International Journal of Pediatric Nursing

Corresponding address
Red Flower Publication Pvt. Ltd.
48/41-42 DSIDC, Pocket-II
Mayur Vihar Phase-I, Delhi - 110 091(India)
Tel: +91-11-22754205/45796900, 22756995
Mob: 9821671871
E-mail: info@rfppl.co.in

International Journal of Pediatric Nursing (pISSN: 2454-9126; eISSN: 2455-6343) is the official journal of the Red Flower Publication Pvt. Ltd. The journal provides original, peer-reviewed research that is based on the philosophy that pediatric nursing incorporates a family-centered approach. It serves as a forum for the dissemination of current information in the field of pediatric nursing. Each issue will appeal to the staff nurse as well as management and will provide the reader with a lasting reference source. Divergent points of view are presented to provide a comprehensive discussion of subjects needed by pediatric nursing professionals. Journal content covers the life span from birth to adolescence. Submissions should be pertinent to the nursing care needs of healthy and ill infants, children, and adolescents, addressing their bio-psychosocial needs. The journal also features the following regular columns for which authors may submit brief papers: Research Commentary, Clinical Practice, Hot Topics, and Technology.

Subscription Information

India
Institutional (1 year) (Print+Online): INR 5500

Rest of the World
Insitutional (1 year) (Print+Online): $430
Payment instructions
Online payment link:
http://rfppl.co.in/payment.php?mid=15

Cheque/DD:
Please send the US dollar check from outside India and INR check from India made. Payable to 'Red Flower Publication Private Limited'. Drawn on Delhi branch

Wire transfer/NEFT/RTGS:
Complete Bank Account No. 604320110000467
Beneficiary Name: Red Flower Publication Pvt. Ltd.
Bank & Branch Name: Bank of India; Mayur Vihar
MICR Code: 110013045
Branch Code: 6043
IFSC Code: BKID0006043 (used for RTGS and NEFT transactions)
Swift Code: BKIDINBBDOS

Send all Orders to: Subscription and Marketing Manager, Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091(India), Phone: 91-11-45796900, 22754205, 22756995, E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in

International Journal of Pediatric Nursing

IJPEN

January - April 2018
Volume 4, Number 1

Contents

Original Research Articles

Case Report

Secure | https://journals.indexcopernicus.com/search/form?search=International%20Journal%20of%20Pediatric%20Nursing

INDEX COPERNICUS INTERNATIONAL

ICI World of Journals | ICI Journals Master List | Contact

Login/ Register

Search Results

Journal title: International Journal of Pediatric Nursing
ISSN: 2454-9126, 2455-6343
GICID: n/d
Country / Language: IN / EN
Publisher: Red Flower Publication Pvt. Ltd.

Citation:	N/A
MNISW 2016:	N/D
ICV 2016:	75.33
ICV 2015:	65.65

Original Research Article

International Journal of Pediatric Nursing
Volume 4 Number 1, January - April 2018
DOI: http://dx.doi.org/10.21088/ijpen.2454.9126.4118.1

Factors Contributing to Early Marriage of Girls in India

Mary Philip*, Chitra P., Nimona Shaka***

Author Affiliation
*Department of Psychology, **Department of Child Health Nursing, Ambo University, P.O. Box 19, Ambo, Ethiopia.

Reprint Request
Mary Philip, Ph.D., Department of Psychology, Ambo University, P.O. Box 19, Ambo, Ethiopia.
E-mail: msebif@gmail.com

Received on January 26, 2018
Accepted on February 19, 2018

Abstract

Objective: In many developing countries early age marriage is associated with early age pregnancy resulting in mortality and morbidity of mothers and babies. Early marriage before age 18 is common practice in India, more in certain states than others. Uttar Pradesh is one state where early marriage is very common. This study aimed to identify factors that predicted the early marriage of girls from urban slums of Allahabad, which is the sixth largest city in Uttar Pradesh and one of the poorest states.

Methods: As one component of a community intervention, young women aged 14 to 19 were interviewed in household surveys conducted in poor urban localities. Interviews were completed with 1351 adolescent girls. Data allowed us to calculate the cumulative proportion of girls marrying before the legal age of marriage: age 18 for girls.

Results: Pace of marriage was 16.8 percent girls. Multivariate cox regression was used to identify protective factors that helped girls survive the event of marriage. Significant predictors of a younger age marriage of girls included lack of high school education, parent's low education, not living with both parents, and higher restrictions on mobility after controlling for other influences.

Conclusions: Encouraging high school or higher education of girls, skills for negotiating access to education and attitudes preferring late age marriage should each be investigated as possible intervention targets preventing early age marriage of girls in India.

Keywords: Early Marriage; Social Skills; Self-esteem.

Introduction

Adolescents are rarely considered a distinct group with special needs, and so much of the information is recent and exploratory. It is a developmental stage with a lot of transitions and changes. For many girls in India, marriage is an added factor that limits their adolescence and ends in a quick transition to adult roles. This transition has the associated risks of early pregnancy and childbirth. Young women who have not achieved full physical maturity are nearly three times more likely to die of complications in childbirth (WHO, UNFPA, UNICEF 1989). Research that separates the effect of pre-existing factors from those that are due to the timing of the first birth itself is scarce (Singh 1998). However, children born to teenage mothers tend to have worse outcomes with elevated rates of pre-maturity and low birth weight (WHO 1989, Kramer 1987, Miller 1993, IIPS and ICF 2017) and poorer developmental prospects in childhood and adolescence (Fergusson, Horwood and Lynskey, 1994; WHO 1989). Age-specific fertility rates in the five-year period before the national family health survey, 2016 increased from 56 births per 1,000 women to 187 births per 1,000 women age 20-24 and declined thereafter (IIPS and ICF, 2017). Pregnancy before age 18 poses high risk of maternal and infant

mortality (Rustein 2002. Sebastian, Khan, Kumari & Idnani 2012, Setty-Venugopal & Upadhyay 2002, Whitworth 2002, WHO 2005).

Marriage occurs in adolescence to a large percentage of girls in India (Basu, Acharya, Melnikas, and Amin 2017). The median age at first marriage is 19 years among women age 20-49 and 24.5 years among men age 25-49. Forty percent of women age 20-49 marry before the legal minimum age of 18 years (IIPS and ICF, 2017). Even when there is marginal increase in the average age at marriage, there has not been parallel increase in the time elapsed between marriage and first birth (Mensch, Bruce, and Greene 1998). Girls face social and familial pressure for childbearing soon after marriage to prove their fertility and it also improves their status in the marital household. Twenty percent of women age 15-19 with no schooling have already begun childbearing, compared with only 4 percent of women who had 12 or more years of schooling (IIPS and ICF, 2017). This paper takes a close look at patterns and covariates of early marriage of young women from poor households in urban areas of one of the most populous and poor states of India.

Methods

The data used in this paper comes from a census of the adolescents living in 14 urban slums of Allahabad, India. Thus researchers were able to examine marriage behavior in relation to the individual and family background of young people. The surveys were completed by field investigators through face to face interviews with respondents. Ethics approval was provided by the Institutional review board of Population Council, New York. All the adolescents and their parents gave informed consent before being interviewed. Information was gathered on diverse issues including education, employment and savings, reproductive health knowledge, self-esteem, self-efficacy, mobility and marriage. The household roster identified 7,572 eligible young people (boys and girls), of whom 6,148 completed the survey. Of the 3,862 girls identified, 3,075 completed the interview- a response rate of 80 percent.

Measures

Early marriage was defined as marriages before age 18.

To identify factors associated with girls' early age marriage, items were identified from the survey. Questions were asked about 'age of marriage', 'age considered as the right age of marriage', whether the girls were currently attending school or had completed high school, and religion. In addition, questions about whether the girl was living with both parents, the girls' self-rated social skills and self-esteem, and social skills for negotiating access to school were available.

Level of education was divided into two categories with low education defined as no or pre-high school education only and high education as high school or higher.

Social Skills were assessed with nine items. Two of the items (express your ideas to others, convince others of what you believe in) were scored based on three response options "never, sometimes, most of the time".

Seven other items (taking care of your health, solving your daily problems, making yourself understood to other people, listening to other people, cooperating with other people, asserting your opinions about issues, initiating activities in a group) were scored based on three response options "not good, good, very good". The Cronbach's alpha for the scale formed from these items was 0.69.

The items assessing *Self-esteem* were "you feel important to your family as other members, you feel important to your friends, in a family discussion parents respect your opinion, you feel you have many good attributes, parents/in-laws feel you have many good qualities, capable of doing things like others, and you feel you are important to your friends" using three response options -"disagree, neutral, agree". Cronbach's alpha for the scale formed from these items was 0.73

Statistical Analysis

Data analyses were conducted using SPSS. Life table analyses was used to establish the probable age of marriage after controlling for respondent's current age.

Cox regression was used to model predictors of age of marriage after controlling for the influence of respondents age at that stage and the probability of being married.

Cox regressions were run for each of the predictors to establish the unadjusted (univariate) relationships to early marriage. The predictors that were examined included attitude to late marriage, level of schooling, higher levels of social skills and self-esteem. Finally multivariate models were run to establish effects adjusted for other predictors.

Results

Majority of the girls were either 15 or 16 years old. 88% were Hindus. Few of the girls were already married (14%).

Pace of marriage was estimated by the life-table method. As age increased chances of girls getting married also increased. Hence survival analysis was conducted after adjusting for current age. Figure 1 shows the cumulative percentage of those married at different ages. The marriages at different ages steadily increased in India. The proportions married significantly increased after age 17, peaking at age 19, the highest age for which data was collected.

The effects of year of birth, level of education, religion, living with both parents, self-esteem, and social skills on the age-specific probabilities of marriage were estimated using Cox regression (Cox, 1972). The relative risk of 1 indicates no risk at all. Relative risk less than 1 indicates the protective influence of the factor in slowing the pace of marriage. The relative risk of greater than 1 indicates that the associated factors increases probability of marrying early. Both unadjusted and adjusted odds ratios are shown in the Table 2. Unadjusted odds ratio is based on a single Cox regression for each predictor variable. Adjusted odds ratio is calculated after including all the predictor variables in the regression equation.

Table 1: Background Information

Background Indicators	N (Percent)
Age	
15-16 years	1599 (52)
17-19 years	1476 (48)
Married	440 (14.3)
Religion	
Hindus	2715 (88.3)
Muslims	304 (9.9)
Other religious groups	56 (1.8)
Education	
None/primary	1046 (34)
More than primary education	2029 (66)

Table 2: Odds Ratio (and 95% confidence intervals) from Cox Regression

Co-vari ates	Unadjusted Odds Ratio (Confidence Interval)	Adjusted Odds Ratio (Confidence Interval)
Schooling	0.32* (0.26 - 0.40)	0.66* (0.52 – 0.85)
Ideal age of marriage	0.80* (0.75 - 0.86)	0.82* (0.75 – 0.88)
School social skills	0.83* (0.80 – 0.87)	0.92* (0.88- 0.97)
Social skills	0.39* (0.16 – 0.98)	0.97 (0.38 – 2.48)
Self esteem	0.78 (0.44 – 1.38)	1.37 (0.63 – 2.95)
Living with both parents	0.11* (0.09- 0.14)	0.14* (0.11- 0.18)
Muslim religion	1.4* (1.0 – 1.95)	1.3 (0.93 – 1.91)

*p<0.05

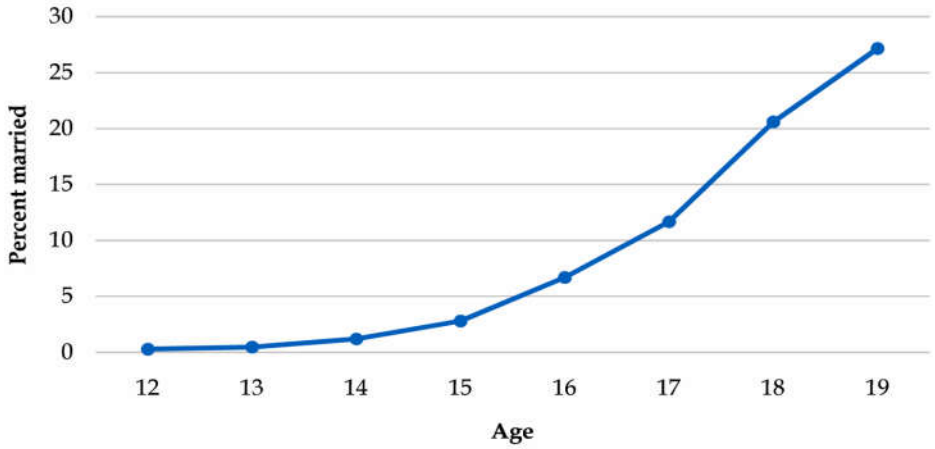

Fig. 1: Estimated cumulative percentage of girls married by specific ages

Level of education has a large effect on pace of marriage. The relative risk associated with schooling is less than 1 and is significant both in the adjusted and unadjusted models. Schooling continued to exert protective influence in delaying marriage even in the adjusted model.

Those appraising themselves to have higher levels of social skills were less likely to marry early than those low in social skills. Additionally in the adjusted model those rating their skills to be good for negotiating schooling opportunities were less likely to marry early than those low in such skills (adjusted odds ratio, 0.92, Table 2). However self-esteem did not emerge as a significant predictor either in the adjusted or unadjusted model.

Living with both parents was more protective than schooling (adjusted odds ratio, 0.14, Table 2). Unadjusted and adjusted odds ratios were similar and highly significant.

Although early marriages occur frequently among women, the respondents did not consider that as the ideal situation. Girls who responded that marriage should occur at a later age tended to marry later than those who believed in early marriage. Surprisingly, most of those who have had an early marriage reported a young age closer to their age of marriage as the ideal age for marriage. Such a belief is either required in accepting their marital state or it could be the result of not experiencing what it is like being unmarried at young ages.

Discussion

Correlates of early age marriage were examined in a sample of girls aged 15 to 19 from poor slums in India. Marriage at an earlier age was found to be less likely where girls had higher levels of education, were living with both parents, believed that marriage should occur at a later age or had better social skills to negotiate educational opportunities. The tendency for education to associate with lower rates of early marriage is consistent with previous research (Basu 1996, Das and Dey 1998, Choe, Thapa and Achmad 2001).

Government efforts in introducing free schooling for girls, offering Secondary School Scholarship, and rations to families as part of mid-day meal scheme have succeeded in increasing enrolment in formal schooling, retention and attendance in schools in India (Kartik 2013).

