RANGPUR DENTAL COLLEGE JOURNAL

Vol: 8 January 2020 No: 1

Editorial

Original Articles

Case Report

An Official Publication of Rangpur Dental College

RANGPUR DENTAL COLLEGE JOURNAL

(Recognized by Bangladesh Medical & Dental Council)

Vol. 8, No. 1, January 2020

An Official Publication of Rangpur Dental College

ISSN: 2310-6530 (Print)

www.rdchbd.com

Address for Correspondence

Editor in Chief

Rangpur Dental College Journal
Rangpur Dental College
Medical East Gate, Rangpur-5400
Bangladesh
Phone: +88 0521 53111
rdcjournal@gmail.com
www.rdchbd.com

Cover Design

Dr. Samiul Iqbal
(Batch-08, Rangpur Dental College)

Published by

Executive Editor
Dr. Md. Abdullah Al Mamun
Associate Professor & Head
Dental Public Health
Rangpur Dental College

Printed by

United Printers
Jail Road, Dhap, Rangpur, Bangladesh
01915458055
sumon.up@gmail.com

RANGPUR DENTAL COLLEGE JOURNAL
ADVISORY BOARD

Disclaimer

- ***RDC Journal does not provide medical advice, diagnosis or treatment. RDC Journal is intended to serve as a rapidly accessible, initial clinical reference resource and not as a complete reference resource.***
- ***All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Rangpur Dental College.***
- ***The editorial team reserves the right, acting in its sole and absolute discretion.***
- ***Publications of an advertisement does not necessarily imply that the Rangpur Dental College agrees with or supports the claims.***

Appreciation & Acknowledgement of RDCJ Board For Rangpur Dental College Students Achieved & Accredited Post Grad Listed Below

1ST BATCH

1.Dr. Marina Akhtar
FCPS (Orthodontics)
Assistant Professor & Head, Orthodontics
Rangpur Dental College & Hospital
01716140339
dr.marinajolly@gmail.com

2. Dr. Newaz Mohsina
FCPS (Oral & Maxillofacial Surgery), BCS (Health)
Dental Surgeon & Incharge Casualty
Dhaka Dental College & Hospital
01715643654
dr.newazmohsina@gmail.com

3. Dr. Mst. Dilruba Khatun
FCPS (Conservative Dentistry & Endodontics)
Assistant Professor & Head
Conservative Dentistry & Endodontics
Dental Unit, TMSS Medical College & Hospital, Bogra
01718858372
drdilruba05@gmail.com

4. Dr. Evan E Alam Emtakamul Haque
FCPS (Orthodontics)
Dental Surgeon
Shahid Ziaur Rahman Medical College & Hospital, Bogra
01716140307
evan.dr.rdc@gmail.com

5. Mostofa Md. Ekramul Hasan
MS (Prosthodontics)
Assistant Professor & Head, Prosthodontics
Dental Unit, TMSS Medical College & Hospital, Bogra
01718637933
salbonrang@gmail.com

6. Dr. Mst. Marina Akhtar
MPH
Program Manager, PMTCT
01717816550
marinaniva@gmail.com

7. Dr. Md. Asaduzzaman
MPhil (RU)
Assistnt Professor, Pedodontics
Rangpur Dental College & Hospital
01716911477
asad.zaman477@gmail.com

8. Dr. Maniruzzaman
MS (Prosthodontics)
Assistant Professor, Prosthodontics
Rangpur Dental College & Hospital
01824727680
maniruzzaman_summon@yahoo.com

9. Dr. Asma Ul Hosna
MPH
Smile Dental Aids, Dhaka
01324400605

10. Dr. Fahmida Hossain
MS (Microbiology)
Vice Principal, Anowara Nursing College, Dinajpur
01716645146
fahmidzhossain17@gmmail.com

11. Dr. Jahangir Alom
MS (Microbiology)
Chief Consultant, Sara Dental Care
Director, North Bengal Nursing Institute, Thakurgaon
01712275079
dr.shibly.alam@gmail.com

2ND BATCH

11. Dr. A.N.M. Musa Siddik (Jewel)
MCPS (Dentistry), FCPS (Oral & Maxillofacial Surgery)
Vice Principal
Rangpur Dental College
&
Associate Professor & Head, Oral & Maxillofacial Surgery
Rangpur Dental College & Hospital
01712826279
musa1_dr@yahoo.com

12. Dr. Maruf Hasan Zaman
MPH (NIPSOM)
Assistant Professor, Pedodontics
Rangpur Dental College & Hospital
01711956406
marufhasanzaman@gmail.com

13. Dr. Jesmin Jahan Polashi
MPH (AIUB)
CC on Clinical Epi (IEDCR)
CC on Pshychotherapy (Life Spring)
Oral & Dental Surgeon, Mental Health Counselor
015333721023
jesmin2006.ji@gmail.com

3RD BATCH

14. Dr. Md. Abdur Rahman Shaku
MS (Orthodontics)
Assistant Professor of Orthodontics
Dental Unit, Rangpur Medical College & Hospital
01723631573
shaku.bds@gmail.com

15. Dr. Mohammad Ullah
FCPS (Oral Maxillofacial Surgery)
Consultant, IbnSina, D Lab & Consultation Center
Uttora, Dhaka
01925339227
muhammadullahden@gmail.com

16. Dr. Tamanna Akbar
MPH, PhD
Assistant Professor, Dental Public Health
Udayan Dental College, Rajshahi
Adjunt Faculty Member
Department of Public Health
Institute of Biological Sciences University of Rajshahi
0171736939
tamannaakbar@gmail.com

17. Dr. Md. Mahafuzur Rahman
MPH (NIPSOM-BSMMU)
Former Assistant Professor & Head, Pediatric Dentistry
Udayan Dental College & Hospital, Rajshahi

4TH BATCH

18. Dr. Wahiduzzaman
FCPS (Oral Maxillofacial Surgery), MCPS (Dentistry)
Assistant Professor & Head, Dental Anatomy
Dental Unit, TMSS Medical College, Bogra
01761910906
dr.wahid10@gmail.com

19. Dr. Dilruba Binte Mostafa
DDS, BCS (Health)
Junior Consultant, Periodontology
Dhaka Dental College & Hospital
dbintemostafa@gmail.com

20. Dr. Nubadad Adnan
FCPS (Oral Maxillofacial Surgery)
Registrar, Oral & Maxillofacial Surgery
BIRDEM General Hospital, Dhaka
01714942916

21. Dr. Mostofa Md. Anisuzzaman
FCPS (Oral Maxillofacial Surgery)
Lecturer of Oral & Maxillofacial Surgery
Ibrahim Medical College, Dhaka
01717242976
dmukul808@gmail.com

22. Dr. Rony Chokrobrty
FCPS (Orthodontics)
Assistant Professor & Head, Orthodontics
Kumudini Womens Medical College & Hospital, Tangail
01717524546
dr.harry2000@gmail.com

23. Dr. Md. Al Amin Sarkar
FCPS (Prosthodontics)
Junior Consultant, Prosthodontics
Dhaka Dental College & Hospital
01725748863
dr.sarkar.bds@gmail.com

24. Dr. Md. Shirajul Islam
MPH (NIPSOM)
Surveillance Medical Office (Coxbazar & Chattogram Zone)
National Malaria Elimination & ATD Control Program
DGHS
01718013774
sschoton@yahoo.com

25. Dr. Gazi Ikhtiar Ahmed
MPH (NIPSOM)
Assistant Professor, Dental Public Health
Dental Unit, Khwaja Yunus Ali Medical College, Sirajganj
01782747109
sazaldnt@gmail.com

26. Dr. Jami Parvin Nitu
MPH (NIPSOM)
Research Coordinator (NIPSOM)
01718253280
drjamiparvin@gmail.com

27. Dr. Kamur Nahar
FCPS (Oral Maxillofacial Surgery)
Assistant Professor, Oral & Maxillofacial Surgery
Saphena Women's Dental College & Hospital
01712978516
knahar.jelly97@gmail.com

28. Dr. Khandker Tanvirul Islam
MPH (NIPSOM)
MNCAH Consultant
Rangpur Division, UNICEF
01715249843
dr.tanvirsajb@gmail.com

