the Mann-Whitney U test according to the sexes, it is seen that the points that girls and boys got from the SERLI sub-dimensions have a meaningful difference only taking into consideration the points they have got from SRDOpposite SUB-DIMENSION. But looking at the points taken from other sub-criteria such as SRDOwn, SRPChild, SRPAdult, SRCChild and SRCAdult, it is seen that there is not a significant

difference between the sexes. By looking at table (1), it can be said that girls can differentiate the sex roles belonging to the opposite sex better than boys. Fisher (1990; 291-303) in their study concerning plays and games emphasized that girls learn to differentiate the sex roles and they can prefer the sex roles by playing games and by playing with toys related to housework[18]. However, Pomerleau and friends (1990;359-367) in their research, showed that the families assist their daughters to gain their sex roles by buying dolls, and other toys related with housework[19]. On the other hand, Black, Johnson, Kline and Lee (2000) in their research emphasized that boys choose the pictures appropriate for their sexes and they differentiate sex roles[20]. In a similar study made by Henshaw, Kelly and Gratton (1992), they emphasized that the boys have chosen the games, activities, colours and professions suitable to their sexes[21].

The findings in Table 1 in this research show that there is not a significant difference between the girls and boys according to the criteria of SRDOwn, SRPChild, SRPAdult, SRCChild and SRCAdult. But as remarked YELKEN (1996); Waldman (1984) in his study emphasizes that girls are less successful compared to boys in defining their own sex roles[22]. Also Leinbach, Hart and Fagot (1997;107-130) in their study about the boys' sex role behaviours show that boys scored much higher than girls related to the items concerning their own sex roles[23]. On the contrary, Edelbrock and Sugawara (1978;614-623) have emphasized that girls choose the activities suitable to their sex more easily than boys[17].

When Table 2 is examined according to the SERLI Scores of Normal Developing Children, Mentally Handicapped Children and Children Under Protection it is seen that between these groups the only difference concerns the SRDChild sub-test. The scores taken from other sub-criteria such as SRDOwn, SRDOpposite, SRPChild, SRPAdult, and SRCAdult show that there is not a significant difference between these groups.

When Table 3 is examined; it is seen that the scores that normal developing children and mentally handicapped children have taken from SERLI does not show a significant change, taking into consideration all the criteria. In this study it is seen that between the normal developing children and mentally handicapped children there is not a difference in respect of the criteria of Table 3. But in the study made by Çetin (2002) it is seen that there is a statistically significant difference between the normal developing girls and mentally handicapped girls, in respect of the criteria SRDOpposite, SRPChild and SRCChild. In the same study, it is found that there is a statistically significant difference between the normal developing boys and mentally handicapped boys in respect of the sub-criteria of SRDOwn, SRPChild and SRCChild[24].

The results of Table 4 show that there is a significant difference between the scores taken from the SRDOpposite and SRCChild sub-criteria of the Normal Developing Children and Children Under Protection. It is also seen that there is not a significant difference of scores that these groups have taken from the other sub-criteria. Bardwell and friends (1986;275-281), in a study on 5-year-old children going to preschool, found that the education level of mothers and fathers have effect on their children's gaining a sex role[25]. Similarly, Stevensen and Black (1988;793-814) have shown that there is a difference between the children growing up with a father against the children growing up without a father, in respect of gaining a sex-role. The findings obtained in these studies, and the finding in this study of a difference in gaining sex role of children under protection and children growing up with their mothers and fathers, show parallelism to each other[26]. The characteristics of children under protection gaining sex role differ from those of normal developing children, and the difference can be explained as the effect of parental behaviours on the acquisition of a sex role by children.

When the results of Table 5 are examined, the scores that the Mentally Handicapped Children and Children Under Protection taken from SRCChild sub-criterion shows a statistically significant difference. Between the scores that have been taken from other sub-criteria there are not significant differences, such as the difference between the normal developing children and the children under protection. The difference between the mentally handicapped children and children under protection is said to be caused as a result of the children under protections' being separated from their mothers and fathers.

Conclusion and Proposals

The results of the research indicate that only the SRDOpposite sub-criterion shows a significant difference from the scores that girls and boys have taken from SERLI Sub-Criteria.

Taking into consideration the SERLI scores of normal developing children, mentally handicapped children and children under protection, between these groups there is a difference only in terms of SRCChild sub-test.

It is seen that normal developing children and mentally handicapped children's SERLI scores does not show any significant difference from each other in terms of all criteria.