Poverty has implication on timing of marriage with the dowry demands making marriages a financial burden (Basu, Acharya, Melnikas, and Amin 2017). An analysis of the marriage change in South India in early 1980s showed that parents are unwilling to postpone marriage beyond teenage because of the increased dowry cost for older brides (Caldwell et al 1983).

Once the father is deceased and the mother has to manage the expenses of the household, the onus of finding a suitable groom who does not demand huge pot of money as dowry becomes an arduous task. Hence the risk of an early marriage is central. With the decrease in maternal mortality, presence of widowers has decreased, pushing the availability of suitable grooms further down. So it is not surprising that parents compete for the eligible men by paying higher dowries. Hence Bhat and Halli (1999) argue that it is not education, but marriage squeeze that has led to the rise in age at marriage. Marriage squeeze can also lead to parents opting for young age marriage of their daughters (Sautmann 2010).

The findings from the present study may have policy implications in emphasizing that the role of skills for negotiating access to schooling may operate to reduce early marriage independently of other factors.

The underlying relationship modeled in the regression findings is likely to be interactive and reciprocal with skills for interpersonal interaction, skills for interacting with teachers and elders being both determining and determined by access to school education (Furnham and Stacey 1991). Previous research has provided different models suggesting how education and individual social skills may be related to late marriage (Balk 1994; CEDPA, 2001).

Conclusions

In conclusion, the late marriage is associated with higher levels of education and attitudes unfavorable to early marriage. Findings also provided some evidence that efforts to create less favorable attitudes and practices toward early age marriage through formal programs supported by the schools may be at odds with traditional values emphasized in some less educated families and religious groups. Laws restricting child marriage and accepting dowry in India are one of the best in world, but the menace of dowry goes on increasing and child marriages still continue openly. Higher levels of education and improving social skills necessary for bargaining for higher education and late marriage seem to work in favor of late marriage.

References

1. Balk D. Individual and community aspects of women's status and fertility in rural Bangladesh. Population Studies 1994;48(1):21-45.
2. Basu A.L. Girl's schooling, autonomy, and fertility change: What do these words mean in South Asia. In Jeffery & Basu (ed.s) Girl's schooling, women's autonomy and fertility change. New Delhi: Sage,1996.p.48-72.
3. Basu S, Acharya R, Melnikas AJ, and Amin S. "More Than Brides Alliance: Baseline Report, India." New York: Population Council. 2017.
4. Caldwell JC, Caldwell P, Caldwell BK, Pieris I. The construction of adolescence in a changing world: Implications for sexuality, reproduction, and marriage. Studies in Family Planning, 1998;29(2): 137-153.
5. Caldwell JC, Caldwell P. Adolescence and developing Global Culture: Implications for sexuality, Reproduction and Marriage. Workshop on adolescent sexuality and reproductive health in Developing Countries: Trends and interventions. National Research Council. Washington DC March 25,1997.
6. CEDPA. Adolescent girls in India choose a better future: An impact assessment. http://www.cedpa.org/publications/pdf/blp_report.pdf, 2001.
7. Choe M, Thapa S, Achmad I. Early marriage and Childbearing in Indonesia and Nepal. East-West Center working paper No.108-15. Honolulu: East-west center, 2001.
8. Cox DR. Regression models and life tables. Journal of the Royal Statistical Society 1972;Series B,34: 187-200.
9. Das NP , Dey D. Female age at marriage in India: Trends and determinants. Demography India 1998; 27:91-115.
10. Fergusson, DM, Horwood LJ, Lynskey M. The Childhoods of Multiple Problem Adolescents: A 15-Year Longitudinal Study. Journal of Child Psychology and Psychiatry 1994;35:1123-1140.
11. Furnham A, Stacey B. Young People's Understanding of Society. London: Routledge, 1991.
12. Furstenberg F. When will teenage childbearing become a problem? The implications of western experience for developing countries. Studies in Family Planning 1998;29(2):246-53.
13. International Institute for Population Sciences (IIPS) and ICF. 2017. National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS.
14. Kartik M. Priorities for primary education policy in India's 12th five year plan. India policy forum 2013;9:1-46.
15. Kramer MS. Determinants of low birth weight: Methodological assessment and meta-analysis. Bulletin of the World Health Organisation 1987;65(5): 663-737.
16. Mensch BS, Bruce J, Greene ME. The Uncharted Passage: Girls' Adolescence in theDeveloping World. New York: Population Council, 1998.p.41-76.
17. Miller JE. Birth outcomes by mother's age at first birth in the Philippines. International Family Planning Perspectives 1993;19:98-102.
18. P. N. Mari Bhat and Shiva S. Halli. Demography of bride price and dowry: Causes and consequences of the Indian marriage squeeze. Population Studies, 1999;53(2):129–148.
19. Rutstein S. Relationships Between Pregnancy Intervals and Prenatal Mortality: Proceedings of the 2nd Champions Meeting on Birth Spacing, Washington, DC: CATALYST Consortium, 2002.p. 15–22.
20. Sautmann A. Search, Marriage, and Demographics: The Marriage Squeeze in India andage patterns of marriage. PhD thesis, New York University, 2010.
21. Sebastian, MP, ME Khan, K Kumari and R Idnani. Increasing Postpartum Contraception in Rural India: Evaluation of a Community-Based Behaviour Change Communication Intervention. International Perspectives on Sexual and Reproductive Health, 2012 Jun;38(2):68–77.
22. Setty-Venugopal V and Upadhyay UD. Birth spacing: three to five saves lives, Population Reports, 2002 Summer;(13):1-23
23. Singh S. Adolescent Childbearing in Developing Countries: A Global Review. Studies in Family Planning 1998;29(2):117-136.
24. Whitworth A and Stephenson R. Birth spacing, sibling rivalry and child mortality in India, Social Science & Medicine, 2002;55(12):2107–2119.
25. WHO (World Health Organization). The risks to women of pregnancy and child bearing in adolescence: A selected annotated bibliography. Geneva: WHO,1989.
26. WHO/UNFPA/UNICEF. The reproductive health of adolescents:A strategy for action.Geneva:WHO, 1989.

Revised Rates for 2018 (Institutional)

Title	Frequency	Rate (Rs): India		Rate ($):ROW	
Community and Public Health Nursing	Triannual	5500	5000	430	391
Dermatology International	Semiannual	5500	5000	430	391
Gastroenterology International	Semiannual	6000	5500	469	430
Indian Journal of Agriculture Business	Semiannual	5500	5000	413	375
Indian Journal of Anatomy	Bi-monthly	8500	8000	664	625
Indian Journal of Ancient Medicine and Yoga	Quarterly	8000	7500	625	586
Indian Journal of Anesthesia and Analgesia	Monthly	7500	7000	586	547
Indian Journal of Biology	Semiannual	5500	5000	430	391
Indian Journal of Cancer Education and Research	Semiannual	9000	8500	703	664
Indian Journal of Communicable Diseases	Semiannual	8500	8000	664	625
Indian Journal of Dental Education	Quarterly	5500	5000	430	391
Indian Journal of Emergency Medicine	Quarterly	12500	12000	977	938
Indian Journal of Forensic Medicine and Pathology	Quarterly	16000	15500	1250	1211
Indian Journal of Forensic Odontology	Semiannual	5500	5000	430	391
Indian Journal of Genetics and Molecular Research	Semiannual	7000	6500	547	508
Indian Journal of Hospital Administration	Semiannual	7000	6500	547	508
Indian Journal of Hospital Infection	Semiannual	12500	12000	938	901
Indian Journal of Law and Human Behavior	Semiannual	6000	5500	469	430
Indian Journal of Legal Medicine	Semiannual				
Indian Journal of Library and Information Science	Triannual	9500	9000	742	703
Indian Journal of Maternal-Fetal & Neonatal Medicine	Semiannual	9500	9000	742	703
Indian Journal of Medical & Health Sciences	Semiannual	7000	6500	547	508
Indian Journal of Obstetrics and Gynecology	Bi-monthly	9500	9000	742	703
Indian Journal of Pathology: Research and Practice	Monthly	12000	11500	938	898
Indian Journal of Plant and Soil	Semiannual	65500	65000	5117	5078
Indian Journal of Preventive Medicine	Semiannual	7000	6500	547	508
Indian Journal of Research in Anthropology	Semiannual	12500	12000	977	938
Indian Journal of Surgical Nursing	Triannual	5500	5000	430	391
Indian Journal of Trauma & Emergency Pediatrics	Quarterly	9500	9000	742	703
Indian Journal of Waste Management	Semiannual	9500	8500	742	664
International Journal of Food, Nutrition & Dietetics	Triannual	5500	5000	430	391
International Journal of Neurology and Neurosurgery	Quarterly	10500	10000	820	781
International Journal of Pediatric Nursing	Triannual	5500	5000	430	391
International Journal of Political Science	Semiannual	6000	5500	450	413
International Journal of Practical Nursing	Triannual	5500	5000	430	391
International Physiology	Triannual	7500	7000	586	547
Journal of Animal Feed Science and Technology	Semiannual	78500	78000	6133	6094
Journal of Cardiovascular Medicine and Surgery	Quarterly	10000	9500	781	742
Journal of Forensic Chemistry and Toxicology	Semiannual	9500	9000	742	703
Journal of Geriatric Nursing	Semiannual	5500	5000	430	391
Journal of Global Public Health	Semiannual				
Journal of Microbiology and Related Research	Semiannual	8500	8000	664	625
Journal of Nurse Midwifery and Maternal Health	Triannual	5500	5000	430	391
Journal of Organ Transplantation	Semiannual	26400	25900	2063	2023
Journal of Orthopaedic Education	Triannual	5500	5000	430	391
Journal of Pharmaceutical and Medicinal Chemistry	Semiannual	16500	16000	1289	1250
Journal of Practical Biochemistry and Biophysics	Semiannual	7000	6500	547	508
Journal of Psychiatric Nursing	Triannual	5500	5000	430	391
Journal of Social Welfare and Management	Triannual	7500	7000	586	547
New Indian Journal of Surgery	Bi-monthly	8000	7500	625	586
Ophthalmology and Allied Sciences	Triannual	6000	5500	469	430
Otolaryngology International	Semiannual	5500	5000	430	391
Pediatric Education and Research	Triannual	7500	7000	586	547
Physiotherapy and Occupational Therapy Journal	Quarterly	9000	8500	703	664
RFP Indian Journal of Medical Psychiatry	Semiannual	8000	7500	625	586
Urology, Nephrology and Andrology International	Semiannual	7500	7000	586	547

Terms of Supply:

1. Agency discount 10%. Issues will be sent directly to the end user, otherwise foreign rates will be charged.
2. All back volumes of all journals are available at current rates.
3. All Journals are available free online with print order within the subscription period.
4. All legal disputes subject to Delhi jurisdiction.
5. Cancellations are not accepted orders once processed.
6. Demand draft / cheque should be issued in favour of "Red Flower Publication Pvt. Ltd." payable at Delhi
7. Full pre-payment is required. It can be done through online (http://rfppl.co.in/subscribe.php?mid=7).
8. No claims will be entertained if not reported within 6 months of the publishing date.
9. Orders and payments are to be sent to our office address as given above.
10. Postage & Handling is included in the subscription rates.
11. Subscription period is accepted on calendar year basis (i.e. Jan to Dec). However orders may be placed any time throughout the year.

Order from
Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091 (India), Tel: 91-11-22754205, 45796900, Fax: 91-11-22754205. E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in

Original Research Article

International Journal of Pediatric Nursing
Volume 4 Number 1, January - April 2018
DOI: http://dx.doi.org/10.21088/ijpen.2454.9126.4118.2

Knowledge Regarding Coronary Artery Disease among School Going Adolescents

Ramya K.R.

Author Affiliation
Assistant Professor, Jubilee Mission College of Nursing, Thrissur, Kerala 680005. & Lead Quality Cell, Jubilee Mission Medical College and Research Institute, Thrissur, Kerala 680006.

Reprint Request
Ramya K.R.
Assistant Professor, Jubilee Mission College of Nursing, Thrissur, Kerala 680005 & Lead Quality Cell, Jubilee Mission Medical College and Research Institute,
Thrissur, Kerala 680006.
E-mail: raviramya11@gmail.com

Received on January 20, 2018
Accepted on February 09, 2018

Abstract

Behaviours established during the adolescence have long lasting consequences to the onset of many lifestyle diseases including coronary artery disease in later life. There is very limited data regarding coronary artery disease related knowledge and its influencing factors among adolescents. Therefore, it is essential to understand adolescent's knowledge before designing and developing preventive programs focusing on this age group. The main objective of the study was to assess knowledge regarding coronary artery disease among 252 adolescents studying in selected schools of Thrissur district, Kerala, South India. A multistage random sampling technique was used. Data were collected using a self-administered-questionnaire on socio-demographic personal profile and knowledge on coronary artery disease. Results indicated that none of the adolescents had adequate knowledge, 77.4% had inadequate level of knowledge, and the remaining 22.6% had moderately adequate knowledge regarding coronary artery disease. Better coronary artery disease knowledge was found to be associated with female gender ($p<0.05$). The study findings highlight the importance of initiating programs for the prevention of CAD amongst adolescents.

Keywords: Knowledge; Coronary Artery Disease; Adolescents; Behaviours; Lifestyle Diseases; Risk Factor.

Introduction

As per the report of Global Burden of Disease Study, in the year 1990, there were 5.2 million deaths from Cardio Vascular Diseases (CVD) in economically developed countries and 9.1 million deaths from the same cause in developing countries [1]. An estimated 17.5 million people died from CVDs in 2012 mainly due to coronary artery disease (7.4 million) and strokes (6.7 million), representing 31% of all global deaths [2]. By 2020 Coronary Artery Disease (CAD) disease is predicted to account for the largest cause of death and disability in India [3]. In 2000, the overall prevalence of CAD in India was nearly 3% with 29.8 million people affected [4]. It is estimated that by 2020, about one third of all deaths will be caused due to coronary artery disease [5].

The higher prevalence of CAD in Indians is attributed to genetic predisposition and faulty lifestyle. Though once it was considered a disease of affluent aged men, it is now striking the affluent sections and economically disadvantaged alike [6]. Recent studies show that Kerala has the highest prevalence of CAD among all Indian states with a high rural prevalence.

Although atherosclerosis clinically manifests in middle and late adulthood, it is well-known that it has a long asymptomatic phase of development which begins early in life, often during childhood. The first stage of atherosclerosis is manifested as endothelial dysfunction and can be seen even in lactating infants and children. In most children, atherosclerotic vascular changes may or may not progress, and may regress with advancing age. However, in some children the process is accelerated

or more pronounced because of the behavioural risk factors and environmental exposures.