29. Dr. Abu Bakar Shah
FCPS (Oral & Maxillofacial Surgery)
Consultant, IBNE SINA D- LAB
Mirpur, Dhaka
01717447705

30. Rezwana Binte Mizan
MPhil (RU)
Assistant Professor & Head, Dental Pharmacology
Rangpur Dental College
01717372307
kanizrazwana2@gmail.com

5TH BATCH

31. Dr. Md. Abdulla Hill Kafi
MPH (NIPSOM)
Assistant Professor, Dental Public Health
Dental Unit, Islami Bank Medical College & Hospital, Rajshahi
01717524769
kafi5120@gmail.com

32. Dr. Musfiqa Aman
DDS
Assistant Professor & Head, Periodontology & Oral Pathology
Dental Unit, TMSS Medical College & Hospital, Bogra
01816263691
maman190912@gmail.com

33. Dr. Abdullah Sazzad Waliullah
MPH (NIPSOM)
Central Police Hospital, Rajarbag Police Line, Dhaka
01722950000
m.a.sazzad87@gmail.com

34. Dr. Rita Ghosh
PhD (RU)
Assistant Professor & Head, Science of Dental Materials
Udayan Dental College, Rajshahi
01738569647
ritaghosh821@gmail.com

35. Dr. Farzana Boby
FCPS (Orthodontics)
01727989407

36. Dr. A. K. M. Shafiul Kadir
MPhil (RU)
Quest Bangladesh Bio Medical Research Center
01719246446
shafiul_kadir@yahoo.com

6TH BATCH

37. Dr. Nadeema Rasheed
MS (Orthodontics)
Consultant, Orthodontics
Indhira Gandhi Memorial Hospital
Address: Tide 7A
Gandhakolhi Magu, Male, Maldives
+9609513566
dr.nadhyma@gmail.com

7TH BATCH

38. Dr. Tanjina Rahman
MPH (NIPSOM)
Public Health Specialist
MOHFWCC, CBX
01717374257
drtanjna.mohtw@gmail.com
www.linkedin.con/in/tanjna-rahman-661580a3

39. Dr. A.S.M. Rafiul Haque
PhD (Japan)
Assistant Professor, Dental Anatomy
Udayan Dental College, Rajshahi
01717450607
rafi07.dr@gmail.com

8TH BATCH

40. Dr. Harsh Kumar Tiwari
MDS, (Orthodontics & Dentofacial Orthopaedics)
N.M.C no 13266
Akarsh Dental Care Center Pvt. Ltd., Kumaripati Lalitpur Nepal
+9779869665525
orthodontistharsh@gmail.com

9TH BATCH

41. Dr. Mortahina Rashid
MPH (NISPOM)
Technical Specialist- Nutrition
Nutrition in City, Ecosystems Project
Organization, Syngenta
Foundation for Sustainable Agriculture
01783197085
mortahina.sfsab@gmail.com

42. Dr. Farkhanda Mah Jebin
MPH (NIPSOM)
Assistant Professor, Dental Public Health
Dental Unit, Khwaja Yunus Ali Medical College, Sirajganj
01774382167
far.jebin90@gmail.com

41. Dr. Mst. Parvin Akter
DDS (BSMMU)
Assistant Professor, Oral Pathology & Periodontology
Dental Unit, Khwaja Yunus Ali Medical College, Sirajganj
01309287048
akterp43@yahoo

10TH BATCH

Nil

11TH BATCH

42. Dr. Shajeda Azizi
MPH (NIPSOM)
International Online Journal Hub (IOJH), Gulshan, Dhaka
01721214929
shajedazizi213@gmail.com

12TH BATCH

43. Dr. Sifat Sharmin
MPH (NIPSOM)
Research Assistant at CHIRAL, Bangladesh
Data Enumerator at NIPSOM
01757867041
limutanvir7889@gmail.com

Rangpur Dental College Journal

Vol. 8, No. 1, January 2020

CONTENTS

Editorial

Importance of Regenerative Dentine Formation

Mamun MAA

There has been great controversy regarding the development of dentine and particularly about the cells which are responsible for this process. Dentin is a calcified connective tissue which is penetrated by definitely arranged small canals containing protoplasmic processes belonging to cells which remain outside of the tissue on the pulpal cavity. The dentine of the early period is called primary dentine.[1] Secondary dentine is a narrow band of dentine bordering the pulp and representing that dentine formed after root completion.[2] Whereas, tertiary dentine as it sometimes characterised by having fewer tubules that are more twisted in nature.[3]

As far as in known secondary dentine formation is achieved in essentially the same way as primary dentine formation, though at a much slower pace.[4] This forms at a slower rate (1 micrometre/day) than primary dentine (4 micrometre/day) and regularly but not uniformly, more formation is seen on the roof and floor of the pulp chamber. Hence, this dentine is known as regular secondary dentine. Secondary dentine formation can be distinguished histologically than primary dentine by a subtle demarcation line, a slight differential in staining and a less regular organization of dentinal tubules.[5]

Secondary dentine forms after eruption, as the tooth develops with age. It develops from the odontoblast (Dentine forming cells) living within the pulp and is laid down in layers within the pulp cavity.[7] In certain situations such as in rapid loss of tooth substance, the secondary dentine produces a different type and is then based described as irregular secondary dentine (tertiary dentine).[6] Tertiary dentine (also referred to as reactive or reparative dentine) is produced in reaction to various stimuli such as attrition, caries or a restorative dental procedure.[5] Tertiary dentine is of two types, either reactionary, where dentine is formed from a pre-existing odontoblast, or reparative, where newly differentiated odontoblast-like cells are formed due to the death of the original odontoblasts, from a pulpal progenitor cell.[8]

Secondary dentine as it appears greater in amount on the roof and floor of the coronal pulp chamber, where it protects the pulp from exposure in older teeth. Secondary dentine as a sole parameter for age estimation measuring the dentine qualitatively on the ground section of the tooth by implying Gustafson's scoring system and qualitatively in the form of micrometric measurements suggested by Kedici et al.[9] Secondary dentine formed throughout the life in incremental fashion maintains the tooth strength.[10] If the injury is severe and causes odontoblast cell death, odontoblast like cells synthesize specific reparative dentine just beneath the site of injury to protect the pulp tissue.[11]

References:

1. Rahman, A.H.S. Dental anatomy.129 Islamia market, Nilkhet, Dhaka. Nova printing and publishing. (1):31-42,2007.
2. Prakash, A.R.Orban's oral histology and embryology. Gurgaon, Hariyana. RELX Indiapvt. ltd.(15): 78-89, 2019.
3. Iyyer, B.S.; et al.; Bhalajhi, S.I.Dental anatomy histology and development. 4805 Bharat ram road, 24 Darya ganj, New Delhi. Aryamedi publishing house pvt. ltd.(3):283,2013.
4. Dale, A.C.; Dale, J.G.; Eisenmann, D.R.; Enlow, D.H .; Finkelstein, M.W.; Freeman, E.; Squier, C.A .;Cate,R.T.;Torneck, C.D et.al.; Whiteson, S.W.AR Ten cate oralhistology:Development, structure and function. UP, India. Gopsons papers limited.(5):149, 1999.
5. Nanci, A.Ten cate's oral history:development, structure and function. St. Louis, Missori: Elsevier.(9):160-167, 2018.
6. Scott, J.H.; et al.; Syitions, N.B.B. Introduction to dental anatomy. 150 Broadway, New York, NY. Britishcataloging in publication data.(9):243-245,1982.
7. https://www.rvc.ac.uk/review/ dentistry/ basics/ anatomy/ dentine. html#:~:text= Secondary % 20 dentine % 20 forms % 20 after % 20 eruption, % 2C % 20 chemical % 2C % 20 bacterial % 20 or % 20 mechanical.
8. https://www.smileedenprairie.com/ general- dentistry-concepts-dentin
9. https://en.wikipedia.org/wiki/Dentin
10. www.omosis.org
11. https://www.sciencedirect.com/science/article/pii/S2090536X16300168