It is found that the scores taken from the SRDOpposite and SRCChild sub-criteria show significant difference in terms of normal developing children and children under protection.

It is seen that, between the scores of mentally handicapped children and children under protection from SRCChild sub-criterion, there is a statistically significant difference.

When the findings listed above are examined, it can be seen that the behaviours of the mothers and fathers and environmental factors have effect on gaining sex role. In this context, the children under protection, who are at a disadvantage in terms of environmental factors, have to be supported in the subject of gaining sex role. The institutions giving service to these children must take this need into consideration when forming their programmes in order to support the

development of these children.

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Table 1- Comparison of all the childrens' SERLI points with Mann-Whitney U Test according to the sex

Sex		SRDOwn	SRD Opposite	SRPChild Figures	SRPAdult Figures	SRCChild Figures	SRCAdult Figures
Girl	N	61	61	61	61	61	61
	Mean	89, 3443	90, 8197	65, 5574	63, 8361	64, 5902	64, 8033
	Std Deviation	15, 15133	12, 94798	12, 87313	13, 05269	12, 53977	12, 54302
	Median	90, 0000	100, 0000	66, 0000	64, 0000	65, 0000	66, 0000
	Minimum	40, 00	40, 00	36, 00	37, 00	36, 00	30, 00
	Maximum	100, 00	100, 00	80, 00	80, 00	80, 00	80, 00
Boy	N	55	55	55	55	55	55
	Mean	93, 8182	81, 0909	64, 0364	61, 2545	62, 8182	62, 5091
	Std Deviation	8, 27556	13, 14770	11, 99377	12, 91886	14, 09241	11, 19337
	Median	100, 0000	80, 0000	64, 0000	61, 0000	63, 0000	63, 0000
	Minimum	60, 00	50, 00	32, 00	28, 00	26, 00	40, 00
	Maximum	100, 00	100, 00	80, 00	80, 00	80, 00	80, 00
Total	N	116	116	116	116	116	116
	Mean	91, 4655	86, 2069	64, 8362	62, 6121	63, 7500	63, 7155
	Std Deviation	12, 52853	13, 87241	12, 43344	12, 99751	13, 26969	11, 92645
	Median	95, 0000	90, 0000	64, 5000	63, 0000	64, 0000	65, 0000
	Minimum	40, 00	40, 00	32, 00	28, 00	26, 00	30, 00
	Maximum	100, 00	100, 00	80, 00	80, 00	80, 00	80, 00
P		0. 180	0. 0001*	0. 386	0. 346	0. 573	0. 220

* p<0.05, significance level

Table 2 - The Comparison of SERLI Scores of Normal Developing Children, Mentally Handicapped Children and Children Under Protection with Kruskal-Wallis

Groups		SRDOwn	SRD Opposite	SRPChild Figures	SRPAdult Figures	SRCChild Figures	SRCAdult Figures
Normal Developing Children	N	40	40	40	40	40	40
	Mean	93, 0000	90, 5000	65, 8250	63, 1000	66, 1000	65, 6000
	Std. Deviation	11, 36797	10, 36513	11, 96124	11,39456	12,28257	10, 68380
	Median	100, 0000	90, 0000	66, 5000	62, 0000	69, 0000	66, 0000
	Minimum	40, 00	70, 00	36, 00	38, 00	36, 00	43, 00
	Maximum	100, 00	100, 00	80, 00	80, 00	80, 00	80, 00
Mentally Handicapped Children	N	40	40	40	40	40	40
	Mean	91, 7500	85, 2500	65, 7750	60, 3250	69, 2000	63, 2750
	Std. Deviation	12, 38020	13, 39489	12, 18761	12,96027	10,00308	12,78418
	Median	100, 0000	90, 0000	65, 5000	60, 5000	70, 5000	65, 5000
	Minimum	40, 00	50, 00	36, 00	28, 00	45, 00	30, 00
	Maximum	100, 00	100, 00	80, 00	80, 00	80, 00	80, 00

Children Under Protection	N	36	36	36	36	36	36
	Mean	89, 4444	82, 5000	62, 6944	64, 6111	55, 0833	62, 1111
	Std. Deviation	13, 92725	16, 62614	13, 27257	14,59017	13,47034	12, 29350
	Median	90, 0000	90, 0000	62, 5000	66, 0000	53, 0000	61, 5000
	Minimum	40, 00	40, 00	32, 00	32, 00	26, 00	40, 00
	Maximum	100, 00	100, 00	80, 00	80, 00	80, 00	80, 00
P		0. 409	0. 078	0. 549	0. 275	0. 0001*	0. 410

p<0. 05,significance level

Table 3 - The Comparison of SERLI Sub-Scores of Normal Developing Children (1) and Mentally Handicapped Children with Mann-Whitney Test