It is during adolescence individuals commonly initiate or engage in unhealthy behaviours, such as unhealthy diet, sedentary lifestyle, alcohol consumption, and tobacco use. These risk behaviours adopted during adolescence persist into adulthood too [7]. Identification of specific behaviours to be changed by adolescents is an initial step for behaviour change. A study conducted among adolescents of Kerala revealed that adolescents were not aware of the seriousness of the heart disease and only 14.3% of them thought that CAD is a public health concern [8]. Also cardiovascular risk factors are highly prevalent among school children [9]. Importantly, school children lack adequate knowledge regarding cardiovascular risk factors. Taking all the evidence into consideration, we decided to carry out this study with an aim to understand the level of knowledge about CAD and the factors influencing among adolescents.

Materials and Methods

A quantitative, cross-sectional, descriptive survey was conducted among school children studying in 7th class of four selected schools of Thrissur district, Kerala. A total of 252 school children were included in the study selected using multistage random sampling. Permission was obtained from the school authorities and Directorate of Public Instructions. Assent was taken from the school children and a written informed consent was taken from the parents. The study was approved by Institutional ethics committee.

Children who were diagnosed as having some cardiovascular diseases, chronic illnesses, severe malnutrition, physical and mental defects or not cooperative were excluded from the study. Data were collected through a structured questionnaire. The questionnaire was developed by the researcher after an extensive literature review and pilot testing. Validity and reliability was established before administration. Reliability was established by using test retest method. The reliability of the knowledge questionnaire was found to be r = 0.87. The first part of the questionnaire included items to obtain information on sociodemographic personal profile of adolescents. The second section consisted of 24 multiple choice questions with four options to evaluate the knowledge regarding CAD in three domains; meaning of coronary artery disease (6 items), its risk factors (6 items), and prevention (12 items). Each correct answer was given a score of one. The total possible knowledge score was 24 and was graded as follows

Adequate: 80-100% (Range 19-24)

Moderately adequate: 60-79% (Range 14-18)

Inadequate: < 60% (Range <14)

The collected data were coded, entered in the master sheet. It was decided to analyze the data by descriptive and inferential statistics on the basis of objectives and the hypotheses of the study. The data was analyzed in terms of descriptive (mean, standard deviation, percentage) and inferential statistics (independent t- test, chi-sqaure test/fishers exact test). A p value of <0.05 was taken as statistically significant.

Results and Discussion

Section I: Sociodemographic personal characteristics

The mean age of adolescents was 12.29±0.5 years, majority were male of gender (68.7%), and residing in rural area (74.6%). The proportion of males were found to be higher than females in studies conducted by Bachhani D [10] Bachhani D, Sogarwal R, Gupta S. NCD risk factor surveillance among school children in selected states of INDIA

Phase-1 (In collaboration with WHO and DGHS) Available (59.6% males and 39.4% females) in 5 states of India and Adea A [11] (70.9% males and 29.1% females) in the rural areas of Karnataka. Majority of the mothers (61.5%) and fathers (69.0%) of adolescents were educated up to metric. Most of the mothers were homemakers (59.9%) while majority of the fathers were engaged in private job (55.6%). Amal R et al [12] while studying cardiovascular risk factors among school children found that majority of the fathers were educated up to higher secondary level (49%) and majority of the mothers were educated upto graduation (50%). It was found that most of the parents were engaged in higher and intermediate non-manual work; 46% of fathers and 44% of mothers.

Family history reflects not only genetic susceptibility, but also interactions between genetic, environmental, cultural and behavioural factors. Out of all 49.6% of adolescents had reported family history of cardiovascular disease. The higher prevalence of heart disease and hypertension in setting of present study compared to other states of India was supported by Bachhani D et al. They found a strong family history of CVD; hypertension (23%),

diabetes (13%), heart disease (11%) as reported by adolescents. Family history of diabetes was highest in Nellore (21.2%) followed by Thrissur (17.5%). Thrissur district had the highest rate of heart diseases (19%) [10].

Majority of the adolescents (97.2%) had no prior information regarding CAD while 0.8% each reported health personnel and school curriculum as a source of information. In a study conducted by Taha AZ et al [13] among students, the main sources of knowledge about health and disease as reported by both male and female students were television (58% males Vs. 61% females), magazines (31% males Vs. 39% females) and daily newspapers (33% males Vs. 34% females).

Section II: Knowledge regarding coronary artery disease

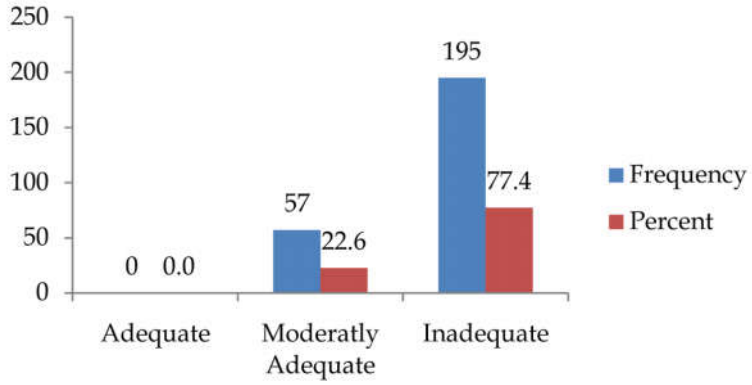

Fig. 1: Distribution of study participants based on level of knowledge

From Figure 1, it is evidenced that at pretest none of the participants had adequate knowledge, 77.4% had inadequate level of knowledge, and the remaining 22.6% had moderately adequate knowledge. The mean total CAD knowledge score was 11.38±2.92. The domain of 'prevention' scored highest mean percentage while the domain 'meaning of CAD' had the lowest mean percentage.

Similar findings were seen in studies conducted among rural adolescent population by Shivali S et al [14] and Adea A et al [11]. They found that majority of students had inadequate knowledge regarding non communicable diseases including coronary artery disease, its risk factors and preventive measures including healthy lifestyle practices. Awareness of lifestyle related risk factors were found to be low among urban adolescents as reported by Banerjee A [15] et al from Pune, and Rachel HA [16] et al from Tamil Nadu. Vanhecke et al demonstrated that adolescents lack knowledge regarding the risk of cardiovascular disease and this consequently corresponds with our own observations as far as the issue of CAD is concerned [17].

Section III: Association between knowledge regarding coronary artery disease with selected variables.

Table 2 &3 shows that Chi square value calculated for finding the association between the level of knowledge and age, area of living, sources of information, education and occupation of parents among adolescents was not found to be significant at 0.05 level. Significant association was found between category of knowledge and gender. Also adolescents with a family history of CVD found to have better knowledge compared to those who didn't at 0.05 level of significance. In contradiction to the findings of present study Shivali S found better awareness of NCD risk factors among rural male adolescents compared to girls [14].

Table 1: Distribution of adolescents based on domains of coronary artery disease knowledge N=252

Domains	Minimum	Maximum	Mean	Std. Deviation	Mean Percentage
Meaning of CAD	0	5	1.89	1.18	31.5
Risk factor	0	6	2.94	1.28	49
Prevention	1	10	6.55	1.66	55.5
Total	1	18	11.38	2.92	47.41

Table 2: Association between coronary artery disease knowledge and age, gender, area of living, sources of information among adolescents N=252

Variable	Knowledge		Test value	DF	P value
	Moderately adequate	Inadequate			
Age (years)					
11	0(0.0)	1(100)	0.086	3	0.602 ns
12	40(22.1)	141(77.9)			
13	17(25.8)	49(74.2)			
14	0(0.0)	4(100)			
Gender					
Male	33(19.1)	140(80.9)	3.960	1	0.047*
Female	24(30.4)	55(69.6)			
Area of living					
Urban	3(27.3)	8(72.7%)	0.024	2	0.930 ns
Rural	42(22.3)	146(77.7)			
Periurban	12(22.6)	41(77.4)			
Sources of information regarding CAD					
School	0(0.0)	3(100.0)	0.091	3	0.551 ns
Media	0(0.0)	2 (100.0)			
Health personnel	0(0.0)	2 (100.0)			
None	57(23.3)	188(76.7)			

nsNot significant, *Significant at the 0.05 level, Chi-square/fishers exact probability test

Table 3: Association between coronary artery disease knowledge and education of mother, and education of father among adolescents at pretest N=252

Variable	Knowledge		Test value	DF	p-value
	Moderately adequate	Inadequate			
Education of mother			0.164	4	0.149 ns
Post graduate	4(40.0)	6(60.0)			
Graduate	20(29.0)	49(71.0)			
Up to Metric	32(20.6)	123(79.4)			
Literate	1(7.1)	3(92.9)			
Illiterate	0(0.0)	4(100.0)			
Education of father			0.045	3	0.919 ns
Post graduate	3(17.6)	14(82.4)			
Graduate	8(22.9)	27(77.1)			
Up to Metric	41(23.6)	133(76.4)			
Literate	5(19.2)	21(80.8)			
Illiterate	0(0.0)	0(0.0)			
Occupation of mother			0.091	4	0.718 ns
Farmer	0(0.0)	1(100)			
Own Business	1(8.3)	11(91.7)			
Private Job	13(26.0)	37(74.0)			
Government Job	8(21.1)	30(78.9)			
Homemaker/unemployed	35(23.2)	116(76.8)			
Occupation of father			0.136	4	0.322 ns
Farmer	4(26.7)	11(73.3)			
Own Business	14(18.2)	63(81.8)			
Private Job	34(24.3)	106(75.7)			
Government Job	4(21.1)	15(78.9)			
Unemployed	1(100.0)	0(0.0)			

nsNot significant, Chi-square/fishers exact probability test

Implications and Limitations

Nurses play a major role in health promotion and maintenance in the clinical and non-clinical setting (community, school, occupational health etc). Classes/sessions on healthy behaviors including food habits, physical activity and exercise, screen time, and tobacco use by school health nurse can be arranged under the science clubs or health clubs of the school. The parents as well as the school teachers should also be involved in these educational activities. Screening for cardiovascular risk factors can be arranged for school children.

The present study has few limitations. Accuracy of the responses to the questionnaire couldn't be estimated, however, standardized questionnaires are expected to provide more accurate data. The results may be influenced by social desirability. Influence of mass media and familial influence couldn't be controlled.

Conclusion

Knowledge regarding coronary artery disease was low among adolescents. The study recommends promotion of supportive environment for strengthening student-based approaches and strategic delivery of health education to target risk behaviors among adolescents.

Acknowledgement

The author acknowledges the principals and teachers of schools, school children and their parents for their generosity and nice gesture.

References

1. Murray C.J.L., Lopez A.D. Mortality by cause for eight regions of the world: global Burden of Disease Study. Lancet. 1997;349:1269–1276.
2. World Health Organization. Cardiovascular diseases (CVDs) Fact sheet 2016 [Accessed 2016October 10]. Available from: http://www.who.int/mediacentre/factsheets/fs317/en/.
3. Raymond S, Greenberg H, Liu H, Esson K. A race against time: the challenge of cardiovascular disease in developing economies. New York: Columbia University. 2004 Apr 25. [Accessed 2011 October 10]. Available from: http://earth.columbia.edu/news/2004/images/raceagainsttime_FINAL_051104.pdf.
4. Gupta R, Joshi P, Mohan V, Reddy KS, Yusuf S. Epidemiology and causation of coronary heart disease and stroke in India. Heart. 2008 Jan 1;94(1):16-26.
5. Nag T, Ghosh A. Cardiovascular disease risk factors in Asian Indian population: A systematic review. J Cardiovasc Dis Res 2013 Dec 31;4(4):222-8.
6. Pais P, Pogue J, Gerstein H, Zachariah E, Savitha D, Jayaprakash S, et al. Risk factors for acute myocardial infarction in Indians: a case-control study. Lancet 1996;348:358-63.
7. Selvan MS, Kurpad AV. Primary prevention: Why focus on children & young adolescents?. Indian J Med Res 2004 Dec 1;120(6):511-8.
8. Ramya K R, Batra K Perception and Knowledge of Coronary Heart Disease among Adolescents of Kerala. Asian J. Nursing Edu. and Research. 2015; 5(3):327-330.
9. Ramya K R Behavioral risk factors of coronary artery disease among adolescents of Kerala. International Journal of Paediatric Nursing. 2017;3(2):9-15.
10. Bachhani D, Sogarwal R, Gupta S. NCD risk factor surveillance among school children in selected states of INDIA – Phase-1 (In collaboration with WHO and DGHS) Available from: URL:http://www.nihfw.org/Upload/ResearchStudy/NCD_RISK_FACTOR_SURVEILL ANCE_AMONG_SCHOOL_ CHILDREN_9_22_2014_4_26_01_PM.pdf.
11. Ade A, Chethana KV, Mane A, Hiremath SG. Non-communicable diseases: awareness of risk factors and lifestyle among rural adolescents. Int J BiolMed Res. 2014;5(1):3769-71.
12. Khanolkar AR, Byberg L, Koupil I. Parental influences on cardiovascular risk factors in Swedish children aged 5–14 years. The European Journal of Public Health. 2011 Dec 13:ckr180.
13. Al Zubeir AG, Mian MH, Hussain NA. Self-reported Knowledge of School Students and their Teachers-Risks and Prevention of Coronary Heart Disease. Bahrain Medical Bulletin. 2004 Jun;26(2).
14. Shivalli S, Gupta MK, Mohaptra A, Srivastava RK. Awareness of non communicable diseases and their risk factors among rural school children.Indian Journal of Community Health. 2013 Jan 31;24(4):332-5.
15. Banerjee A. Coronary heart disease: Awareness of risk factors and lifestyleamong school-going adolescents. Indian J Med Sci 2007;61:474-6.
16. RachelH A, and Baby P. Effectiveness of Structured Interventional Strategy on Knowledge, Attitude and health behavior regarding selected modifiable coronary artery disease risk factors among adolescents in selected schools. Nurs Health Sci 2014 Nov-Dec;3(6)1-7.
17. Vanhecke TE, Miller WM, Franklin BA, Weber JE, McCullough PA. Awareness, knowledge and perception of heart disease among adolescents. Eur J Cardiovasc Prev Rehabil. 2006;13:718–23.

International Journal of Pediatric Nursing

Library Recommendation Form

If you would like to recommend this journal to your library, simply complete the form below and return it to us. Please type or print the information clearly. We will forward a sample copy to your library, along with this recommendation card.