For correspondence: Dr. Md. Abdullah Al Mamun, *Associate Professor & Head, Department of Dental Public Health, Rangpur Dental College. Mobile: +8801972404404, Email: tito_bt@yahoo.com*

Original Article

Replantation of 48 Avulsed Permanent Incisors in a Tertiary Medical College and Hospital in Bangladesh

Islam MM[1], Hussain MI[2], Shikder AHMZH[3], Uddin MM[4]
Begum F[5], Kabir MN[6]

Abstract:
Background: *Avulsion is a complex injury affecting the pulp, periodontal ligament and the alveolar bone. Avulsed permanent teeth can survive following replantation. However, post-traumatic external root resorption eventually resulting in loss of the traumatized tooth is a frequent finding.*
Objective: *In this study our main goal is to evaluate the replantation of avulsed permanent incisors attending at the period January 2017 to June 2019 in the dental OPD of Rangpur Medical College and Hospital, a regional tertiary care hospital in northern area of Bangladesh.*
Materials and methods: *A total number of 36 patients with 48 avulsed permanent incisor teeth was considered for the study. All teeth were managed by replantation and root canal treatment was performed subsequently. Postoperative outcome was assessed in relation to the history of the accident, concomitant injuries, age, gender, apical maturity of the root, replantation rate, storage media, extra-alveolar duration, endodontic treatment, compliance and recall appointments response. Outcome was classified as functional healing (FH), infection related resorption (IRR) and replacement resorption (RR).*
Results: *The average age of patients was 10.7 years (range 7–32). In 20/36 patients, tooth avulsion was caused by a road traffic accident. Avulsion was accompanied by concomitant injuries in all cases. Time until replantation ranged between 15 min and 9 h (median 60 min). The observation period ranged from 1 to 2.5 years. FH was observed in 10/48, IRR in 30/48 and RR in 8/48 incisors. Immature incisors exhibited significantly more complications compared with mature teeth (P=0.04). Storage media and extra-alveolar duration did not significantly affect the survival of replanted teeth (P=0.253, P=0.350).*
Conclusion: *The combination of delayed replantation and unsuitable storage is followed by low survival. Incisors with open apices exhibited lower survival compared with incisors with closed apices.*

Keywords: *Tooth avulsion, Dental trauma, Replantation, Permanent incisors*

Date of received: 09-08-2019
Date of acceptance: 01-12-2019
RDC Journal, January 2020; 8(1): 2-7

Introduction:

Traumatic injuries to permanent anterior teeth are common during childhood and 0.5–16% of the 7- to 10-year age group experience tooth avulsion.[1] In this age group the relatively resilient alveolar bone provides only minimal resistance to extrusive forces, and the maxillary central incisors are the teeth most commonly affected.[2] Duration of extra-oral storage of an avulsed tooth is identified as critical for functional healing (FH).[3-5] Replantation of a tooth beyond 5 min has been defined by Andreasen[3] as delayed replantation and extra-oral duration affects tooth survival. Practically, these ideal conditions rarely occur in cases presented to a clinician and replantations as well as further treatment of avulsed teeth are followed by complications, inflammatory or infection related resorption (IRR) and replacement resorption (RR).[4]

There are two main reasons for delayed replantation of avulsed teeth. People present at the site of injury are usually lay persons, who rarely know how to manage an avulsed tooth.[6-9] In addition, soft tissue lacerations and bleeding are almost always associated with injuries to the teeth, which mask the loss of teeth. It is therefore not unusual for avulsion to be overlooked at the time of injury.

The mechanism of the injury is a particularly important

1. **Dr. Md. Monoarul Islam**, Assistant Professor, Dental Unit, Rangpur Medical College & Hospital
2. **Dr. Muhammad Imran Hussain**, Lecturer, Dept. of Conservative Dentistry & Endodontics, Dental Unit, Sir Salimullah Medical College & Hospital
3. **Dr. A. H. M. Zakir Hossain Shikder**, Assistant Professor, Dept. of Pedodontics, Bangabandhu Sheikh Mujib Medical University, Dhaka
4. **Dr. Md. Moin Uddin**, Assistant Professor, Dept. of Orthodontics, Dental Unit, Rangpur Medical College & Hospital
5. **Dr. Ferdousi Begum**, Assistant Professor, Dept. of Conservative Dentistry & Endodontics, Dental Unit, Rangpur Medical College & Hospital
6. **Dr. Mohammad Nazmul Kabir**, Assistant Professor, Dept. of Dentistry, Cox's Bazar Medical College & Hospital, Cox's Bazar

For correspondence: Dr. Md. Monoarul Islam*, BDS, DDS, MCPS, Assistant Professor, Dental Unit, Rangpur Medical College & Hospital, Rangpur. Cell: +8801724676052, Email: drmonoarddc@gmail.com*

aspect of the history, because avulsion is frequently caused by severe trauma. Avulsions were found to be the most common type of dental injury recorded for children less than 15 years of age seeking treatment in hospital emergency rooms.[10]

Treatment of avulsion injury is rather demanding, considering the fact that tooth avulsions most frequently occur in children aged 7–9 years. The child's acceptance of treatment procedures and cooperation are of outmost importance. These behavioral aspects, as well as the need to establish the confidence between a child and a dentist should be borne in mind, since the treatment of avulsion frequently lasts for many years. The aim of this study was to evaluate and assess the outcomes of avulsed permanent incisor teeth in children and adult.

Materials and methods:

The sample consisted of 36 patients (14 female, 22 male) with 48 permanent incisors avulsions. Their injuries were managed at the dental OPD of Rangpur Medical College and Hospital, in the period between January 2017 to June 2019. The observation period ranged 1 to 1.5 years. With respect to etiological factors, the mechanism of injury and the presence of concomitant injuries were analyzed. The mechanism of injury was classified as follows: road traffic accident, fall from height, sporting activities, hit (collision), fight and other. Demographic data comprised: age, gender and apical maturity of the root. Patients were classified in four age groups (I: 7–9, II: 10–12, III: 13–15 and IV: older than 15 years). The scale developed by Moorrees et al.[11] was used to classify the stage of root development as being either 'open apex' (stages 2–4) or 'closed apex' (stages 5–6). For every replanted tooth, total extra-alveolar duration and storage medium were analyzed. Storage in saline, milk or saliva was considered as physiological according to the protocols. With respect to the extra-alveolar duration, replanted teeth were classified as follows: I: 15–60 min; II: >60 min. Factors related to the treatment included: patient compliance, type and timing of endodontic treatment, recall appointments, as well as the occurrence of complications, type of complications and their treatment.

Prior to replantation, avulsed teeth were cleansed with normal saline and placed in saline until further treatment. In cases with prolonged extra-alveolar duration (more than 60 min), attached soft tissue was removed with gauze using gentle pressure. The coagulum was removed with a stream of saline, the alveolar socket was examined and replantation was accomplished by inserting the tooth into the socket with gentle pressure. The position of a replanted tooth was confirmed clinically and with a periapical radiograph. All replanted teeth were splinted with a soft 0.5 SS wire bonded with composite resin for 10–14 days.

Each patient received a 7 days course of antibiotic at an appropriate dose for age and weight, tetanus coverage was evaluated and a suitable oral hygiene and dietetic regime were recommended. Initial follow-up examination was scheduled for 7–10 days after replantation.

At the initial follow-up appointment, endodontic treatment of the replanted tooth was initiated. Following pulpectomy, a non-setting calcium hydroxide paste (Ultra Cal XS, Diadent) was placed in the root canal. A periapical radiograph was taken to ensure that the material filled the canal and reached the apex. In immature teeth the calcium hydroxide was left in the root canal of the replanted teeth. Calcium hydroxide was replaced when follow-up radiographs revealed a loss of material from the root canal. If clinical or radiographic signs of infection were present, the root canal was instrumented and filled with calcium hydroxide and an additional course of antibiotics was prescribed. In mature teeth, root canal obturation with gutta-percha and sealer was completed after 4 weeks of calcium hydroxide medication.