	Groups	N	Mean Rank	Sum of Ranks	Z	P
SRD Own	1, 00	40	41, 55	1662, 00	-0. 447	0. 655
	2, 00	40	39, 45	1578, 00		
	Total	80				
SRD Opposite	1, 00	40	44, 86	1794, 50	-1. 750	0. 080
	2, 00	40	36, 14	1445, 50		
	Total	80				
SRP Child figures	1, 00	40	40, 66	1626, 50	-0. 0630	0. 95
	2, 00	40	40, 34	1613, 50		
	Total	80				
SRP Adult figures	1, 00	40	42, 66	1706, 50	-0. 833	0. 405
	2, 00	40	38, 34	1533, 50		
	Total	80				
SRC Child figures	1, 00	40	37, 79	1511, 50	-1. 053	0. 292
	2, 00	40	43, 21	1728, 50		
	Total	80				
SRC Adult figures	1, 00	40	42, 44	1697, 50	-0. 748	0. 454
	2, 00	40	38, 56	1542, 50		
	Total	80				

p<0. 05, significance level

Table 4 - The Comparison of SERLI Sub-Scores of Normal Developing Children (1) and Children Under Protection (3) With Mann-Whitney Test

	Groups	N	Mean Rank	Sum of Ranks	Z	p
SRDOwn	1, 00	40	41, 43	1657, 00	-1. 325	0. 185
	3, 00	36	35, 25	1269, 00		
	Total	76				
SRDOpposite	1, 00	40	43, 31	1732, 50	-2. 086	0. 037*
	3, 00	36	33, 15	1193, 50		
	Total	76				
SRPChild Figures	1, 00	40	40, 99	1639, 50	-1. 039	0. 299
	3, 00	36	35, 74	1286, 50		
	Total	76				
SRPAdult Figures	1, 00	40	36, 26	1450, 50	-0. 935	0. 350
	3, 00	36	40, 99	1475, 50		
	Total	76				
SRCChild Figures	1, 00	40	47, 00	1880, 00	-3. 544	0. 0001*
	3, 00	36	29, 06	1046, 00		
	Total	76				
SRCAdult Figures	1, 00	40	41, 64	1665, 50	-1. 310	0. 190
	3, 00	36	35, 01	1260, 50		
	Total	76				

p<0. 05,significance level

Table 5 - The Comparison of SERLI Sub-Criterion of Mentally Handicapped Children[2] and Children Under Protection[3] With Mann-Whitney Test

	Groups	N	Mean Rank	Sum of Ranks	Z	p
SRD Own	2, 00	40	40, 41	1616, 50	-0. 858	0. 391
	3, 00	36	36, 38	1309, 50		
	Total	76				
SRDOpposite	2, 00	40	39, 73	1589, 00	-0. 524	0. 600
	3, 00	36	37, 14	1337, 00		
	Total	76				
SRPChild Figures	2, 00	40	40, 56	1622, 50	-0. 863	0. 388

	3, 00	36	36, 21	1303, 50		
	Total	76				
SRPAdult Figures	2, 00	40	34, 84	1393, 50	-1. 530	0. 126
	3, 00	36	42, 57	1532, 50		
	Total	76				
SRCChild Figures	2, 00	40	49, 24	1969, 50	-4. 487	0. 0001*
	3, 00	36	26, 57	956, 50		
	Total	76				
SRCAdult Figures	2, 00	40	40, 03	1601, 00	-0. 637	0. 524
	3, 00	36	36, 81	1325, 00		
	Total	76				

p<0. 05, significance level

Students' Perception of Small Group Teaching: A Cross Sectional Study

ABSTRACT

Background and Objectives: Small group teaching is an important component of undergraduate medical education. Central to the effectiveness of small group discussion (SGD) is the ability of the tutor and students to guide and discuss together, to understand a topic, or to solve a problem. The objective of this study was to identify students' perceptions about SGD aimed at continuous educational development.

Methods: It was a cross sectional study carried out among 100 Phase-I (Year-1) undergraduate students of Medical School of Universiti Sains Malaysia (USM) of session 2003-2004. Study was done at the end of their preclinical training in the musculoskeletal block. Data was collected through a structured questionnaire containing questions on students' preparedness, participation and understanding the topic. Response rate was 85%.