Please send a sample copy to:

Name of Librarian

Name of Library

Address of Library

Recommended by:

Your Name/ Title

Department

Address

Dear Librarian,

I would like to recommend that your library subscribe to the **International Journal of Pediatric Nursing**. I believe the major future uses of the journal for your library would provide:

1. useful information for members of my specialty.
2. an excellent research aid.
3. an invaluable student resource.

I have a personal subscription and understand and appreciate the value an institutional subscription would mean to our staff.

Should the journal you're reading right now be a part of your University or institution's library? To have a free sample sent to your librarian, simply fill out and mail this today!

Stock Manager

Red Flower Publication Pvt. Ltd.

48/41-42, DSIDC, Pocket-II

Mayur Vihar Phase-I

Delhi - 110 091(India)

Phone: Phone: 91-11-45796900, 22754205, 22756995, Cell: +91-9821671871

E-mail: sales@rfppl.co.in

Original Research Article

International Journal of Pediatric Nursing
Volume 4 Number 1, January - April 2018
DOI: http://dx.doi.org/10.21088/ijpen.2454.9126.4118.3

A Pre experimental Study to Assess the Knowledge and Knowledge on Anemia & its practice among mothers of Primary School Children

V.P. Packia Lakshmi

Author Affiliation
*M.Sc (Nursing), Dr. G. Sakunthala College of Nursing College, Tiruchirappalli, Tamil Nadu 620101, India.

Reprint Request
V.P. Packia Lakshmi,
M.Sc (Nursing), Dr. G. Sakunthala College of Nursing College, Tiruchirappalli, Tamil Nadu 620101, India.
E-mail:
vppackia1982@gmail.com

Received on December 29, 2017
Accepted on January 19, 2018

Abstract

Great advances have been made during the past 50 years in knowledge of nutrition and in the practical application of that knowledge. According to modern concepts, school health service is a powerful way of raising health in future generations. Still they are young ,for betterment of exposure their parents has to be assessed. For this fact a pre-experimental study to assess the effectiveness of structured teaching programme on Anemia in terms of knowledge and knowledge on practice among mothers of primary school children in Omandhu Ramachandran Middle school, Trichy. Quantitative approach and Pre-experimental design chosen to conduct study. A self structured tool was developed to collect data. Sample size N=40 which includes mothers of primary school children (Mothers of children who had Hemoglobin level between 7 - 11 gm/dl). Results revealed that pretest mean knowledge score was 31 (Average). While post test knowledge score was 78 (Adequate) and pretest mean knowledge on practice score 20.75, post test mean knowledge on practice score 76.88. Correlation Co-Efficicient applied to find correlation between pretest knowledge and pre test knowledge on practice (0.394*), posttest knowledge and posttest knowledge on practice (0.435*), the scores was significant at 0.01 level. Chi-Square applied there was significant association between post test knowledge and selected demographic variable such as education significant at $p<0.001$ level.

Keywords: Effectiveness; Structured Teaching Programme; Anemia; Knowledge; Knowledge on Practice; Mothers of Primary School Children.

Introduction

The school-age years represent a time of slow physical growth, cognitive and developmental Growth Proceed at rapid rates. Anemia is exceeding common in infants and children of poor economically background segment of the society. It develops slowly and is not clinically apparent until anemia is severe; even though functional consequences already exist. Hemoglobin testing is the primary method of anemia diagnosis.

The knowledge regarding multiple etiology, Potential strategies for combating iron deficiency and deficiencies of other micronutrients, iron deficiency anemia, remain significant public health challenges for mothers of growing children. It leads to increasing severity of anemia, increased susceptibility to infection and greater risk of death. It seriously affects the growth of the children. Educating mother of primary school children can prevent the recurrence of anemia and promote general well being. It helps to prevent from severity of anemia.

Purpose of the Study

The purpose of study to find out the effectiveness of self structured teaching Programme regarding knowledge on anemia and knowledge on practice among mothers of primary school children.

Materials and Methods

Pre-experimental one group pre test and post test design used for this study. The study was conducted in Omandhu Ramachandran Middle School, Srinivasa Nagar, Trichy. This school is situated at a distance of about 2 km away from the Dr. G. Sakunthala college of Nursing, Thiruvanaikovil, Trichy. Population comprised mothers of primary school children in the age group between 6-10 year with hemoglobin level between 7- 11gm/dl. The sample consisted of 40 mothers of primary school children with Anemia.

Non – probability convenient sampling followed. Data collection instrument Consisted of demographic data of mothers of Primary School children, Consisted of knowledge questionnaire, Knowledge on practice questionnaire to Assess knowledge on practices regarding anemia, Hemoglobin estimation (Sahlis method).

The structured teaching programme was given to the selected study subjects. Structured teaching programme was conducted for 4 days. It consists of information on anemia and contents about basic facts of anemia, definition, causes, signs and symptoms, diagnosis, prevention, treatment, and complications of anemia. The method of teaching was lecture cum discussion method. The visual aids used are flash cards and pamphlets. Multiple choice questions on knowledge questions. A score "one mark" was given for correct answers and "zero" for wrong answer. The resulting score will be for adequate knowledge a score was 76 – 100%, for Moderately adequate knowledge from 51 – 75%, for Inadequate knowledge a score less than 50 %.The knowledge on practice assessed by items rating scale- Always, sometimes, never. For Favourable, a score from 76 – 100%, for Moderately favourable a score from 51 – 75%, for Un favourable knowledge on practice a score less than 50%. The period of data collection was from 14.07.2007 to 24.08.2007. Before starting the study, the researcher obtained formal permission to conduct the study, from assistant elementary educational officer and Head mistress of the Omandhu Ramachandran Middle School, Trichy. The mothers were first contacted for rapport development. After introduction, the investigator explained the purpose of her study and then obtained oral and written consent for hemoglobin estimation by Sahlis Method (Finger Prick Method) and also oral consent from the primary school children. Hemoglobin estimation (Sahlis method) was done for 12 children per day to a total of 120 children. After doing hemoglobin estimation for 120 children. 40 children were found to be anemia.

Mothers of those children were intimated to come to school for assessment of knowledge and knowledge on practice and giving teaching. Data collection was done for 10 mothers per day, after pretest, structured teaching Programme was given for 30 minutes. After 15 days mother were asked to come and post test conducted. The research proposal was approved by the Dissertation committee of the Dr.G.S akunthala College of nursing prior to pilot study. Permission was obtained from the Assistant elementary educational officer, Trichy. The oral and written consent were obtained, from each participant of the study before starting the data collection. Assurance was given to the subjects that the anonymity of each individual would be maintained.

Data Analysis and Interpretation

Majority of mothers of primary school children were age group between 25-30 years (45%), above 30years (37.5%), below 25 years (17.5years).As per religion hindu (55%) Muslim (7.5%) Christian (37.5%), Based on type of family (57.5%)were from nuclear family, 42.5%were joint family, As per education illiterate (35%) primary education (52.5%) high school level (12.5%), As per occupational status unemployment mothers (35%)coolie workers (65%). As per family monthly income below Rs.2000 (75%), Rs.2001-Rs3000 (15%), Rs.3001-Rs4000 (5%), Above Rs.4001 (5%), sources of information obtained from mass media (5%), remaining had no experience.

Table 1: Frequency distribution of knowledge Scores of mothers of primary school children regarding anemia

Level of Knowledge	Study group n=40			
	Pre test		Post test	
	N	%	N	%
Adequate (76-100%)	0	0	25	62.5
Moderately Adequate (50-75%)	3	7.5	15	37.5
Inadequate (less than 50%)	37	92.5	0	0

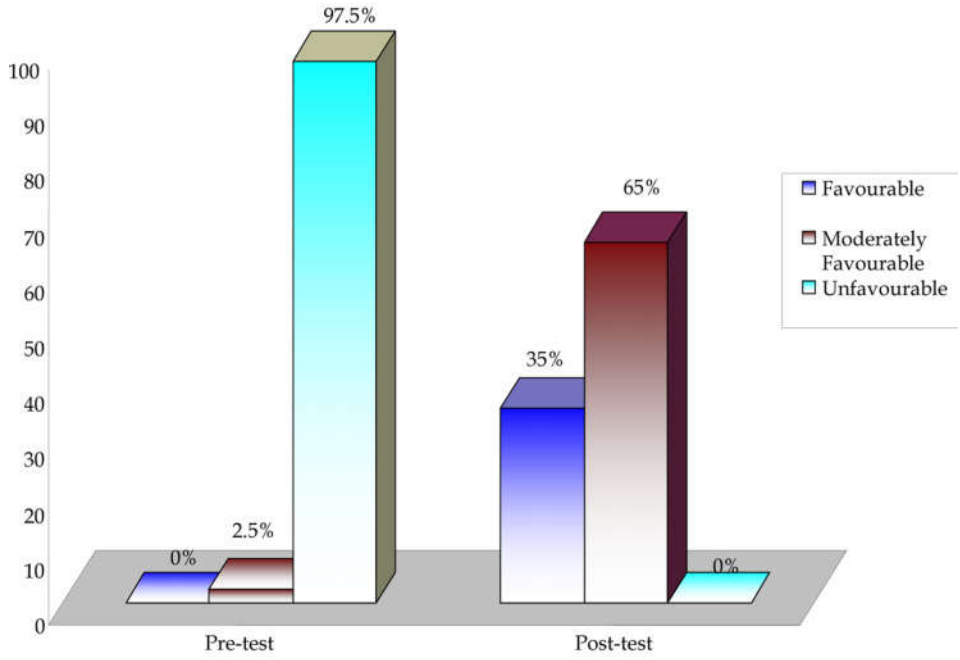

Fig. 1: Frequency distribution of knowledge on practice scores of mothers of primary school children regarding Anemia

The table 1 shows that the level of knowledge during pretest was inadequate among 92.5% of subjects whereas during posttest was adequate among 62.5% of the subjects.

Conclusion

From the present study revealed that 92.5% of mothers had inadequate knowledge, 97.5% of mothers had unfavourable knowledge on practice during pretest. After structured teaching programme post test knowledge was adequate among 62.5%. This findings was supported by Kimiager, et al (2004) Educating mothers of children with anemia can prevent the recurrence and result in general well being. Bilenko W, et al (2007) revealed a significant and inverse relationship between the presence of anemia and the level maternal knowledge.

Acknowledgement

I express my gratitude to my research guide Prof. Mrs. Irenelight, M.Sc (Nursing) Principal, Dr. G. Sakunthala college of nursing for her expert guidance and my dear family members for their dedication. I kindly express my heartfelt gratitude to Prof. Mrs. malligarajadurai, M.Sc (nursing), Prof. Mrs. Judie, M.Sc. nursing, Prof. Mrs. Varalakshmi, M.Sc (nursing) for their guidance and consenting and validating my tool). I thank all my study sample mothers and their children for their participation and cooperation. I sincerely thank Prof. Kumari, Ph.D Principal, College of nursing, JIPMER for her appreciation and motivation for dissemination of my study.

Conflict of Interest: Nil

References

1. Abalkhail B. Prevalence of daily breakfast intake, iron deficiency anemia. International Journal of food science Nutrition. 2002;53(6):519–28.
2. Abov-zeid AH. Anemia and nutritional status of school children. Saudi Medical Journa. 2006;27(6):862
3. Achars. Textbook of Pediatrics. Chennai: Orient Longman Limited. 1999.p.575.
4. Adele Pillitteri, Child helth nursing care of the child and family. Philadelphia. Lippincott publications. 1999;717,702,714-715.
5. Ahulwalia N. Intervention strategies for improving iron status of young children. Nutrition Review, 2002; 60(5):115-117.
6. Alothaimeen A. Prevalence of nutritional anemia among primary school girls. International Journal of food science Nutrition. 2002;50(4):237-343.

7. Ali SS. Association of literary of mothers with malnutrition among children. African journal of medicine.2005;55(12):550-3.
8. Barduagni P. Anemia among school children. Journal of East Mediterr Health 2004;10(6):916-920.
9. Bilenko N. The association between anemia in school children and maternal knowledge and adherence to iron supplementation. Journal Israel Medical Association. 2007;(6):234-238.
10. Choic, Prevalence and characteristics of anemia. American Journal of Hematology. 2004;77(1):26-30.
11. Christofides A. Iron deficiency and prevalence of anemia and associated Risk factors. Canadian Journal of Public health 2005;96(4):304–307.
12. Delofse A. The nutritional status of a rural community. African Journal of Medicine 1999;45(1):14-9.
13. Donna LW and Marilyn LH. Nursing care of infants and children Missouri. Mosby Publications 1999;5: 318-319.
14. Dorothy RM. The text book of pediatrics nursing. Singapore: W.B. Saunders Company 1999;6:649-652.
15. Flemins AF. Iron deficiency in the tropics. Clinical hematology 1982;1(2):365-385.
16. Ghai OP. Essential pediatrics. New Delhi. Mehta publications. 2002.p.87.
17. Gur E. Prevalence of anemia and risk factors among school children. Journal of Trop pediatrics 2005;55: 346-350.
18. Hall A. Anemia in school children in eight countries. Journal of Public health Nutrition 2001;4(3):749–756.
19. Halterman JS. Iron deficiency and cognitive achievement. Indian Journal of pediatrics 2001; 107(6):1381–1386.
20. Hassan AE. Health education program for mothers of children suffering from iron deficiency anemia. Journal of Egypt Public Health Association. 2005; 80(5-6):525-45.
21. Jaishree. Anemia among school children. Indian Journal Nutrition and Dietetics 1999;2(5):136-141.
22. Jefferds MD. Concepts of Iron deficiency anemia and public health measures in rural area. Social Science Medicine2002;55(7):1143-1156.
23. Jinabhai C. A randomized controlled trial of the effect of antihelminthic treatment and Micronutrient fortification on health status and school performance of rural primary school children. 2001;21(4):319-33.
24. Kara B. The prevalence of anemia. Journal of pediatrics Hematology 2006;28(5):316–321.
25. Kimiager F. Effect of nutrition education and diet modification in iron depletion. International Journal of Vitamin Nutrition Research. 2004;74(4):264-8.
26. Kothari CR. Research Methodology Methods and Techniques. New Delhi, Wishwa Prakasam Publications. 2000.p.120-146.
27. Kumar CS. Prevalence of anemia and worm infestation in school going girls. Journal of Indian Pediatrics. 2003;40(1):70-2.
28. Nancy Burns. Understanding Nursing Research. Philadelphia: Saunders publication, 2002.p.163,251,312.
29. Nelson. Textbook of Pediatrics. California: W.B. Sanders Company. 1999;77:82-85.
30. Parlak AH. Prevalence of oral lesions. Journal of pediatrics.Oral Dis. 2006 Nov;12(6):553-8
31. Polit Hungler. Nursing Research principles and methods. Philadelphia: Lippincott company. 1989; 518-600.
32. Quizhpe E. Prevalence of anemia. Canadianjournal of pediatrics 2003;13(6):349-351.
33. Reiko. Anemia and intestinal parasitic infection in primary school students in Brazil. Journal of Indian pediatrics. 2003;24(5):413-442.
34. Shah SN. Incidence of iron deficiency anemia in rural population of Kashmir. Indian Journal of Public Health 1982;26(7-9):29-41.
35. Singh WK. Patterns of anemia: A hospital based study. Indian Journal of Preventive and Social Medicine 1992;(1-3):20-22.
36. Sundar Rao. An Introduction to Biostatistics. New Delhi: Hall of India Pvt. 1998.p.22-37.
37. Suraj Gupta. The short text book of Pediatrics. New Delhi: Jaypee Publication. 2001.p.87-82.
38. Suraj G. The short text book of pediatrics. New Delhi: jaypee Brothers. 2001.p.98-110.
39. Taylor. Intestinal helminthes infections, anemia, in Bangladesh. Tropical Medicine International Health. 2001;5:449-457.
40. Tejas AR. Prevalence of under nutrition and iron deficiency. Journal of nutrition science, 2001;47(1):47–51.
41. Ulukanligil M. Demographic and socio-economic factors affecting the physical development, hemoglobin and parasitic infection status of school children Public health. British medical journal. 2004; 118(2):151–8.