The splint was removed after 2 weeks, except in those cases in which avulsion had been followed by fracture of the alveolar process that required extended splinting. Prior to discharge, patients had follow-up appointments as follows: weekly, during the first 2 months; monthly during next 6 months, and once every 3 months after that. Periapical radiographs were taken every 3 months during the first year, and every 6 months after that.

The outcomes of replanted teeth were classified according to the classification used by Pohl et al.[12] as functional healing (FH), infection-related resorption (IRR) and replacement resorption (RR). The outcome was classified as FH when infection-related complications and ankylosis could be excluded. Criteria were: asymptomatic or minimal symptoms, normal percussion tone, no reduced mobility, no infraposition, no clinical or radiographic signs for infection and intact lamina dura. The postoperative outcome was classified as RR when the tooth showed one or more of the following criteria: high percussion tone, no mobility, progressive infraposition, radiographic loss of periodontal space or osseous replacement of the root substance. The outcome was classified as IRR when clinical signs of infection (swelling, pain, fistula, sensitivity to percussion and palpation) were present and/or the periapical radiograph showed sites with radiolucency periapically or along the lateral root surfaces.

Analyses were performed in relation to each replanted tooth, as some patients had more than one replanted incisor. Methods of standard descriptive statistics (percentage, SD, median, range) primarily were used. Comparative statistical evaluation was performed using chi-square test.

Results:

The mean age at the time of trauma was 10.7 years (range 7–32 years). Road traffic accidents were the causes of 20/36 avulsions (Table-1). Analysis of full history of the accident showed the presence of concomitant injuries in all presented cases. Concomitant injuries included: multiple teeth trauma, soft tissue injuries, head and neck trauma, skeletal fractures (Table-2).

The observation period ranged from 1 to 2.5 years. 17 of 48 avulsed teeth were immature. Two teeth had been placed in saline prior to replantation, while four teeth had been placed

in water. Forty-two teeth had been brought to clinic dry, mainly wrapped in the paper tissue. Extra-alveolar duration ranged between 15 min and 2 h. In 38/48 teeth endodontic treatment had been initiated within 2 weeks after the injury. The splint was removed after 2 weeks, except in 7 teeth where avulsion occurred in conjunction with alveolar fractures, and these teeth were splinted for 6–8 weeks.

Endodontic treatment was performed in all replanted teeth. After the treatment with calcium hydroxide, 31 teeth were obturated with gutta-percha and sealer over a period that ranged from 2 weeks to 6 month. Recall appointment response was 100% in the first 8 weeks after the injury, and then decreased to 50% during the first year. The timing of detection of complications varied from 1 month to 2 years.

Two types of resorption were observed, IRR in 30/48 teeth, while RR occurred in 8/48 cases. Out of these eight teeth, infraposition was detected in five replanted teeth. During the observation period, no teeth were extracted. The highest IRR rate was observed in the 7–9 years age group, but the outcome of replanted teeth did not significantly differ between the age groups (P = 0.247, chi-square test, Table-3). Outcome of replanted teeth did not significantly differ between genders (P = 0.919, chi square test).

In all ten cases of FH, endodontic treatment was completed within 1 month after the replantation. In 8/30 teeth with IRR, when signs of further progression of root resorption were observed after the completion of endodontic treatment, retreatment was performed. Regarding the apical maturity of replanted teeth, IRR was detected in 12/17 immature, and in 18/31 mature teeth, and FH was observed in 10/31 mature teeth (P = 0.04, chi-square test, Table-5).

Outcomes of replanted teeth in relation to the extraalveolar duration are shown in Table-6. IRR was detected in 16/30 teeth with extra-alveolar duration longer than 60 min. FH was observed in 8/10 teeth with extra-alveolar duration 15–60 min. With respect to the storage medium, occurrence of IRR was more frequent in teeth stored under dry conditions. Out of ten teeth in which FH was observed two tooth was placed in saline prior to replantation, and two was placed in water. The remaining six teeth were replanted after dry storage.

Discussion:

Data regarding the mechanism of the injury in our study revealed that the etiology of avulsion injury is complex, comprising different aspects of developmental, environmental and social factors. The only common feature is the fact that avulsion always presents severe trauma. High rates of avulsion injuries caused by road traffic accidents may be one of the reasons for delayed treatment in our sample. It is understandable that when a serious accident occurs, teeth are not the subject of greatest interest. Emergency treatment after the road traffic accident is aimed at registration of more serious and complicated injuries. In these situations lost teeth are the price that has to be paid for the misfortune. While teeth are not of primary interest in an emergency situation endangering life, they are important for function and aesthetics.

It is well-known that dental trauma occurs frequently in conjunction with facial trauma. The finding from our study that tooth avulsion is always accompanied with concomitant injuries may offer the explanation for delayed treatment. Avulsion injury itself is very dramatic, and when it is accompanied with other injuries, such as laceration of the lip, it can be masked or overlooked.[13] In some cases patients and their parents realized that avulsion had occurred after arrival at our OPD. Emergency treatment of multitraumatized patients presents a factor that delays tooth replantation. In the present study, treatment of less urgent injuries was performed prior to the tooth replantation in several cases, even though patients brought their teeth. Consequently, all replantations have been performed at our OPD.

Both age of the patient and apical maturity of the root can influence treatment. In the present study, mean age of the patient was 10.7 years. An identical finding was reported by Barrett and Kenny[14] in a study based on 38 patients. It is difficult to evaluate age of the patient separately from all other factors that influence the treatment and prognosis, but it could be useful to define its specific impact on the outcome of avulsed teeth. It is sometimes difficult to perform an adequate procedure, especially when a child has already been traumatized by the recent accident. The younger age of a patient decreases the chance to provide self-help or self-replantation at the scene of the accident. Anderrson et al.[15] found that the progression of root resorption in teeth with extended extra-oral periods is related to age. In patients 7–16 years old at the time of avulsion, the rate of root resorption was significantly higher compared with 17–32 years old patients. In the present study, a higher injury rate was found in male compared to female, which completely agrees with other epidemiological studies.[1,16] One study evaluated gender in relation to the replantation outcome and reported that the risk of infraposition after replantation was higher in young girls compared to young boys.[17] Our results do not support this finding.

Replantation was performed to all teeth brought to the OPD (48/48). A low replantation rate has been reported by Kinoshita et al. who found that 18/32 avulsed teeth in their sample could not be replanted.

Apical maturity of the root presents an important factor that determines the outcome of the replanted tooth. In the present study 17/48 replanted teeth were with an open apex. This is a slightly higher immature/mature tooth ratio compared to findings from the studies by Barrett and Kenny[14] in which 20/52 teeth were immature, and Andreasen et al.[3] in whose study 41/272 replanted teeth had uncompleted root development. Although a tooth with uncompleted root development possesses a strong reparatory potential and thicker periodontal ligament that may desiccate more slowly, the post replantation outcome is usually worse compared to the mature tooth.

The medium in which the tooth was stored influences the root resorption and pulp healing.[13,18-19] A strong connection

between the storage medium and the occurrence of complications has been clearly demonstrated.[3,11] It was shown that death of periodontal ligament cells could be delayed by storage in milk or saliva. However, this process is progressive and inevitable and even appropriate storage is limited to short periods.[20-25] Limited storage in isotonic solution prior to the replantation of teeth with moderate damage to the periodontal ligament gave equal or even better healing results compared with immediate replantation.[26] Pohl et al.[12] suggested storage in a cell-compatible culture medium, to maintain the vitality and proliferative capacity of periodontal ligament cells for extended periods.

Table-1: Mechanism of the injury

Causes of injury	Number of patients
Road traffic accident	20
Fall from height	8
Sporting activity	3
Hit (collision)	2
Fight	1
Others	2
Total	36

Table-2: Concomitant injuries

Areas of injury	Number of patients
Multiple teeth trauma	22
Head and neck trauma	3
Skeletal fractures	5
Alveolar fractures	7
Soft tissue lacerations	34

Table-3: Outcomes of replanted teeth related to age of the patients

Age	7-9 years		10-12 years		13-15 years		>15 years		Total	
	N	E*	N	E*	N	E*	N	E*	N	E*
FH	-	-	4	-	4	-	2	-	10	-
IRR	18	-	4	-	6	-	2	-	30	-
RR	4	-	2	-	1	-	1	-	8	-
Total	22	-	10	-	11	-	5	-	48	-

Outcomes of replanted teeth did not differ between the age groups (P = 0.247, chi-square test).