Results: According to 81% of the respondents, they were well prepared for SGD, 81% were of the opinion that they participated actively, and 86% stated that SGD helped them to understand the topic very well.

Conclusion: Characteristics of an effective small group discussion in USM are maintained. For a successful small group discussion, all the participants must mentally prepare to take part in active discussion; share knowledge and skills for in-depth understanding of the topic.

Key words: Students perception, Small group teaching

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Introduction

There are many different teaching styles and formats[1] ranging from the delivery of large group didactic lectures to facilitation of open small group teaching. Small group teaching has a long history. Its great promoter is Socrates, who valued the development of attitudes as much as critical thinking. A small group is a collection of several learners, and varies in numbers, who interact and whi work together to achieve common learning goals[2]. Subtle questioning was the core of Socrates' method[3].

Small group teaching method helps in the development of higher level intellectual skills such as reasoning and problem solving, the development of attitudes and the acquisition of interpersonal skills such as listening, speaking, arguing and group leadership[4]. These skills are important to medical students who will eventually become involved professionally with patients, other health care professionals, community groups, learned societies and the like[4].

Many medical schools have incorporated a significant number of small group teaching sessions in their undergraduate medical program5. Medical school of USM is the pioneer school who introduced

problem-based learning (PBL) in undergraduate medical curriculum in the region6-7 which relies almost entirely on small group teaching method, where a problem is posed by a tutor and discussed together. The undergraduate medical curriculum of USM consists of three phases comprising Phase-1 (year-1), Phase II (year-2 and 3) and phase III (year-4 and 5). Phase-I students are taught through 15 blocks. The musculoskeletal block is one such block studied. There were in total ten SGD sessions held during six weeks of the musculoskeletal block. The objective of this study was to assess student perceptions of small group discussions of the musculoskeletal block during their preclinical training, aimed at continuous educational development.

Methodology

It was a questionnaire survey carried out among Phase-I (Year-1) students of School of Medical Sciences, USM of session 2003-2004. One hundred questionnaires containing attributes of SGD were distributed to the students at the end of six weeks teaching in the musculoskeletal block. 85 questionnaires were received back and hence the response rate was 85%. The rating scale in the questionnaire ranged as: agrees undecided and disagrees. A mean score against variables was identified and analyzed as percentage distribution.

Results

This study revealed that among 85 respondents, 81% were well prepared for SGD while 7% were not well prepared and 8% could not decide and 4% did not respond (Table-1).

Regarding level of discussion held during SGD session in musculoskeletal block, 81% of students were of the opinion that they had a good level of discussion in SGD session while 5% did not, and 12% of students could not decide and 2% did not respond (Table-2).

According to 86% of students, SGD helped them to understand the topics of discussion very well whereas according to 8% of students, SGD did not help them to understand the topics. 5% of students could not decide and 1% did not respond (Table-3).

Discussion

An important consideration in a teaching learning session is arousal that implies a state of readiness of the brain of learner to accept new information4. This study revealed that 81% of the respondents were aroused and well prepared for SGD (Table 1), meaning that they were interested in SGD.

Motivation is a key factor for learning which implies a willingness to direct its activity to a specific task4. Like arousal and preparedness, exactly the same percentage of students (81%) opined that SGD of the musculoskeletal block offered them an opportunity for a good level of discussion (Table 2). It showed that all 81% of respondents who prepared well for SGD also actively participated in the SGD sessions, meaning that a good level of discussion was held. One study in the UK confirmed that undergraduate medical students prefer interactive discussion sessions, which facilitate better knowledge retention8. Our study findings have a similarity with that of the UK study as most of our respondents took part in interactive discussions that facilitate the better understanding of the topic.

The effectiveness of SGD increases if the level of discussion is high or optimal. Understanding cannot be achieved unless the students are attending and discussing to a class, a state of affairs which will be determined by his/her level of arousal and degree of motivation4. This type of teaching provides opportunities to ask questions, to work as a team and to learn to solve the problems and thereby enhancing critical thinking ability9. Mutual discussion in the form of small groups is very effective to clarify and understand the topic under discussion. Participants can share their knowledge gained from different learning resources like books, films, slides, charts and internet etc in SGD. This study revealed, 86% of the respondents were able to understand the topics of discussion (Table 3), which means the SGD was effective for understanding of the topics.