Original Research Article

International Journal of Pediatric Nursing
Volume 4 Number 1, January - April 2018
DOI: http://dx.doi.org/10.21088/ijpen.2454.9126.4118.4

A Study to Evaluate the Effectiveness of a Structured Teaching Programme on Knowledge regarding Selected Non-Pharmacological Management of Pre-Menstrual Syndrome among Adolescent Girls in Selected Schools, Bangalore

Olive Kujur

Author Affiliation
Tutor, M.Sc. Nursing, METAS Adventist College of Nursing Ranchi, Bariatu Road Baragain, Ranchi, Jharkhand 834009, India.

Reprint Request
Olive Kujur,
Tutor, M.Sc. Nursing, METAS Adventist College of Nursing Ranchi, Bariatu Road Baragain, Ranchi, Jharkhand 834009, India.
E-mail: olivekujur@gmail.com

Received on January 14, 2018
Accepted on February 09, 2018

Abstract

Premenstrual syndrome is a common problem in young girls which adversely affects their educational performance and emotional well-being. Changing lifestyle, modifying diet, exercises, yoga, massage and stress reduction can optimize quality of life and overall health of adolescent girls suffering from premenstrual syndrome. A pre-experimental one group pre test, post test design was conducted in selected schools, Bangalore which aimed to assess the effectiveness of a structured teaching program regarding selected non-pharmacological management of premenstrual syndrome and its association with its demographic variables. Data were collected from 60 samples by non-probability purposive sampling technique which was used by structured knowledge questionnaire prepared by the investigator to assess the effectiveness of a structured teaching program. Paired t-test value was 39.76, and the pre test score which was 40.4% and the post test score which was 83.0% significance difference between pre test and post test score was 42.6%. It reveals that the structured teaching program was highly effective. There was a significant association among adolescent girls with their demographic variables at (p 0.05) level of significance. This study finding indicate that the Structured Teaching Programme was effective in enhancing the knowledge of adolescent girls regarding selected non-pharmacological management of premenstrual syndrome in selected schools, Bangalore.

Keywords: Premenstrual Syndrome; Modifying Diet; Exercise; Stress Reduction; Adolescent Girls; Structured Teaching Programme.

Need of the Study

Worldwide more than 1.2 billion are adolescents and about 21% of Indian population are adolescents (243 million). Young and growing children have poor knowledge and lack of awareness about physical and psychological changes that occurs during adolescence and the ill health affecting them. Premenstrual Syndrome is described as a collection of predictable physical, cognitive, affective, and behavioural symptoms that occur cyclically during the luteal phase of the menstrual cycle and resolve quickly within a few days of the onset of menstruation.

The typical symptoms of premenstrual syndrome normally involve the symptoms related to mood changes and physical conditions – like headache, fatigue, bloating, sleep disturbances, nausea, and breast tenderness. Premenstrual syndromes affect their educational performance, emotional well-being and daily activities.

Today's life style factors are also associated with the severity of premenstrual syndrome. Therefore changing lifestyle, modifying diet, exercises, stress reduction and provision of services by health providers, can optimize Quality of life and overall health of women suffering from Pre Menstrual Syndrome. There are two methods for premenstrual

syndrome management - pharmacological and non-pharmacological. Since non-pharmacological management has no side effect and from the available literature reviewed it is evident that it has a significant effect in minimizing the severity of premenstrual syndrome.

Improper lifestyle among the adolescent girls causes a rise in the premenstrual syndrome cases; hence the study is of a particular interest of the researcher as the adolescent girls should be educated to manage the problem accordingly. This will also enlighten their hearts and minds towards prompt management.

Therefore, the researcher found it relevant to evaluate the effectiveness of a structured teaching programme on knowledge regarding selected non-pharmacological management of premenstrual syndrome among adolescent girls in selected schools in Bangalore.

Objectives are as Follows

- Assess the level of knowledge of adolescent girls regarding selected non-pharmacological management of pre-menstrual syndrome.
- Evaluate the effectiveness of a structured teaching programme on knowledge of adolescent girls regarding selected non-pharmacological management of pre-menstrual syndrome.
- Determine the association between the mean pre-test knowledge scores of adolescent girls regarding selected non-pharmacological management of pre-menstrual syndrome with their selected socio-demographic variables.

Research Approach

A quantitative pre-experimental approach was adapted for this study since the investigation was aimed to assess the effectiveness of a structured teaching programme on selected non-pharmacological management of pre-menstrual syndrome among adolescent girls in selected schools, Bangalore.

Research Design

A One group pre- test, post- test design was selected for the study.

Variables

Independent Variable

In the present study, the independent variable is the Structured Teaching Programme (STP) for the adolescent girls regarding selected Non pharmacological management of premenstrual syndrome.

Dependant Variable

In this study, the dependent variable is the knowledge level of the adolescent girls regarding the selected non-pharmacological management of premenstrual syndrome.

Attribute Variables

In the present study, the attribute variables of adolescent girls that are being described are Age, age of attaining first menstrual period, Religion, educational status, dietary pattern, type of family, family's monthly income, Weight, exercise practice and prior information regarding selected non-pharmacological management of premenstrual syndrome.

Population

The target population for the study comprised of adolescent girls studying in selected schools, Bangalore.

Settings of the Study

The study was conducted at selected schools in Bangalore.

Sample

The sample for the present study comprised of 60 adolescent girls.

Sampling Technique

A non probability purposive sampling technique was used.

Sampling Criteria

Inclusion Criteria

The Study Sample Consists of "Adolescent Girls" who are:

- 13 to 17 years of age
- Available at the time of data collection
- Interested in participating in the study

Exclusion Criteria

The Study Excludes "Adolescent Girls":

- Not attained menarche
- Not able to communicate in English
- Treatment on irregular menstrual periods
- Exposed to any educational programme regarding non-pharmacological management of premenstrual syndrome within the period of 6 months.

Description of the Tool

To meet the objectives of the study the tool was developed by the investigator. The tool used for the study comprised of a structured knowledge Questionnaire and a structured teaching programme regarding selected non-pharmacological management of premenstrual syndrome for adolescent girls.

Stuctured Knowledge Questionnaire

Structured knowledge questionnaire consists of two parts namely part A and part B

Part A

This part of the tool consists of a section on socio-demographic variables. The characteristics included were Age, Age of first menstrual period, Religion, Educational status, Dietary pattern, Type of family, Family's monthly income, Weight, Exercise practice and prior information regarding selected non-pharmacological management of premenstrual syndrome.

Part B

This part consisted of 28 multiple choice items regarding various aspects on selected non-pharmacological management of premenstrual syndrome. There are 3 sub sections for this part.

Section A: This section consists of 6items to assess the knowledge about female reproductive system and menstruation.

Section B: This section comprises of 6 items to assess knowledge regarding premenstrual syndrome, its causes, signs and symptoms and diagnosis.

Section C: This section comprises of 16 items related to selected non-pharmacological management of premenstrual syndrome.

Structured Teaching Programme

A structured teaching programme was also planned and prepared by the investigator regarding selected non-pharmacological management of premenstrual syndrome. The major content area covered in this structured teaching programme includes selected non pharmacological management of premenstrual syndrome.

Steps of Preparing Structured Teaching Programme

Teaching plan is a guide for the teacher because it helps to cover the topics comprehensively with proper sequencing of points without missing anything. Structured teaching programme was developed by the investigator by the following steps:

1. Framing the outline of the teaching plan
2. Preparing the outline of the content
3. Deciding the method of instruction and audio visual aids

Criterion Measures

The items were phrased in a multiple choice form with three options as distractors and with one correct response. The correct response is given a score of one mark and the wrong response is given a score of zero. Thus, the maximum possible score was 28. The resulting knowledge is graded as follows:

Table 1: Levels of knowledge

Adequate	(22-28)	>75%
Moderately adequate	(15-21)	51-75%
Inadequate	(1-14)	≤50%

Content Validity and Reliability

Content validity of the tool was ensured by 2 Obstetrics and Gynaecological specialists and 9 nursing experts specialized in Obstetrics and Gynaecological nursing. The reliability of the knowledge questionnaire was established by using split half method.

Pre-test was given on day one followed by the administration of the Structured Teaching Programme for all the subjects and on 8th day post-test was given for the same subjects.

Ethical Consideration

Following steps were identified in regard to ethical consideration for the present study

- Research problem and objectives were approved by research committee.
- Due permission from authorities was sought out and obtained.
- Informed written consent was taken from the participants.
- Explanation was given regarding the study.
- Confidentiality and anonymity was ensured.
- Freedom was given to withdraw from study anytime.

Data Analysis and Interpretation

Data analysis was done by using descriptive and inferential statistics. The analysis of data is organized and presented under the following headings:

Section I: Socio demographic profile of the samples.

Section II: Pre-test knowledge score of adolescent girls regarding selected non-pharmacological management of premenstrual syndrome.

Section III: Aspect wise mean pre-test knowledge score of adolescent girls regarding selected non-

Table 2: Comparison of overall Pre- test and Post- Test Mean Knowledge score on selected non-pharmacological Management of Pre-menstrual syndrome N=60

Aspects	Max. Score	Knowledge Scores				Paired 't' Test
		Mean	SD	Mean (%)	SD (%)	
Pre test	28	11.30	2.4	40.4	8.6	
Post test	28	23.23	2.2	83.0	7.7	39.76*
Enhancement	28	11.93	2.3	42.6	8.3	

*Significant at 5% level, t=0.05, 59df=1.96

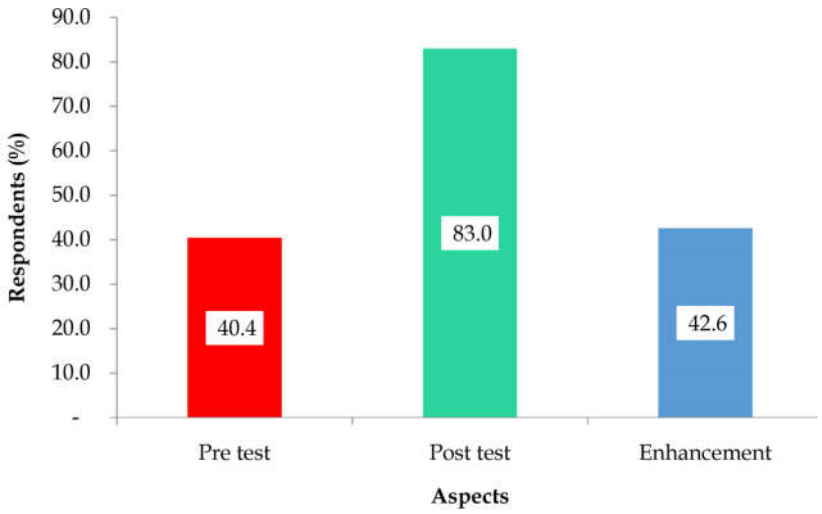

Fig. 1: Over all Pre test and Post test Mean Knowledge scores on Selected non-pharmacological Management of Pre-menstrual syndrome

Table 3: Aspect Wise Mean Pre Test and Post Test Knowledge Scores on Selected Non-Pharmacological Management of Premenstrual Syndrome N = 60

No	Knowledge Aspects	Knowledge (%)						Paired 't' Test
		Pre test		Post test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
1.	Female reproductive system and Menstruation	53.3	17.4	87.2	14.1	33.9	19.2	13.68*
2.	Premenstrual syndrome, Causes, Signs & symptoms and Diagnosis	33.3	17.7	75.0	14.8	41.7	19.1	16.91*
3.	Non pharmacological Management	38.1	12.4	84.4	9.9	46.3	11.8	30.39*
	Combined	40.4	8.6	83.0	7.7	42.6	8.3	39.76*

*Significant at 5% level, t=0.05, 59df=1.96

pharmacological management of premenstrual syndrome.

Section IV: Post-test knowledge scores of adolescent girls regarding selected non-pharmacological management of premenstrual syndrome.

Section V: Aspect wise mean post- test knowledge scores of the adolescent girls regarding selected non-pharmacological management of premenstrual syndrome.

Section VI: Comparison of pre- test and post- test knowledge scores to evaluate the effectiveness of the structured teaching programme.

The data depicted in the Table 2 and Figure 1 shows that the mean post-test knowledge scores of the subjects were 23.23 and the mean pre-test knowledge scores were found to be 11.30. When a paired 't' test was done, the obtained 't' value 39.76 is found to be significant at 0.05 level.

The Table 3 and Figure 2 depicts the comparison of aspects wise mean, pre-test and post-test knowledge scores of adolescent girls regarding selected non-pharmacological management of premenstrual syndrome. A paired 't' test was done to compare the mean pre-test and post-test knowledge scores on each aspects. For female reproductive system and menstruation, the obtained 't' value is 13.68 and is found to be significant at 0.05 level (t=0.05, 59df=1.96). Regarding premenstrual syndrome, causes, signs and symptoms and diagnosis, the mean post-test knowledge scores were found to be significantly higher than the mean pre-test knowledge scores. The obtained 't' value is 16.91 is significant at 0.05 level (t=0.05, 59df=1.96).