FH, functional healing; IRR, infection-related resorption; RR, replacement resorption; E*, tooth loss.

Table-4: Complications in relation to the endodontic ment

	Waiting for revascularization N	Temporary endodontic treatment N	Completed endodontic treatment N	Total N
IRR	-	18	12	30
RR	-	4	4	8
Total	-	22	16	38

Complications rarely occurred in teeth with completed endodontic treatment (P = 0.016, chi-square test).

IRR, infection-related resorption; RR, replacement resorption.

Table-5: Outcomes of replanted teeth related to apical maturity of the root

Age	Open apex				Closed apex				Total	
	R=15-60 mins		R>60 mins		R=15-60 mins		R>60 mins			
FH	-	-	-	-	10	-	-	-	10	-
IRR	5	-	7	-	5	-	13	-	30	-
RR	1	-	3	-	1	-	3	-	8	-
Total	8		14		16		10		48	-

Outcomes of immature and mature teeth differed significantly (P = 0.04, Chi-square test).

R, extra alveolar duration; FH, functional healing; IRR, infection-related resorption; RR, replacement resorption; E*, tooth loss.

Table-6: Outcomes of replanted teeth related to extra-alveolar duration

Age	Extra-alveolar duration 15-60 min		Extra-alveolar duration >60 min		Total	
	N	E*	N	E*	N	E*
FH	8	-	2	-	10	-
IRR	14	-	16	-	30	-
RR	3	-	5	-	8	-
Total	25	-	23	-	48	-

Outcomes of replanted teeth did not differ with respect to the extra-alveolar duration (P = 0.16, chi-square test).
FH, functional healing; IRR, infection-related resorption; RR, replacement resorption; E*, tooth loss.

Figure-1: (A) Absence of tooth of a 9 years old boy following RTA (B) Avulsed teeth #11 & #21 (C) Replantation (D) Splinting (E) 2 years recall visit showing good healing (F) 2 years recall radiograph

Figure-2: (A) Absence of tooth of a 27 years old male following RTA (B) Avulsed teeth #31, #41 & #42 (C) Replantation (D) Splinting (E) 2.5 years recall visit (F) 2 years recall radiograph

Conclusion:

This study supports the finding that delayed replantation after unphysiological storage is inevitably followed by high resorption rate and tooth loss. Apical development at the time of replantation is significantly related to tooth survival, since incisors with open apices exhibited lower survival compared with incisors with closed apices. Replanted incisors that required prolonged treatment with calcium hydroxide exhibited more complications compared with incisors with completed root canal treatment.

References:

1. Andreasen JO. Etiology and pathogenesis of traumatic dental injuries. A clinical study of 1,298 cases. Scand J Dent Res 1970; 78:329–42.58
2. Andreasen JO, Andreasen FM, Andersson L. Textbook

and colour atlas of traumatic injuries to the teeth, 4th edn. Oxford: Blackwell Munksgaard; 2007. p. 383–427.

3. Andreasen JO, Borum MK, Jacobsen HL, Andreasen FM. Replantation of 400 avulsed permanent incisors.
4. Factors related to periodontal ligament healing. Endod Dent Traumatol 1995;11: 76–89. 4. Andersson L, Bodin I. Avulsed human teeth replanted within 15 minutes – a long term clinical follow-up study. Endod Dent Traumatol 1990;6: 37–42.
5. Pettiette M, Hupp J, Mesaros S, Trope M. Periodontal healing of extracted dogs' teeth air-dried for extended periods and soaked in various media. Endod Dent Traumato l1997;13: 113–8.
6. Hamilton FA, Hill FJ, Mackie IC. Investigation of lay knowledge of the management of avulsed permanent incisors. Endod Dent Traumatol 1997;13: 19–23.
7. Raphael SL, Gregory PJ. Parental awareness of emergency management of avulsed teeth in children. Aust Dent J 1990;35:130–3.
8. Andersson L, Al-Asfour A, Al-Jame Q. Knowledge of first aid measures of avulsion and replantation of teeth: an interview of 221 Kuwaiti schoolchildren. Dent Traumatol 2006;22:57–65.
9. Cohenca N, Forrest JL, Rotstein I. Knowledge of oral health professionals of treatment of avulsed teeth. Dent Traumatol 2006;22: 296–301.
10. Bhat M, Li SH. Consumer product-related tooth injuries treated in hospital emergency rooms: United States, 1979–87. Community Dent Oral Epidemiol 1990; 18:133–8.
11. Moorrees CF, Fanning EA, Hunt EE Jr. Age variation of formation stages for ten permanent teeth. J Dent Res 1963;42:1490–502.
12. Pohl Y, Filippi A, Kirschner H. Results after replantation of avulsed permanent teeth. I.-II. Dent Traumatol 2005;21:80–101.
13. Trope M. Clinical management of the avulsed tooth: present strategies and future directions. Dent Traumatol 2002;18:1–11.
14. Barrett EJ, Kenny DJ. Survival of avulsed permanent maxillary incisors in children following delayed replantation. Endod Dent Traumatol 1997;13:269–75.
15. Andersson L, Bodin I, Sorensen S. Progression of root resorption following replantation of human teeth after extended extraoral storage. Dent Traumatol 1989; 5:38–47.
16. Andreasen JO, Ravn JJ. Epidemiology of traumatic dental injuries to primary and permanent teeth in a Danish population sample. Int J Oral Surg 1972;1:235–9.
17. Kawanami M, Andreasen JO, Borum MK, Schou S, HjortingHansen E, Kato H. Infraposition of ankylosed permanent maxillary incisors after replantation related to age and sex. Endod Dent Traumatol 1999;15:50–6.
18. Kinoshita S, Kojima R, Taguchi Y, Noda T. Tooth replantation after traumatic avulsion: a report of 10 cases. Dent Traumatol 2002;18:153–6.
19. Barrett EJ, Kenny DJ, Tenenbaum HC, Sigal MJ, Johnston DH. Replantation of permanent incisors in children using Emdogain. Dent Traumatol 2005;21:269–75.
20. Blomlof L. Storage of human periodontal ligament cells in a combination of different media. J Dent Res 1981;60:1904–6.
21. Doyle DL, Dumsha TC, Sydiskis RJ. Effect of soaking in Hank's balanced salt solution or milk on PDL cell viability of dry stored human teeth. Endod Dent Traumatol 1998;14:221–4.
22. Hiltz J, Trope M. Vitality of human lip fibroblasts in milk, Hanks balanced salt solution and Viaspan storage media. Endod Dent Traumatol 1991;7:69–72.
23. Huang SC, Remeikis NA, Daniel JC. Effects of long-term exposure of human periodontal ligament cells to milk and other solutions. J Endod 1996;22:30–3.
24. Lekic PC, Kenny DJ, Barrett EJ. The influence of storage conditions on the clonogenic capacity of periodontal ligament cells: implications for tooth replantation. Int Endod J 1998;31:137–40.
25. Andreasen JO, Schwartz O. The effect of saline storage before replantation upon dry damage upon the periodontal ligament. Endod Dent Traumatol 1986; 2:67–70.
26. Cvek M, Granath LE, Hollender L. Treatment of non-vital permanent incisors with calcium hydroxide. III. Variation of occurrence of ankylosis of reimplanted teeth with duration of extra-alveolar period and storage environment. Odontol Revy 1974;25:43–56.