The successfulness of small group teaching and learning depends upon the strategies and skills of the tutor and students3. The tutor has to play a vital role as an influence on medical students in small groups, particularly with respect to tutor verbal behavior encouraging or discouraging students10. From the students' point of view, the main characteristics of a good tutorial as far as tutors are concerned, consist of allowing enough time for discussion, accepting students as partners, refraining from interference and having expertise11.

There were ten SGD sessions tutored by different tutors during the musculoskeletal block rotation. But the study examined the SGD sessions collectively rather than each individual group, so we are unable to compare the individual group activities. This study has also the limitations of being confined within three variables and did not examine the students' perception about facilitation skills of tutor. However, the results of examination of these three variables were in favor of drawing assumptions that collectively the facilitation skills were effective.

Conclusion

The effectiveness of small group discussion depends upon the strategies and skills of the tutor and students. Characteristics of an effective small group discussion in USM are maintained. For a successful small group discussion, all the participants must mentally prepare to take part in active discussions; share knowledge and skills for in-depth understanding of the topic.

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Table-1: Distribution of respondents on the basis of their preparedness for small group discussion

Preparedness for small group discussion	Number	Percentage
Well prepared	69	81.20
Not well prepared	6	7
Undecided	7	8.20
Not responded	3	3.60
Total	85	100.00

Table-2: Distribution of respondents on the basis of whether good discussion was held during small group teaching

Level of discussion	Number	Percentage
Discussion was good	69	81.20
Discussion was not good	4	4.70
Undecided	10	11.80
Not responded	2	2.30
Total	85	100.00

Table-3 Distribution of respondents on the basis of understanding of the topic of small group discussion

Understand the topic of discussion	Number	Percentage
Topic understood	73	85.90
Topic not understood	7	8.20
Undecided	4	4.70
Not responded	1	1.20
Total	85	100.00

The Incidence of Outpatients In A Private Psychiatric Setting

ABSTRACT

Objective The authors wanted to roughly determine the incidences of the various psychiatric disorders presenting to a private psychiatric outpatient clinic at any given time.

Method This is a simple, cross-sectional, descriptive study involving 165 patients attending the NeuroBehavioural Medicine Clinic in the Penang Adventist Hospital, Malaysia. The patients were studied during a three-week period and the incidence of the various mental conditions was determined.

Results The most common illnesses were anxiety disorders (32.1 percent) and mood disorders (27.2 percent). Schizophrenic disorders (21.2 percent) were also common in private practice.

Conclusions Anxiety and depression were the most common diagnoses presenting to psychiatrists in private practice. Our observations point to the need for awareness of these incidences as effective treatment depends on early detection of these disorders.

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Introduction

The types of psychiatric conditions seen in private practice in Malaysia can vary from that seen in a government setting. Issues pertaining to accessibility and cost determine this variability. The aim of this study is to roughly determine the incidence and pattern of the various psychiatric illnesses that present to a private psychiatric setting and to highlight the need for awareness of those incidences for earlier detection of the said disorders, in the hope of being of particular benefit to the primary care-giver and the practicing family physician.

Methodology

The study design is one of a cross-sectional, descriptive type. The period of study was over a three-week period in September, 2005 and included all new and follow-up patients seen at the NeuroBehavioral Medicine clinic at the Penang Adventist Hospital, Malaysia, during the principal investigator's fourth year medical school elective posting. The number of cases amounted to 165 (n=165) and consisted of those with prior appointments, as well as walk-in patients. Axis I psychiatric diagnoses were recorded and then accorded into six main categories of common mental disorders. The data was then inserted into a graph to determine the types and incidences of the various psychiatric conditions.

Results

Patients of all ages had conditions that included disorders such as schizophrenia, mood disorders, anxiety disorders, organic brain syndromes, substance-related disorders and other psychiatric illnesses (consisting of somatoform and personality disorders). The total number of cases was 165. The highest incidence of conditions presenting to this private clinic appeared to be anxiety disorders and mood disorders, having 53 patients (32.1 percent) and 45 patients (27.2 percent) respectively. This was followed by schizophrenia with 35 patients (21.2 percent), and the rest being of smaller denominations.

Discussion

As can be seen from the figures, anxiety and depression constitute the major portion of psychiatric disorders in the private outpatient clinic. Most of the cases presented with symptoms of anxiety or depression and there were others that presented with a combination of both, usually with one symptom standing out more prominently than the other. However, mixed anxiety-depression cannot be seen as a stable diagnosis as many people diagnosed with it eventually shift to other diagnoses[(1)].