Regarding the non-pharmacological management, the 't' value obtained is 30.39 which is also significant at 0.05 level (t=0.05, 59df=1.96). The observed mean percentage enhancement score was found to be 42.6% with the standard deviation percentage of 8.3. When a paired 't' test was done the obtained 't' value 39.76, (t =0.05, 59df =1.96) was found to be significant.

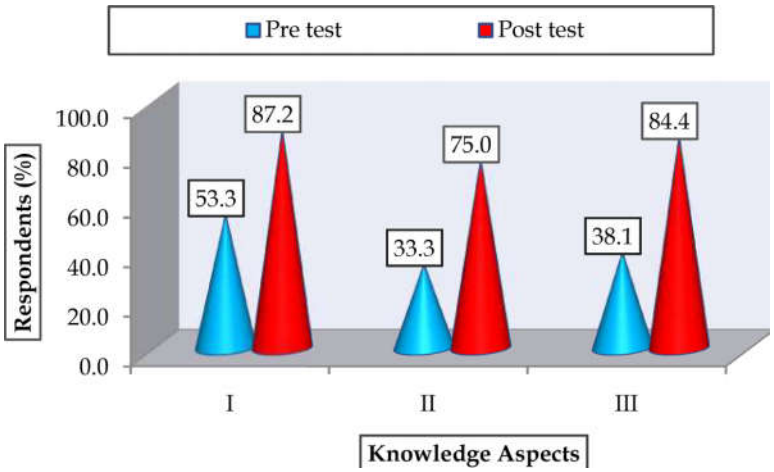

Fig. 2: Aspect wise Mean Pre test and Post test Knowledge scores on Selected non-pharmacological Management of Pre-menstrual syndrome

Table 4: Association between Demographic variables and Pre test Knowledge level on selected non-pharmacological Management of Pre-menstrual syndrome N=60

Demographic Variables	Category	Sample	Knowledge Level				χ^2 Value	P Value
			Inadequate		Moderate			
			N	%	N	%		
Age Group	13 years	6	5	83.3	1	16.7	1.10 NS	P>0.05
	14 years	27	22	81.5	5	18.5		(7.82)
	15 years	20	14	70.0	3	60.0		
	16 years	7	5	71.4	2	28.6		
Age attained first menstrual periods (years)	9-11	8	7	87.5	1	12.5	0.61 NS	P 0.05
	12-14	52	39	75.0	13	25.0		(3.84)
Religion	Hindu	11	5	45.5	6	54.5	9.42*	P<0.05
	Christian	18	13	72.2	5	27.8		(5.99)
	Muslims	31	28	90.3	3	9.7		

Educational status	8th Std	4	3	75.0	1	25.0	0.16 NS	P>0.05
	9th std	37	29	78.4	8	21.6		(5.99)
	10th Std	19	14	73.7	5	26.3		
Dietary pattern	Vegetarian	6	2	33.3	4	66.7	7.00*	P<0.05
	Mixed	54	44	81.5	10	18.5		(3.84)
Type of family	Nuclear	39	26	66.7	13	33.3	6.34*	P<0.05
	Joint	15	14	93.3	1	6.7		(5.99)
	Extended	6	6	100.0	0	0.0		
Family Income/month	Rs.5,001-15,000	20	15	75.0	5	25.0	0.34 NS	P>0.05
	Rs.15,001-25,000	21	17	80.9	4	19.1		(5.99)
	Above Rs.25,001	19	14	73.7	5	26.3		
Weight (kg)	Less than 35	8	6	75.0	2	25.0	1.69 NS	P>0.05
	36-40	28	20	81.4	8	28.6		(7.82)
	41-45	11	10	90.9	1	9.1		
	Above 46	13	10	76.9	3	23.1		
Doing Exercise	Yes	11	11	100.0	0	0.0	4.10*	P<0.05
	No	49	35	71.4	14	28.6		(3.84)
Prior information on Non-pharmacological management	Yes	1	1	100.0	0	0.0	0.31 NS	P>0.05
	No	59	45	76.3	14	23.7		(3.84)
Combined		60	46	76.7	14	23.3		

*Significant at 5% Level, NS: Non-significant

Section VII: Association between the mean pre- test knowledge scores and selected socio- demographic variables.

The Table 4 depicts Chi-square test reveals religion ($\chi 2$ =9.42), dietary pattern ($\chi 2$ = 7.00), type of family ($\chi 2$=6.34), doing exercise ($\chi 2$ =4.10) showed a significant association with their mean pre-test knowledge scores at 0.05 levels of significance whereas the other variables age, age of attaining first menstrual periods, educational status, family income per month, weight and prior information, were found to be non-significant at 0.05 levels of significance.

Conclusion

After the detailed analysis, this study leads to following conclusion:

In the present study it was observed that the mean pre- test knowledge scores of adolescent girls regarding selected non-pharmacological management of premenstrual syndrome was inadequate 76.7% (46 out of 60) and the remaining 23.3% (14 out of 60) had only moderately adequate knowledge. The mean post-test knowledge of the respondents was higher than their mean pre-test knowledge scores. Majority of the samples gained adequate knowledge 73.3% (44 out of 60), followed by moderately adequate knowledge 26.7% (16 out of 60). It's evident that structured teaching program was effective in enhancing the knowledge of adolescent girls. Nurse should act as facilitator to educate adolescent girls regarding non-pharmacological management of premenstrual syndrome in order to improve the health and well-being of the adolescent girls.

Implications

The results of the study show that majority of adolescent girls had inadequate knowledge about the selected non-pharmacological management of premenstrual syndrome in the pre- test. So the study has several implications for nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice

The gynaecological registered nurses are prepared to consistently practise safely, compassionately, competently and ethically in diverse practice settings, with a variety of clients at different levels throughout the continuum of health and illness. Gynaecological nurses undertake foundation units focusing on theories, nursing assessment, processes and practices in gynaecological nursing and also enable nurses to explore the care of adolescent girls and their families in giving health education and preventive aspects like menstrual problems, dietary counselling, menstrual hygiene, sexually transmitted diseases and health screenings. The investigator as a nurse felt nurse should act as facilitator to educate adolescent girls regarding non-pharmacological management of premenstrual syndrome in order to improve the health and well-being of the adolescent girls.

Nursing Education

Nurse educator can educate students about the menstrual problems and how to prevent and manage these problems. For these activities nurses also need to update their knowledge through regular in-service education.

Nurse educator can teach through various teaching methods to acquire knowledge on prevention and management of premenstrual syndrome. Findings of the present study show that the adolescent girls had inadequate knowledge regarding selected non-pharmacological management of premenstrual syndrome.

Nursing Administration

Nurse administrators are in a key position to organize educational programme in the community to provide knowledge regarding premenstrual syndrome and its management. The nursing administrator should organize in service education programs, seminars, and workshops for the adolescent girls in various schools regarding premenstrual syndrome and its management. Nurse administrators can improve the knowledge through educational programmes by issuing information booklets and pamphlets regarding management of premenstrual syndrome though changing the lifestyle. The findings of the study showed that majority of the respondents had lack of knowledge about selected non-pharmacological management of premenstrual syndrome. The findings of the study suggest that there is an increased need for conducting awareness programmes for adolescent girls.

Nursing Research

The findings of the study show that majority of adolescent girls had lack of knowledge regarding selected non-pharmacological management of premenstrual syndrome. Based on these findings researchers can conduct further studies on other non-pharmacological management of premenstrual syndrome on a large sample.

The study will motivate the novice researchers to conduct the studies with different variables on a large scale. Nursing research can help to identify the existing knowledge gap. This will help to improve the quality and standard of care based on evidence based practice. This helps to give meaningful, need based information and create awareness towards premenstrual syndrome and its various non-pharmacological management to prevent it.

Recommendations

- Similar study can be replicated on large number of samples to generalize the findings.
- A comparative study can be done to find out the difference in knowledge between urban and rural adolescent girls regarding premenstrual syndrome and its non-pharmacological management.
- Similar study can be conducted of other different non-pharmacological management of premenstrual syndrome
- A study can be done to assess the knowledge, attitude and practices of adolescent girls regarding management of premenstrual syndrome.

References

Books

1. Dutta DC. Textbook of Gynaecology. 4th edition. Calcutta: New central agency publication; 2005.
2. Polit FD, Beck CT. Nursing Research 8th edition. Philadelphia: J.B. Lippincott; 2003.
3. George B L. Nursing Theories. The base for professional Practice. 3rd ed.Library of Congress. 1989.p.259-278.

Journals

4. Chandraratne NK, Gunawardena NS. Premenstrual syndrome: the experience from a sample of Sri Lankan adolescents. Journal of paediatric and adolescent gynaecology. 2011;24(5):304-310.
5. Derman O, kanbur NO, Tokur TE, Kutluk T. premenstrual syndrome and associated symptoms in adolescent girls. European Journal of obstetrics and gynaecological reproductive biology. 2004; 116(2).p.201-206.
6. Kumbhar S, Tondare D, Tejaswini G et al. Study of Prevalence of Pre-Menstrual Syndrome among the 13 to 22 Years of Young Girls Residing in Kadapa Town of Andhra Pradesh. International Journal of Contemporary Medicine. 2014;2(2).p.143-145.
7. Mandal J, Sarkar AP, Ghorai S. A study on premenstrual syndrome among adolescent girl students in an urban area of west Bengal. International journal reproduction, Contraception, Obstetrics and Gynaecology. 2015;4(4):1012-1015.
8. Cleckner CS, Doughty AS, Grossman JA. Premenstrual symptoms. Prevalence and severity in an adolescent sample. Journal of Adolescence Health. 1998 May;22(5).p.403-408.
9. Bianco V, Cestari AM, Casati S, et al. Premenstrual syndrome and beyond: lifestyle, nutrition, and personal facts. Minerva Ginecologica. 2014;66(4):365-375.

10. Amany ES, EmanSM, Eman MM. Life Style Factors Associated with Premenstrual Syndrome among El-Minia University Students, Egypt. Journal of Public Health. 2013;13(3).p.1234-1237.
11. Navdeep K, Ramesh T. A descriptive study to assess the premenstrual syndrome among nursing students, NINE, PGIMER, Chandigarh. Nursing and Midwifery Research Journal. 2009;5(1).p.17-19.
12. Shahhosseini Z, Abedian K, Danesh M. Effect of starch dietary regimen on treatment of premenstrual syndrome. Journal of Obstetrics and Gynaecology. Feb 2012;24(1):156–159.
13. Mahmoodi Z, Shahpoorian F, Bastani F, Parsay S, Hoseini F. Comparison of the effect of carbohydrate rich supplement and diet supplement and diet on premenstrual syndrome. Behbood 2010;14(1): 10-19.
14. Yekta S, Sara S, Davood k et al. The association between premenstrual syndrome and physical activity and aerobic power in female high school students. Crescent Journal of Medical and biological Sciences. 2015;2(2):53-58.
15. Leily G, Maryam M. Assessment of the effects of massage therapy on premenstrual syndrome. Zahedan Journal of Research in Medical Science. 2013; 4(3):345 -350.
16. Sharma B, Mishra R, Singh K, Sharma R, Archana. Comparative study of effect of anuloma-viloma (pranayama) and yogic asanas in premenstrual syndrome. Indian Journal of physiology and pharmacology. 2013;57(4):384-389.
17. Chau J, Chang A. effects of an educational programme on adolescents with premenstrual syndrome. Health education research. 1999;14(6): 817-830. Unpublished thesis:
18. Rani J.J. Effectiveness of structured teaching module on knowledge and practice about premenstrual syndrome its care among adolescent girls in selected schools of Horamavu village in Bangalore. Rajiv Gandhi University of Health Sciences: 2008.p.1- 2.

Original Research Article

International Journal of Pediatric Nursing
Volume 4 Number 1, January - April 2018
DOI: http://dx.doi.org/10.21088/ijpen.2454.9126.4118.5

A Study to Assess the Knowledge on Prevention and Management of Acute Respiratory Tract Infection among Mother of under Five Children, Attending Medical Paediatric OPD in JIPMER Hospital, Puducherry

P. Vetriselvi

Author Affiliation
Assistant Professor, College of Nursing, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, Tamil Nadu 605006, India.

Reprint Request
P. Vetriselvi,
Assistant Professor, College of Nursing, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, Tamil Nadu 605006, India.
E-mail: vetriselvijipmer1967@gmail.com

Received on December 16, 2017
Accepted on January 19, 2018

Abstract

Background and objective: The purpose of the study was to assess the knowledge on prevention and management of acute respiratory tract infection among mothers of under five children, attending Paediatric medical OPD of Jipmer, Puducherry.

Material and Methods: A cross sectional design was used in the study. Convenience sampling technique was used to select 100 samples. Structured questionnaire was used to collect the data. Descriptive statistics and inferential statistics were used to summarise the data.

Results: Only 5% of mothers had adequate knowledge. 48% had inadequate knowledge and 47% had moderately adequate knowledge.

Conclusion: The study concluded that adequate health education is needed for mothers and this will help to reduce morbidity and mortality among children.

Keywords: Knowledge; Acute Respiratory Infection; Mothers of Under Five Children.

Introduction

Park (2012) expressed that Acute Respiratory Tract Infection is one of the major causes of death among under-five children. On an average, children below 5 years of age suffer about 5 episodes of Acute respiratory tract infection per child per year. For children Acute respiratory tract infection is responsible for 30-50 percent of visits to health facilities and for about 20-40 percent of admissions to hospitals. It is also a leading cause of disabilities including deafness as a sequelace of otitis media.

Gupta (2010) quoted that Acute respiratory tract infection is classified into (i) acute upper respiratory tract infection (AURI) which includes common cold, pharyngitis, tonsillitis and (ii) acute lower respiratory tract infection (ALRI) which includes croup, bronchitis, bronchiolitis and pneumonia.

Sundarlal (2008) stated that Acute Respiratory Tract Infection like whooping cough and diphtheria can be prevented by timely immunization. The other respiratory tract infections and pneumonia should be treated at the nearby facility. Rapid breathing and difficulty in breathing can be recognized by mother themselves and by health workers. If these gets treated at the earliest; many children can be saved from death.

Acute respiratory tract infection is mostly caused by both viruses and bacteria. Viral agents accounts for 90% of upper respiratory tract infection (URIs), however most of this infections do not results in fatal severe disease, they are mild and self-limited illness. While bacteria pulmonary infections are common in developing countries associated with a greater risk of death.

In order to reduce the mortality and morbidity among the future citizens the status of the knowledge on prevention and management of Acute respiratory infection was assessed among mothers.

Methodology

A cross sectional design was used in the study. The study consisted of 100 mothers with under-five children.