Original Article

The Prevalence and Pattern of Psychosomatic Problem in Dentistry in Tertiary Medical College and Hospital

Islam MM[1], Kabir MN[2], Uddin MM[3], Tarafder MS[4], Biswas MTU[5], Mowla A[6]

Abstract:

Objective*: In this study our main goal is to evaluate the prevalence and pattern of psychosomatic problem in dentistry in tertiary medical college and hospital.*

Method: *This cross sectional study was carried out at Rangpur Medical College and Hospital, a regional tertiary medical college and hospital in northern area of Bangladesh from November 2018 to October 2019. A total of 50 patients was attending at dentistry department appointment considered for the study population. Sample were collected through purposive sampling as per inclusion criteria.*

Results*: During the study, most of the patients were belong to 47-57 years (30.8%). Mean±SD of the age was 48±12.90 years. Also, male percentage were higher than female. Dry mouth cases were 22% followed by 10% feared of serious illness, 18% had occlusal discomfort, 15% had metallic or acidic taste, 11% had oral cenesthopathy. After taking psychiatric medication, 15% had BMS followed by 14% had halitophobia, 17% had occlusal discomfort, 9% had oral cenesthopathy.*

Conclusion: *Dentists have been battling as the prevalence of psychosomatic problem has increased, and they have been encouraged to embrace a new treatment technique and abandon "brainless dentistry" or "mindless dentistry." The pathogenesis of psychosomatic problem should be researched in collaboration with experts in psychosomatic medicine, with an emphasis on brain-mouth interactions. An essential objective is the education of dentists who are capable of treating not only teeth but also the patient's psychological oral discomfort.*

Keywords: *Psychosomatic problem, Dentistry, Oral discomfort*

Date of received: 01-11-2019
Date of acceptance: 01-12-2019

RDC Journal, January 2020; 8(1): 8-10

Introduction:

Many dental patients report oral symptoms such as persistent pain or occlusal discomfort following dental treatment for which the etiology is unknown.[1] Patients are diagnosed with an “oral psychosomatic disorder” if their symptoms are regarded to be mental or emotional in nature. Japanese dentists have recognized the clinical need for a psychosomatic approach for over a century. The mechanical and surgical features of dentistry, on the other hand, have hampered the development of such a method. Dentists face unique challenges when dealing with oral ailments with unclear causes, such as toothaches.[2-3]

Some dentists in Japan have chosen to specialize in psychosomatic dentistry. Fortunately, progress has been made in understanding the mind-body interactions as knowledge about brain functioning has increased. The theme of the Japanese Society of Psychosomatic Dentistry's 30th anniversary meeting in 2015 was "From Brain to Dentistry."[4] In this study our main goal is to evaluate the prevalence and pattern of psychosomatic problem in dentistry in tertiary medical college and hospital.

Objective:

To assess the prevalence and pattern of psychosomatic problem in dentistry.

Methodology:

Types of study:

Cross sectional.

Place and period of the study:

The study place was carried out at Rangpur Medical College and Hospital, a regional tertiary medical college and hospital in northern area of Bangladesh. Where data were collected from November 2018 to September 2019.

Study population:

A total of 50 patients with a attending at dentistry department appointment considered for the study population. Sample were collected through purposive sampling as per inclusion criteria.

1. **Dr. Md. Monoarul Islam**, Assistant Professor, Dental Unit, Rangpur Medical College & Hospital
2 **Dr. Muhammad Nazmul Kabir**, BDS, DDS, Assistant Professor, Dept. of Dentistry, Cox’s Bazar Medical College
3 **Dr. Md. Moin Uddin**, Assistant Professor, Dept. of Orthodontics, Dental Unit, Rangpur Medical College & Hospital
4. **Dr. Md Shahrin Tarafder**, Assistant Professor, Dept. of Dentistry, Kurmitola General Hospital , Dhaka
5 **Dr. Mohammad Taz Uddin Biswas**, Assistant Professor, Dept. of Oral and Maxillofacial Surgery, Dental Unit, Rangpur Medical College & Hospital
6. **Dr. Ariful Mowla**, Assistant Registrar, Dental Unit, Rangpur Medical College and Hospital

For correspondence: Dr. Md. Monoarul Islam*, BDS, DDS, MCPS, Assistant Professor, Dental Unit, Rangpur Medical College & Hospital, Rangpur. Cell: +8801724676052, Email: drmonoarddc@gmail.com*

Data analysis:
All collected data were coding and input in SPSS-25 for further analysis. Both descriptive and inferential statistics done. Descriptive statistics included frequency distribution, percent, mean, standard deviation; graphs, tables, figures and inferential statistics

Table-1: Age distribution of the study group (n=25)

Age group	Frequency	Percent
25-35 years	12	23.1
36-46 years	10	19.2
47-57 years	16	30.8
58-68years	10	19.2
>68years	4	7.7
Total	52	100

Table-1 shows age distribution of the study group where most of the patients were belong to 47-57 years (30.8%). Mean±SD of the age was 48±12.90 years.

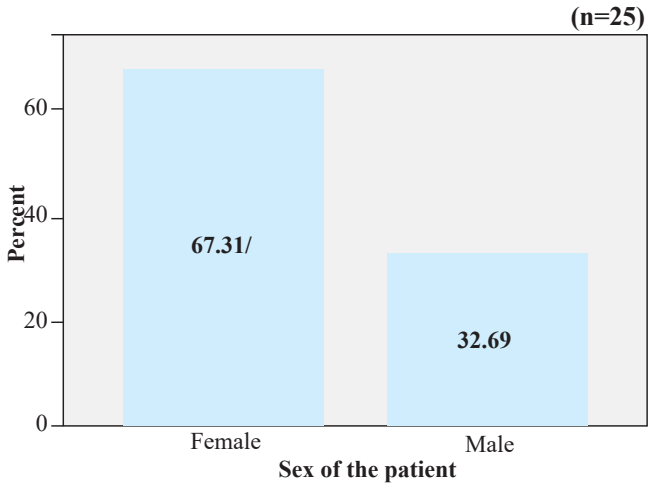

Figure-1: Sex distribution of the patients.

Figure-1 shows sex distribution of the patients where female percentage was higher than male.

Table-2: psychosomatic problem of the patients

Burning Mouth Syndrome (BMS)	%
Dry mouth	22%
Fear of serious illness	10%
Metallic or acidic taste	15%
Atypical Odontalgia (AO)	9%
Oral Cenesthopathy (Oral dysesthesia)	11%
Halitophobia (Olfactory reference syndrome)	15%
Occlusal dyscomfort (Phantom bite syndrome)	18%

Table-2 shows psychosomatic problem of the patients where dry mouth cases were 22% followed by 10% feared of serious illness, 18% had occlusal discomfort, 15% had metallic or acidic taste, 11% had oral cenesthopathy.

Table-4: Distribution of psychrometric symptoms after psychiatric medications

Psychrometric symptoms after psychiatric medications	%
Burning Mouth Syndrome (BMS)	15%
Atypical Odontalgia (AO)	7%
Oral Cenesthopathy (Oral dysesthesia)	9%
Halitophobia (Olfactory reference syndrome)	14%
Occlusal dyscomfort (Phantom bite syndrome)	17%

Table-4 shows distribution of psychosomatic problem after psychiatric medications. After taking psychiatric medication, 15% had BMS followed by 14% had halitophobia, 17% had occlusal discomfort, 9% had oral cenesthopathy.

Figure-2: Panoramic radiograph of a patient with phantom bite syndrome.

Figure-2 shows panoramic radiograph of a patient with phantom bite syndrome. Where shows 70-year old woman had been complaining of occlusal dyscomfort and had visited various dentists for "bite correction", but had never finished the treatment.

Discussion:
In oral medicine, many dentists encounter very similar problems. The most typical symptom is chronic oral pain with "nothing the matter" which is a manifestation of burning mouth syndrome (BMS) and atypical odontalgia (AO).[5-6] Complaints about dental occlusion are peculiar to dentistry. Dry mouth or disturbances in taste and salivation may be common problems that other specialists such as otolaryngologists see.