Anxiety is as common as depression for several reasons, one being that they can occur together due to similarities in their psychopathology. The other reason is the competitive nature of our living standards nowadays, both in the workplace and academic institutions. The final reason focuses on a population that is prone to develop anxiety and these are people who have the Cluster C or the anxious or fearful personalities. The dependent and obsessive-compulsive personalities, when partnered and present together in an individual, pose a significant and drastic component towards the tendency of developing a generalized anxiety disorder[2].

Depression has been the commonest psychiatric diagnosis and constitutes 5.3 percent of the Malaysian population. Putting this into a rough figure, the estimate would breech almost 1.2 million individuals suffering from depression in Malaysia alone. In comparison to a prevalence of about 2-3.5 percent in 1984, such a tremendous climb in the numbers of those suffering from the disorder would put depression as the primary cause of morbidity in years to come. Despite the differences of incidences seen across the globe, the variations are minor. Studies of psychiatric patients reveal that when structured diagnostic instruments are used and strict diagnostic criteria applied, there are fewer differences in the rates of psychotic and mood disorders between ethnic groups[3]. The common attributes of depression include stresses in the workplace, financial difficulties, health complications, family problems, arguments and marital discord. A local study that determined core symptoms of depression and dysthymia in patients undergoing dialysis found that amongst all stressors in life, depression took the highest toll on various morbidities, including renal failure[4]. However, only a fraction would seek professional help probably due to poor understanding, self-medication, high ego in the male population and the stigma of seeing a psychiatrist, the latter being the commonest reason[5].

Schizophrenia and related psychoses were also commonly encountered, charting a 21.2 percent incidence. A Spanish experience in Barcelona had recorded an incidence of 3.47 per 10,000 population from 1982-2000 involving 21,236 subjects with schizophrenia and other psychosis-related diagnosis[6]. McGrath et al (2004) found the distribution of rates was significantly higher in males compared to females[7]. Ethnic differences however, may play a part in the skewing of other figures. DelBello (2002) noted that African Americans receive fewer mood disorder diagnoses and Lewis et al (1980) observed that violent, mentally-ill African American adolescents were more likely than similarly violent and ill white adolescents to be incarcerated rather than hospitalized. Whaley (1998) reported that mild forms of suspiciousness are more prominent in African Americans than in whites and are associated with depression, suggesting that African American culturally-based suspiciousness of a white-dominated mental health care system may be misinterpreted as a psychotic symptom[3].

Substance-related disorders were also prevalent, with an incidence of 9.7 percent followed by organic brain disorders (7.3 percent) and finally the other psychiatric disorders (2.4 percent). The substance abuse group mainly comprised those with heroin dependence syndrome, in sustained remission with substitution therapy. Most were young males and some had polydrug abuse. Martin (2003) stated that while girls were more likely to be diagnosed with abuse or dependence on only one drug, boys were more likely to be diagnosed with simultaneous abuse or dependence on more than one drug. More male teenage substance abusers also had disruptive disorders, whereas females had higher rates of depression. Studies have consistently documented high rates of psychotic disorders among adolescent substance abusers. They also found that certain co-occurring disorders are associated with certain treatment outcomes, especially depression or attention-deficit hyperactivity disorder that may contribute to early drop-outs and poor treatment outcomes[8].

Making a correct diagnosis is therefore crucial in the early stages of dealing with a psychiatric disorder. For this, awareness of the incidences of the common psychiatric conditions is necessary. On a lighter note, it has been suggested that a 'parking diagnostician' could improve the accuracy of diagnosis[9].

Limitations

Firstly, the setting being only outpatients may not reflect the actual incidence of psychiatric conditions nationally as the government hospitals here in Malaysia have large psychiatric in-patient facilities. Secondly, the diagnoses were not further divided into specific sub-diagnoses as in the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-4) that may have provided a better breakdown of the depressive and anxiety variants. Thirdly, descriptive demographic data were not included, thus disabling the use of statistical tests for further analysis. Lastly, as the symptomatology of the patients was not recorded, actual pattern studies could not be conducted.

Although the findings of this study do not lead to a newer conceptual understanding of the incidence of psychiatric disorders than what is widely known, and that the project was undertaken merely to promote interest in research to budding medical professionals, the simplicity of this observational study design serves its purpose in creating awareness that any kind of information can be turned into useful data when the correct framework is incorporated.

Conclusion

Anxiety and depression appear to be the main diagnoses presenting to psychiatrists in private practice. This is an important observation as anxiety and mood disorders can be effectively treated if detected early.

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Figure 1 Incidence of Psychiatric Diagnoses