Inclusion Criteria

Included mothers of under-five children who attend medical paediatric OPD in Jipmer and who can understand and speak tamil and those who are willing to participate.

Exclusion Criteria

Included mothers of under-five children who had critically ill children.

Sampling: Convenience sampling technique was used.

Instruments: Subject data sheet had a set of questions that was oriented to the demographic data of subjects. Knowledge was assessed by using a questionnaire comprised of 20 questions.

Data Collection Procedure

Data collection was started after getting ethical committee permission & permission from hospital authority. Informed consent was taken from study participants. Subject data sheet information and knowledge on prevention & management of ARI was collected by the investigator through structured interview schedule. The time duration to complete the questionnaire was 25-30 minutes.

Ethical Considerations

Research proposal was approved by Institute Ethical Committee and permission from hospital authority was obtained. Informed consent was taken from study participants. Assurance was given to the subjects that anonymity and confidentiality will be maintained.

Data Analysis

The distribution of background variables was expressed as frequencies and percentage. The knowledge levels were expressed as frequencies & percentage. The correlation of mean knowledge score with different variables were evaluated using the Kruskalwallis test.

Results

- Of the 100 women participated in the study, 60% were between 18-25 years. As for as religion is concerned, most of them (90%) were hindus.
- Regarding residence, 73% were from rural, with regard to family system 50% were from nuclear family.

Table 1: Level of knowledge of mother (N=100)

Knowledge Score	Frequency	Percentage	Level of Knowledge
0-50%	48	48%	Inadequate
51-75%	47	47%	Moderately adequate
76-100%	5	5%	Adequate

Table 2: Association of knowledge score with demographic variables (N=100)

S. No.	Demographic Variables	Frequency	Mean	Standard deviation	P Value	T or F value
1.	**Age**					
	18-25 years	60	10.2	2.9	0.84	0.94
	26-40 years	40	10.8	2.8		
2.	**Number of children**					
	One	45	10.5	3.0	0.79	0.35
	Two	37	10.5	2.8		
	Three	16	10.3	2.9		
	Four and above	2	10	4.2		
3.	**Educational Status**					
	Illiterate	12	10.7	2.2	0.40	1.00
	Primary School	41	10.5	2.8		
	Secondary school	38	9.5	2.7		
	Graduate	9	14	2.1		

4.	**Occupation**					
	Working women	9	10.7	4.2	0.17	1.83
	Housewife	70	10.4	2.9		
	Labourer	21	10.5	2.4		
	Others	Nil	Nil	Nil		
5.	**Religion**					
	Hindu	90	10.3	2.9	0.42	0.88
	Christian	7	12.1	3.2		
	Muslim	3	10.7	1.2		
	Others	Nil	Nil	Nil		
6.	**Type of family**					
	Joint family	50	10.5	2.7	0.26	1.38
	Nuclear family	50	10.4	3.1		
7.	**Domicile**					
	Urban	27	11.7	2.8	0.89	0.94
	Rural	73	10	2.8		
8.	**Monthly Income**					
	<1000	37	9.7	2.9	*	4.35
	1000-5000	49	10.9	2.4	0.0072	
	6000-10,000	8	10.5	3.9		
	10,000 and above	6	11.3	4.7		

*P<0.05

Table 3: Aspect of Good knowledge N = 100

Statement	Frequency	Percentage
Type of food to be given to children during ARI	89	89
Personnel to consult for Medication	81	81
Season in which ARI is common	79	79
Management of Nasal block	81	81

Table 4: Aspect of poor knowledge N = 100

Statement	Frequency	Percentage
Mode of ARI transmission	20	20
Management of common cold	29	29
Management during cough	17	17
Home remedy for sore throat	12	12

- The educational status of the women revealed that 41% had Primary education. Regarding the occupational status, the analysis showed that 70% of the participants were housewives.
- Only 5% had adequate knowledge and 48% had inadequate knowledge. There was a significant association between the mothers knowledge and monthly income and there was no significant association with other demographic variables.

Table 1 shows that 48% of mothers of under-five children were having inadequate knowledge. 47% had moderately adequate knowledge and 5% had adequate knowledge.

Table 2 shows that there was a significant association between the mothers knowledge and monthly income and there was no significant association with other demographic variables.

Discussion

This study findings showed that 48% had inadequate knowledge, 47% had moderately adequate knowledge and only 5% had adequate knowledge.

The above findings were supported by the following study.

Valdes et al conducted a study among mothers to identify their knowledge, attitude and practices concerning respiratory infections in Havana. Two groups of mothers were interviewed. Mothers of children seen in a polyclinic in the province of Havana (n=221) and mothers whose children were hospitalized in the respiratory unit of a paediatric hospital in the city of Havana (n=200).

The results showed that the mothers of hospitalized children had less knowledge than mothers who attended the polyclinic.

Nursing Implications

- Nurses in OPD and wards, in addition to treating the patient should provide health education to all the mothers.
- Adequate pamphlets should be made and this should be distributed to all.
- Nurses should participate in video session on health messages and make sure that they are telecasted in OPD's and wards regularly.

Conclusion

The study concluded that only 5% of the mothers had adequate knowledge. To rectify this problem, adequate information should be disseminated to the mothers to reduce morbidity and mortality among children.

Reference

1. Chan C, Tang S.F. Parental knowledge, attitude and antibiotic use for acute respiratory tract infection in children attending a primary healthcare clinic in Malaysia and Singapore. Medical Journal. 2006;47(4):266-270.
2. Deb SK. Acute respiratory tract disease survey in Tripura in case of children below five years of age in pediatrics, IGM hospital, Agartala. Journal of Indian Medical Association. 1998;26(2):111-116.
3. Arifeen S., et al. Sex and socioeconomic differentials in child health in rural Bangladesh: findings from a baseline survey for evaluating integrated Management of Childhood illness. 2008;24(3):108-112.
4. Kauchali S, Rollins N, Bland R, Van den Brock J. Maternal perception of acute respiratory tract infections in children under five. Rural south Africa. Trop med her health. 2004;9(5):644-650.
5. Sangho H, Keita AS, Keita HD, Belemou B, Keita Fd. Training Mothers: A strategy to improve the treatment of acute respiratory tract infections among children in Mali. (article in French), Sante publique. 2012;24(2):23-31.
6. Sarini NK, Gaur DR, Saini V, Lal S. Acute Respiratory Tract Infection in children: a study of knowledge and practices of mothers in rural Haryana. Journal of communicable disease. 1992;24(2):75-77.
7. Simiyu DE, Wafula EM, Nduati RW. Mothers knowledge attitudes and practices regarding acute respiratory tract infection in children. East African Medical journals, 2003;80(6):303-306.
8. Teka T, Dagnew M. Health behavior of rural mothers to acute respiratory tract infection in children in Gondar, Ethiopia. East African medical journal 1995.p.632-625.

Case Report

International Journal of Pediatric Nursing
Volume 4 Number 1, January - April 2018
DOI: http://dx.doi.org/10.21088/ijpen.2454.9126.4118.6

Moyamoya Disease

Pratibha Jadhav

Author Affiliation
Assistant Professor, Bharati Vidhyapeeth College of Nursing, Navi Mumbai, Maharashtra 400614, India.

Reprint Request
Pratibha Jadhav
Assistant Professor, Bharati Vidhyapeeth College of Nursing, Navi Mumbai, Maharashtra 400614, India.
E-mail: saipratibha83@rediffmail.com

Received on February 01, 2018
Accepted on February 19, 2018

Abstract

Moya Moya disease is a rare disorder of the carotid arteries - the arteries that supply blood to the brain. Moya Moya disease (MMD) is a slowly progressive bilateral stenocclusive process of the distal internal carotid and proximal portions of the anterior and middle cerebral arteries and the formation of an abnormal vascular network at the base of the brain. All the symptoms of Moyamoya disease arise from reduced blood supply to the brain and/or rupture of the 'Moyamoya vessels'. Reduced blood supply may cause stroke and rupture of the unhealthy Moyamoya vessels causes bleeding within the brain. The diagnosis of moyamoya is suggested by CT, MRI, or angiogram results. There is no cure for this disease. Drugs such as antiplatelet agents (including aspirin) are usually given to prevent clots, but surgery is usually recommended is Burr hole surgery.

Keywords: Moya Moya Disease; Symptoms; Prevention.

Introduction

Moya Moya Disease was first described in Japan by Takeuchi and Shimizu in 1957. Moya moya disease is commonly seen in the Japanese population but it can also occur in other populations. It can present as a pediatric or an adult form, each with varied clinical presentations. Children present with repeated ischemic events and adults present with hemorrhagic events.

Moya Moya disease is a rare disorder of the carotid arteries - the arteries that supply blood to the brain. Moya Moya disease (MMD) is a slowly progressive bilateral stenocclusive process of the distal internal carotid and proximal portions of the anterior and middle cerebral arteries and the formation of an abnormal vascular network at the base of the brain.

The disease causes progressive occlusion of the circle of Willis, with abnormal dilated collateral vessels on cerebral angiography, which look like "a puff of cigarette smoke" (Moya Moya).

Case Report

Master Ahmad Shaikh, 9 year boy presented to Bai Jerbai Wadia Hospital with the complaints of seizures, recurrent fall while walking, slurred speech and involuntary movements, weakness at left upper limb and lower limb.

MRI report is there is diffuse severe narrowing of supraclinoide segments of bilateral ICA's extending and involving lateral MCA, which are diffusely thines out and narrowed, along with other MR angio findings multiple inyracranial collaterals as describes suggestive of Moyamoya disease.

Cerebral angiogram finding suggestive of Moyamoya disease with high grade narrowing of both supraclinoide ICA's with collateral circulation.

In hospital he has diagnose with Moyamoya Disease. He was treated with anticoagulant and antiplatelate therapy and he had undergone multiple Burrhole (partial, temporal and paritel) indirect revascularization surgery under general aneasthesia.

Prevalence

The prevalence of the disease ranges from 3.2 to 10.5 per 100,000 populations. In general, the disease has been found to be more prevalent among Asians and people of Asian origin. The exact cause of this disease is not known yet. About 57% of the affected patients are Asian and 71% are female. Although the disease may be seen in any age group, it is more common in people from 5-15 years and 30-40 years of age. Family history is present in about 10%-15% of the patients.

In Japan the overall incidence is higher (0.35 per 100,000). In North America, women in the third or fourth decade of life are most often affected, but the condition may also occur during infancy or childhood.

These women frequently experience transient ischemic attacks (TIA), cerebral hemorrhage, or may not experience any symptoms at all. They have a higher risk of recurrent stroke and may be experiencing a distinct underlying pathophysiology compared to patients from Japan.

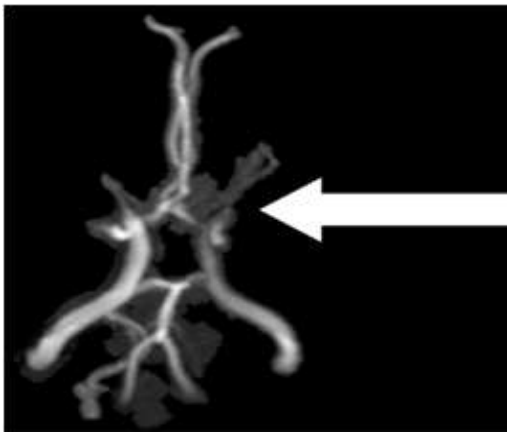

Fig. 1:

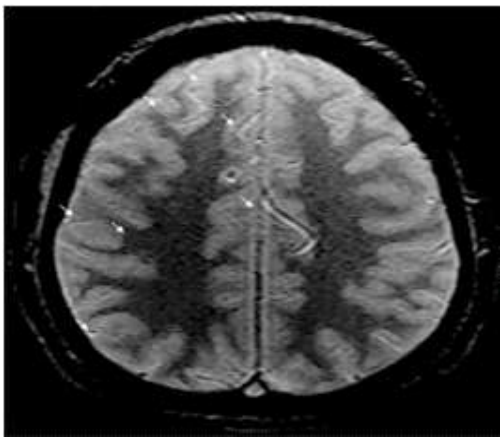

Fig. 2:

Causes

About 10% of cases of Moya Moya disease are familial and some cases result from specific genetic mutations. Susceptibility to Moya Moya disease-2 (MYMY2; 607151) is caused by variation in the RNF213 gene (613768) on chromosome 17q25. Moyamoya disease-5 (MYMY5; 614042) is caused by mutation in the ACTA2 gene (102620) on chromosome 10q23.3; and Moya Moya disease-6 with achalasia (MYMY6; 615750) is caused by mutation in the GUCY1A3 gene (139396) on chromosome 4q32. Loci for the disorder have been mapped to chromosome 3p (MYMY1) and chromosome 8q23 (MYMY3; 608796).

See also MYMY4 (300845), an X-linked recessive syndromic disorder characterized by Moya Moya disease, short stature, hypergonadotropic hypogonadism and facial dimorphism and linked to q 25.3, on chromosome 17".

Moya Moya disease can be either congenital or acquired. Patients with Down syndrome, sickle cell anemia, neurofibromatosis type 1, congenital heart disease, fibromuscular dysplasia, activated protein C resistance or head trauma can develop Moya Moya malformations. It is more common in women than in men, although about a third of those affected are male.

Clinical Manifestation

All the symptoms of Moyamoya disease arise from reduced blood supply to the brain and/or rupture of the 'Moyamoya vessels'. Reduced blood supply may cause stroke and rupture of the unhealthy Moyamoya vessels causes bleeding within the brain. Adults experience hemorrhage more commonly; cerebral ischemic strokes from reduced blood supply are more common in children. Children may have weakness or numbness of an arm or leg, hemiparesis, monoparesis, involuntary movements, headaches, dizziness, or seizures. Mental retardation or persistent neurologic deficits may be present. Adults may have symptoms and signs similar to those in children, but hemorrhage (bleeding) of sudden onset is more common in adults.

Diagnosis

The diagnosis of moyamoya is suggested by CT, MRI, or angiogram results. Contrast-enhanced T1-weighted images are better than FLAIR images for depicting the leptomeningealivy sign in

Moyamoya disease. MRI and MRA should be performed for the diagnosis and follow-up of Moyamoya disease. Diffusion-weighted imaging can also be used for following the clinical course of children with Moyamoya disease, in whom new focal deficits are highly suspicious of new infarcts.

Proliferation of smooth muscle cells in the walls of the Moyamoya affected arteries has been found to be representative of the disease. A study of six autopsies of six patients who died from Moyamoya disease lead to the finding that there is evidence that supports the theory that there is a thickening, or proliferation, of the innermost layer of the vessels affected by Moyamoya. These vessels are the ACA (anterior cerebral artery), MCA (middle cerebral artery), and ICA (internal carotid artery). The occlusion of the ICA results in concomitant diminution of the "puff-of-smoke" collateral's, as they are supplied by the ICA.