Orthopedic surgeons who treat chronic low back pain may encounter similar situations. In the absence of an effective management strategy, the patient's atypical illness, along with help-seeking behaviours and worries about an unrecognized illness, persist, while frustration and tensions escalate between the dentist and patient.[7]

The impact of chronic oral pain on quality of life should not be ignored. BMS and AO are both chronic pain disorders that occur in the absence of any organic cause, and they are often regarded as psychogenic conditions. Although many studies have been performed on the relationship between oral pain and psychological factors, the nature of the relationship remains unclear.[7-8]

Few patients with chronic oral pain are treated by

psychiatrists. BMS is characterized by a burning sensation involving the tongue or other oral sites, usually in the absence of clinical and laboratory findings.[9] Delays in the diagnosis, referral, and appropriate management of BMS patients are frequent.[10]

Patients with BMS are often finally told that "nothing is wrong", even though they have severe pain and have not received any effective treatment. They become frustrated, very anxious, and worried about accruing debt for serious diseases such as oral cancer.[11]

In our study we have noticed that, dry mouth cases were 22% followed by 10% feared of serious illness, 20% had occlusal discomfort, 15% had metallic or acidic taste, 11% had oral cenesthopathy.

Previous studies have reported an association between BMS and psychiatric symptoms or diagnoses.[12] This exploratory analysis suggests that certain symptoms, in the context of BMS, may be specifically associated with depression or anxiety disorders. Oral symptoms which are associated with the anxiety measure included burning in the mouth and fear of serious illness, which were two of the three symptoms most consistently and strongly reported in participants with BMS compared with those having other diagnoses. In our study we have noticed that, dry mouth cases were 22% followed by 10% feared of serious illness, 18% had occlusal discomfort, 15% had metallic or acidic taste, 11% had oral cenesthopathy.

The prevalence of OLP was higher in drug-naive psychiatric patients (10%) than in medicated patients, while BMS was found to be more prevalent in psychiatric patients who were taking psychiatric medications (25%) than those who were not. Where as in our study we found, after taking psychiatric medication, 15% had BMS followed by 14% had halitophobia, 17% had occlusal discomfort, 9% had oral cenesthopathy.

Conclusion:

Dentists have been battling as the prevalence of psychosomatic problem has increased, and they have been encouraged to embrace a new treatment technique and abandon "brainless dentistry" or "mindless dentistry." The pathogenesis of psychosomatic problem should be researched in collaboration with experts in psychosomatic medicine, with an emphasis on brain-mouth interactions. An essential objective is the education of dentists who are capable of treating not only teeth but also the patient's psychological oral discomfort.

Reference:

1. Leon-Salazar V, Morrow L, Schiffman EL. Pain and persistent occlusal awareness: what should dentists do? J Am Dent Assoc. 2012;143(9):989–91.PubMed PMID: 22942145; PubMed Central PMCID: PMC4526237.
2. Toyofuku A. From psychosomatic dentistry to brain dentistry. Kokubyo Gakkai Zasshi. 2007;74(3):161–8. Review. (in Japanese). PubMed PMID:18027579.
3. Schwartz ES. Metaphors and medically unexplained symptoms. Lancet 2015;386(9995):734–5. doi: 10.1016/S0140-6736(15)61530-6. PubMed PMID: 26333965.
4. Lipsitt DR, Joseph R, Meyer D, Notman MT. Medically unexplained symptoms: barriers to effective treatment when nothing is the matter. HarvRev Psychiatry. 2015;23(6):438–48. doi:10.1097/ HRP. 0000000000000055. PubMed PMID:26378814.
5. Grushka M, Epstein M, Gorsky M. Burning mouth syndrome. Am FamPhysician. 2002;65(4):615–21.
6. Benoliel R. Atypical odontalgia: quo vadis? Quintessence Int. 2013; 44(6):383.doi: 10.3290/ j.qi.a29632. PubMed PMID: 23878850.
7. Barros Vde M, Seraidarian PI, Côrtes MI, de Paula LV. The impact of orofacialpain on the quality of life of patients with temporomandibular disorder. JOrofac Pain. 2009;23(1):28–37. PubMed PMID: 19264033.
8. Durham J, Nixdorf DR. Healthcare pathway and biopsychosocial impact ofpersistent dentoalveolar pain disorder: a qualitative study. Int Endod J. 2014;47(12):1151–9. doi:10.1111/iej.12263. Epub 2014 Mar 20. PubMed PMID:24697333.
9. Davies SJ, Underhill HC, Abdel-Karim A, Christmas DM, Bolea-Alamanac BM, Herrod J, Prime SS. Individual oral symptoms in burning mouth syndromemay be associated differentially with depression and anxiety. Acta OdontolScand. 2015;23:1–6. [Epub ahead of print] PubMed PMID: 26494262.
10. Takenoshita M, Sato T, Kato Y, Katagiri A, Yoshikawa T, Sato Y, Matsushima E,Sasaki Y, Toyofuku A. Psychiatric diagnoses in patients with burning mouth syndrome and atypical odontalgia referred from psychiatric to dental facilities. Neuropsychiatr Dis Treat. 2010;6:699–705.doi:10.2147 /NDT.S12605. PubMed PMID: 21127687; PubMed CentralPMCID: PMC2987502.
11. Valença MM, de Oliveira DA, Martins HA. Alice in Wonderland syndrome, burning mouth syndrome, cold stimulus headache, and HaNDL: narrative review. Headache. 2015;55(9):1233–48. doi:10.1111/ head. 12688. Epub 2015Sep 30. PubMed PMID:26422755.
12. Lee YT, Chen LY, Lee HC. Psychosomatic consideration to the burning mouth syndrome. Psychiatry Clin Neurosci. 2015;69(2): 125–6.doi: 10.1111/pcn.12229. Epub 2014 Aug 27. PubMed PMID: 25070522.

Original Article

A Survey on Indoor Patient Satisfaction Level in a Private Hospital in Dhaka City, Bangladesh

Sayeda SK[1], Mamun MAA[2], Zaman MH[3], Islam NAB[4], Hannan MA[5]

Abstract:

Background: *Patient expression is an important source of information in screening for problems and developing an effective plan of action for quality improvement in health care organizations. Assessing satisfaction has been mandatory for quality control of any hospital.*

Objective: *The objective of this study is to assess the patients' satisfaction level with the indoor facilities in a private hospital of Dhaka City, Bangladesh.*

***Methods*:** *This cross sectional study was conducted in a private hospital of Dhaka city during July 2018 to October 2018 on 100 indoor patients. After taking the informed consent patients were asked to fill up a questionnaire just before they were discharged. Non-probability purposive sampling was done for selection of samples. Data were collected by face to face interview on a semi-structured questionnaire. Data analysis was done in SPSS version 16.5 and excel for windows.*

***Results*:** *Among the 100 respondents 62 were male and 38 were female; 56 of the respondents were in the age group of 31 to 60 years. It was revealed that 58 respondents expressed that the services by reception staffs were good. About 71 patients were allotted cabin/wardinstantly. Also 64 were extremely satisfied with behaviors of doctors, 58 respondents said the behavior of nurses were good. Sixty-nine respondents reported that nurses gave medicine to the patient at exact time, 98 reported that medicines in the hospitals' pharmacy was available at most of the times. Seventy-one respondents said that quality of food was good. Forty-one respondents said that cleanliness was excellent. According to perception regarding charges 41 respondents said very expensive.*

***Conclusion*:** *This study shows that patients admitted in the various wards and cabin of hospital were satisfied with the quality of professional services by doctors, admitted time and availability of medicine and lab technician, but problems lies with the behavior and availibility of the nurses, cleanliness and hospital bill. Overall present study shows that assessing satisfaction of patients is simple, easy and cost effective way for evaluating the hospital services.*

***Keywords*:** *Hospital, Indoor, Patient satisfaction, Hospital service*

Date of received: 05-01-2019
Date of acceptance: 01-11-2019

RDC Journal, January 2020; 8(1): 11-14

Introduction:

The WHO defines hospital as "an integral part of a social and medical organization, the function of which is to provide for the population, complete health care both curative and preventive and whose out-patient services reach out to the family in its home environment."[1] A hospital is a place for the definition and treatment of human illnesses and restoration of health and wellbeing of those temporarily deprived of these. A modern hospital has become a highly scientific and complex medical institution from its age-old concept of a poor house where people left their incurable and dying relatives.[1] Service quality is described as clients' perception of how well it meets or exceeds their expectations (Zenithal et. al., 1990). Thus it is significant for the service organizations to determine what customers expect and then develop services that meet or exceed those expectations. It has been suggested by many researchers that, measurement service quality is a difficult process as it is intangible and is consumed at the time it is production.: In today's highly competitive healthcare environment, hospitals increasingly realize the need to focus on service quality as a means to improve their competitive position.[1] The effect of various predictive factors of patient satisfaction on the quality of health care differs from one country to another and also from one region to another. Today it is well documented that, superior service quality can help gaining sustainable