Often nuclear medicine studies such as SPECT (single photon emission computerized tomography) are used to demonstrate the decreased blood and oxygen supply to areas of the brain involved with Moyamoya disease. Conventional angiography provided the conclusive diagnosis of Moyamoya disease in most cases and should be performed before any surgical considerations.

Associated Conditions

Many conditions are seen more commonly with Moyamoya like condition, although the exact cause-effect relationship has not been demonstrated. Some of the common conditions are

- Radiotherapy to head and neck
- Down's Syndrome
- Neurofibromatosis type 1
- Sickle cell disease
- Congenital Heart Disease

Treatment

There is no cure for this disease. Drugs such as antiplatelet agents (including aspirin) are usually given to prevent clots, but surgery is usually recommended. Since moyamoya tends to affect only the internal carotid artery and nearby sections of the adjacent anterior and middle cerebral arteries, surgeons can direct other arteries, such as the external carotid artery or the superficial temporal artery to replace its circulation. The arteries are either sewn directly into the brain circulation, or placed on the surface of the brain to reestablish new circulation after a few weeks.

There are many operations that have been developed for the condition, but currently the most favored are the in-direct procedures EDAS, EMS, and multiple burr holes and the direct procedure STA-MCA. Direct superficial temporal artery (STA) to middle cerebral artery (MCA) bypass is considered the treatment of choice, although its efficacy, particularly for hemorrhagic disease, remains uncertain. Multiple burr holes have been used in frontal and parietal lobes with good neovascularisation achieved.

The **EDAS** (encephaloduroarteriosynangiosis) procedure is a synangiosis procedure that requires dissection of a scalp artery over a course of several centimeters and then making a small temporary opening in the skull directly beneath the artery. The artery is then sutured to a branch of the middle cerebral artery on the surface of the brain and the bone is replaced.

In the **EMS** (encephalo-myo-synangiosis) procedure, the temporalis muscle, which is in the temple region of the forehead, is dissected and through an opening in the skull placed onto the surface of the brain.

In the *multiple burr holes* procedure, multiple small holes (burr holes) are placed in the skull to allow for growth of new vessels into the brain from the scalp.

In the STA-MCA procedure, the scalp artery (superficial temporal artery or STA) is directly sutured to an artery on the surface of the brain (middle cerebral artery or MCA). This procedure is also commonly referred to as an EC-IC (External Carotid-Internal Carotid) bypass.

All of these operations have in common the concept of a blood and oxygen "starved" brain reaching out to grasp and develop new and more efficient means of bringing blood to the brain and bypassing the areas of blockage. The modified direct anastomosis and encephalo-myo-arterio-synangiosis play a role in this improvement by increasing cerebral blood flow (CBF) after the operation.

A significant correlation is found between the postoperative effect and the stages of preoperative angiograms. It is crucial for surgery that the anesthesiologist have experience in managing children being treated for moyamoya, as the type of anesthesia they require is very different from the standard anesthetic children get for almost any other type of neurosurgical procedure.

Tips for Family and Caregivers of Patients with Moyamoya Disease

- Educating and supporting the child and family plays a key role. Not surprisingly, parents are shocked and frightened when they learn their children have had strokes, because they do not realize children can have strokes.
- Parents should be instructed to inform surgeons and anesthesiologists to avoid hyperventilation. Parents and children need to identify everyday events that may precipitate mini-strokes (also called Transient ischemic attacks). For example, one patient had a stroke while crying or singing a long note during practice. The precipitation of mini-strokes by everyday events is particularly stressful for parents, who may be reluctant to discipline their child for fear of causing a mini-stroke if the child cries. Some sports such as cricket and soccer that lead to hyperventilation have a high risk of causing mini strokes, and it may not occur to parents to keep their children out of these sports. Schools should be informed about the diagnosis and any restrictions on physical activity.
- Educating the child and family about seizures is an important part of the care of Moyamoya patients. As with other seizure patients, families should be told that brief seizures lasting a few minutes are not thought to be harmful, but medical help should be sought for longer seizures. Emotional support and appropriate advice on pre and post operative care of the patient is an important part of treatment to alleviate the fear, anxiety and uncertainity experienced by the family.

References

1. Trilochan Srivastava, Raghavendra Bakki Sannegowda, R. S. Mittal, R. S. Jain, Shankar Tejwani and Rahul Jain. An institutional experience of 26 patients with Moyamoya disease: A study from Northwest India. Ann Indian Acad Neurol [serial online] 2014 [cited 2018 Mar 7];17:182-6.
2. R. Michael Scott and Edward R. Smith, Moyamoya Disease and Moyamoya Syndrome, New England Journal of Medicine, 2000 March 19;360:1226-1237.
3. Vivek B Sharma, Hemanshu Prabhakar, Girija Prasad Rath, Parmod K Bithal Anaesthetic management of patients undergoing surgery for Moyamoya disease-our institutional experience. Journal of neuro anaesthesiology and critical care; 2014;1(2):131-136.
4. Jong S Kim. Moyamoya Disease: Epidemiology, Clinical Features, and Diagnosis. Journal of stroke; 2016 Jan;18(1):2–11.
5. Cerebrovascular society of India. Moyamoya disease. www.google.com.

Guidelines for Authors

Manuscripts must be prepared in accordance with "Uniform requirements for Manuscripts submitted to Biomedical Journal" developed by international committee of medical Journal Editors.

Types of Manuscripts and Limits

Original articles: Up to 3000 words excluding references and abstract and up to 10 references.

Review articles: Up to 2500 words excluding references and abstract and up to 10 references.

Case reports: Up to 1000 words excluding references and abstract and up to 10 references.

Online Submission of the Manuscripts

Articles can also be submitted online from http://rfppl.co.in/customer_index.php.

I) First Page File: Prepare the title page, covering letter, acknowledgement, etc. using a word processor program. All information which can reveal your identity should be here. use text/rtf/doc/PDF files. Do not zip the files.

2) Article file: The main text of the article, beginning from Abstract till References (including tables) should be in this file. Do not include any information (such as acknowledgement, your name in page headers, etc.) in this file. Use text/rtf/doc/PDF files. Do not zip the files. Limit the file size to 400 Kb. Do not incorporate images in the file. If file size is large, graphs can be submitted as images separately without incorporating them in the article file to reduce the size of the file.

3) Images: Submit good quality color images. Each image should be less than 100 Kb in size. Size of the image can be reduced by decreasing the actual height and width of the images (keep up to 400 pixels or 3 inches). All image formats (jpeg, tiff, gif, bmp, png, eps etc.) are acceptable; jpeg is most suitable.

Legends: Legends for the figures/images should be included at the end of the article file.

If the manuscript is submitted online, the contributors' form and copyright transfer form has to be submitted in original with the signatures of all the contributors within two weeks from submission. Hard copies of the images (3 sets), for articles submitted online, should be sent to the journal office at the time of submission of a revised manuscript. Editorial office: Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi – 110 091, India, Phone: 91-11-22754205, 45796900, 22756995. E-mail: author@rfppl.co.in. Submission page: http://rfppl.co.in/article_submission_system.php?mid=5.

Preparation of the Manuscript

The text of observational and experimental articles should be divided into sections with the headings: Introduction, Methods, Results, Discussion, References, Tables, Figures, Figure legends, and Acknowledgment. Do not make subheadings in these sections.

Title Page

The title page should carry

1) Type of manuscript (e.g. Original article, Review article, Case Report)
2) The title of the article, should be concise and informative;
3) Running title or short title not more than 50 characters;
4) The name by which each contributor is known (Last name, First name and initials of middle name), with his or her highest academic degree(s) and institutional affiliation;
5) The name of the department(s) and institution(s) to which the work should be attributed;
6) The name, address, phone numbers, facsimile numbers and e-mail address of the contributor responsible for correspondence about the manuscript; should be mentoined.
7) The total number of pages, total number of photographs and word counts separately for abstract and for the text (excluding the references and abstract);
8) Source(s) of support in the form of grants, equipment, drugs, or all of these;
9) Acknowledgement, if any; and
l0) If the manuscript was presented as part at a meeting, the organization, place, and exact date on which it was read.

Abstract Page

The second page should carry the full title of the manuscript and an abstract (of no more than 150 words for case reports, brief reports and 250 words for original articles). The abstract should be structured and state the Context (Background), Aims, Settings and Design, Methods and Materials, Statistical analysis used, Results and Conclusions. Below the abstract should provide 3 to 10 keywords.

Introduction

State the background of the study and purpose of the study and summarize the rationale for the study or observation.

Methods

The methods section should include only information that was available at the time the plan or protocol for the study was written such as study approach, design, type of sample, sample size, sampling technique, setting of the study, description of data collection tools and methods; all information obtained during the conduct of the study belongs in the Results section.

Reports of randomized clinical trials should be based on the CONSORT Statement (http://www.consort-statement. org). When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2000 (available at http://www.wma.net/e/policy/l 7-c_e.html).

Results

Present your results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Extra or supplementary materials and technical details can be placed in an appendix where it will be accessible but will not interrupt the flow of the text; alternatively, it can be published only in the electronic version of the journal.

Discussion

Include summary of key findings (primary outcome measures, secondary outcome measures, results as they relate to a prior hypothesis); Strengths and limitations of the study (study question, study design, data collection, analysis and interpretation); Interpretation and implications in the context of the totality of evidence (is there a systematic review to refer to, if not, could one be reasonably done here and now?, What this study adds to the available evidence, effects on patient care and health policy, possible mechanisms)? Controversies raised by this study; and Future research directions (for this particular research collaboration, underlying mechanisms, clinical research). Do not repeat in detail data or other material given in the Introduction or the Results section.

References

List references in alphabetical order. Each listed reference should be cited in text (not in alphabetic order), and each text citation should be listed in the References section. Identify references in text, tables, and legends by Arabic numerals in square bracket (e.g. [10]). Please refer to ICMJE Guidelines (http://www.nlm.nih.gov/bsd/uniform_requirements.html) for more examples.

Standard journal article

[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540-7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003; 61: 347-55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3-9.

Corporate (collective) author

[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000; 71: 1792-801.

Unpublished article

[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O, Kidd EAM,

editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. p. 7-27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

More information about other reference types is available at www.nlm.nih.gov/bsd/uniform_requirements.html, but observes some minor deviations (no full stop after journal title, no issue or date after volume, etc).

Tables

Tables should be self-explanatory and should not duplicate textual material.

Tables with more than 10 columns and 25 rows are not acceptable.

Table numbers should be in Arabic numerals, consecutively in the order of their first citation in the text and supply a brief title for each.

Explain in footnotes all non-standard abbreviations that are used in each table.

For footnotes use the following symbols, in this sequence: *, ¶, †, ‡‡,

Illustrations (Figures)

Graphics files are welcome if supplied as Tiff, EPS, or PowerPoint files of minimum 1200x1600 pixel size. The minimum line weight for line art is 0.5 point for optimal printing.

When possible, please place symbol legends below the figure instead of to the side.

Original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay.

Type or print out legends (maximum 40 words, excluding the credit line) for illustrations using double spacing, with Arabic numerals corresponding to the illustrations.

Sending a revised manuscript

While submitting a revised manuscript, contributors are requested to include, along with single copy of the final revised manuscript, a photocopy of the revised manuscript with the changes underlined in red and copy of the comments with the point to point clarification to each comment. The manuscript number should be written on each of these documents. If the manuscript is submitted online, the contributors' form and copyright transfer form has to be submitted in original with the signatures of all the contributors within two weeks of submission. Hard copies of images should be sent to the office of the journal. There is no need to send printed manuscript for articles submitted online.

Reprints

Journal provides no free printed reprints, however a author copy is sent to the main author and additional copies are available on payment (ask to the journal office).

Copyrights

The whole of the literary matter in the journal is copyright and cannot be reproduced without the written permission.

Declaration

A declaration should be submitted stating that the manuscript represents valid work and that neither this manuscript nor one with substantially similar content under the present authorship has been published or is being considered for publication elsewhere and the authorship of this article will not be contested by any one whose name (s) is/are not listed here, and that the order of authorship as placed in the manuscript is final and accepted by the co-authors. Declarations should be signed by all the authors in the order in which they are mentioned in the original manuscript. Matters appearing in the Journal are covered by copyright but no objection will be made to their reproduction provided permission is obtained from the Editor prior to publication and due acknowledgment of the source is made.

Abbreviations

Standard abbreviations should be used and be spelt out when first used in the text. Abbreviations should not be used in the title or abstract.

Checklist

- Manuscript Title
- Covering letter: Signed by all contributors
- Previous publication/ presentations mentioned, Source of funding mentioned
- Conflicts of interest disclosed

Authors

- Middle name initials provided.
- Author for correspondence, with e-mail address provided.
- Number of contributors restricted as per the instructions.
- Identity not revealed in paper except title page (e.g.name of the institute in Methods, citing previous study as 'our study')

Presentation and Format

- Double spacing
- Margins 2.5 cm from all four sides
- Title page contains all the desired information. Running title provided (not more than 50 characters)
- Abstract page contains the full title of the manuscript
- Abstract provided: Structured abstract provided for an original article.
- Key words provided (three or more)
- Introduction of 75-100 words
- Headings in title case (not ALL CAPITALS). References cited in square brackets
- References according to the journal's instructions

Language and grammar

- Uniformly American English
- Abbreviations spelt out in full for the first time. Numerals from 1 to l0 spelt out
- Numerals at the beginning of the sentence spelt out

Tables and figures

- No repetition of data in tables and graphs and in text.
- Actual numbers from which graphs drawn, provided.
- Figures necessary and of good quality (color)
- Table and figure numbers in Arabic letters (not Roman).
- Labels pasted on back of the photographs (no names written)
- Figure legends provided (not more than 40 words)
- Patients' privacy maintained, (if not permission taken)
- Credit note for borrowed figures/tables provided
- Manuscript provided on a CDROM (with double spacing)

Submitting the Manuscript

- Is the journal editor's contact information current?
- Is the cover letter included with the manuscript? Does the letter:

1. Include the author's postal address, e-mail address, telephone number, and fax number for future correspondence?
2. State that the manuscript is original, not previously published, and not under concurrent consideration elsewhere?
3. Inform the journal editor of the existence of any similar published manuscripts written by the author?
4. Mention any supplemental material you are submitting for the online version of your article. Contributors' Form (to be modified as applicable and one signed copy attached with the manuscript)