1. **Dr. Shaikh Kanij Sayeda**, BDS, MPH, Head, Dept. of Rearchers & Development, BRB Hospital, Dhaka
2. **Dr. Md. Abdullah Al Mamun**, Associate Professor & Head, Dept. of Dental Public Health, Rangpur Dental College
3 **Dr. Maruf Hasan Zaman**, Assistant Professor, Dept. of Pedodontics, Rangpur Dental College & Hospital
4. **Dr. Nabira Aftabi Binte Islam,** Assistant Professor, Dept. of Dental Public Health, Dental Unit, Marks Medical College & Hospital, Dhaka
5. **Dr. Md. Abdul Hannan,** BDS, MS (OMS), BCS, Assistant Professor, Dept. of Oral & Maxillofacial Surgery, Dhaka Dental College & Hospital

***For correspondence: Dr. Shaikh Kanij Sayeda**, BDS, MPH, Head, Department of Rearchers & Development, BRB Hospital, Dhaka. Cell: +8801680064258, Email: drkanij.sayeda@gmail.com*

competitive advantage and enhance service efficiency.[2]
It is easier to evaluate the patient's satisfaction towards the service than evaluate the quality of medical services that they receive. Therefore, a research on patient satisfaction can be an important tool to improve the quality of services.[3]
For a health care organization to be successful, monitoring customer's perceptions is a simple but important strategy to assess and improve their performance.[3] Traditionally, the medical profession was expected to maintain high quality of standards in the hospitals. In general, the quality was defined by the clinicians in terms of technical delivery of medical care. However, it appears that infrastructure and attitudes require to be improved significantly in the public-sector hospitals to meet the consumer's expectations.[4] There is a scope for improving services in the hospital. Behavior of hospital staff should be improved by conducting special sessions for behavior change communication. Emphasis should be given to improve cleanliness in the hospital especially in the toilets.[5]
According to Barkat et al. (2003), poor utilization of facilities, cost effectiveness, quality of services etc are the major obstacles for the health care industry of Bangladesh. So to fill these gaps, today the national healthcare system is significantly influenced by the private healthcare sector, even though access to private facilities is limited to certain beneficiaries of medical schemes (Christo et al. 2014). It provides services to people who can afford and ready to pay for them (Redwanur R. 2007).

Problem statement:
In Bangladesh, the private healthcare provides services to those individuals who pay out of their own pocket or work for companies that fund healthcare facilities. So it is important to the management of all private hospitals to provide quality services to their quality conscious patients (Biermann 2006). Over the year enormous studies have indicated that a higher level of service quality can led to high profits, cost savings and high market share (Parasuraman et al. 1985; Rust & Zahorik, 1993; Rundle-Thiele & Russell-Bennett, 2010; Fuller ton & Mc Cul lough 2014). According to these studies it is still remain extremely important in the current competitive market where providers must deliver quality service, effective medical treatment and patient satisfaction by understanding the service quality from the patient's point of view and how to deliver this healthcare services (Christo at el. 2014). In order to retain and further increase the market share in the current economic

Methods:
The present study was conducted at super-specialty hospitals in Dhaka city. It was done over a period of 4 months from July 2018 to October 2018. A sample of 100 indoor patients was taken on a random basis. These patients were asked to fill up a questionnaire just before they were discharged.
Following criteria were considered to test the level of satisfaction among the indoor patients:

- Services available during admission and attitude of the reception staff
- Level of satisfaction among patients regarding communication and efficiency of consultant doctors and resident medical doctors
- Perception regarding availability of basic amenities in the hospital and level of cleanliness
- Opinion regarding the final bill. Patients were also asked if they had any specific complaints or recommendations regarding their stay in the hospital. These were noted down and acted upon after discussion. The surveyed questionnaires were collected and analyzed. Non-probability purposive sampling was done for selection of samples. Data were collected by face to face interview on a semi-structured questionnaire. Data analysis was done in SPSS version 16.5 and excel for windows.

Results:
Among the 100 respondents 62 were male and 38 were female; 56 of the respondents were in the age group of 31 to 60 years. It was revealed that 58 respondents expressed that the services by reception staffs were good. About 71 patients were allotted cabin/ward instantly. Also 64 were extremely satisfied with behaviors of doctors, 58 respondents said the behavior of nurses were good. Sixty-nine respondents reported that nurses gave medicine to the patient at exact time, 98 reported that medicines in the hospitals' pharmacy were available at most of the times. Seventy-one respondents said that quality of food was good. Forty-one respondents said that cleanliness was excellent. According to perception regarding charges 41 respondents said very expensive. According to the service satisfaction level 74 respondents satisfied 75%.

Table-1: Distribution of the respondents according to gender (n=100)

Sex	Frequency	Percentage
Male	62	62
Female	38	38
Total	100	100%

Table-2: Distribution of the respondents according to the age group (n=100)

Sex	Frequency	Percentage
0-30	23	23%
31-60	56	56%
61-90	21	21%
Total	100	100%

Table-3: Distribution of the respondents according to helpfulness at registration desk (n=100)

Registration desk	Frequency	Percentage
Excellent	38	38%
Good	58	58%
Satisfactory	04	04%
Poor	00	00
Total	100	100%

Table-4: Distribution of the respondents according to response time for admission formalities (n=100)

Registration desk	Frequency	Percentage
Instant	71	71%
30 min-1 hour	26	26%
More than 1 hour	03	03%
Total	100	100%

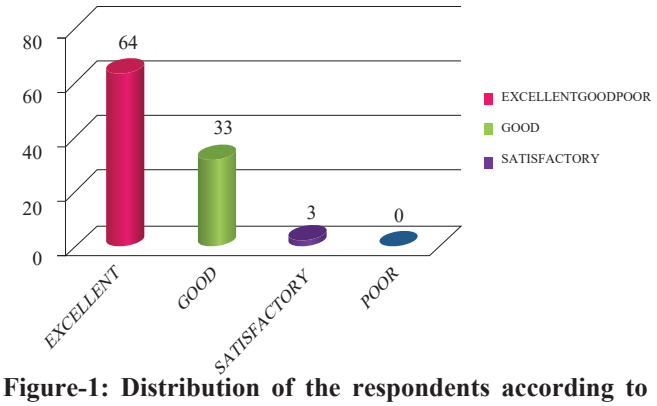

Figure-1: Distribution of the respondents according to the behavior of doctors.

Table-5: Distribution of the respondents according to the behavior of nurses (n=100)

Nurses behaviour	Frequency	Percentage
Excellent	19	19%
Good	58	58%
Satisfactory	14	14%
Poor	09	09%
Total	100	100%

Table-6: Distribution of the respondents according to the taken medicine to patients (n=100)

Nurses behaviour	Frequency	Percentage
Exact time	69	69%
Call the nurse	18	18%
Patient's attendance	13	13%
Total	100	100%

Table-7: Distribution of the respondents according to the availability of lab technician (n=100)

Availability of lab technician	Frequency	Percentage
Yes	97	97%
No	03	03%
Total	100	100%

Table-8: Distribution of the respondents according to the availability of medicine (n=100)

Availability of Medicine	Frequency	Percentage
Yes	98	98%
No	02	02%
Total	100	100%

Table-9: Distribution of the respondents according to the quality of food (n=100)

Quality of food	Frequency	Percentage
Good	71	71%
Satisfactory	23	23%
Poor	06	06%
Total	100	100%

Table-10: Distribution of the respondents according to the cleanliness (n=100)

Cleanliness	Frequency	Percentage
Excellent	41	41%
Good	57	57%
Satisfactory	02	02%
Poor	00	00%
Total	100	100%

Table-11: Distribution of the respondents according to the perception regarding charges (n=100)

Charges	Frequency	Percentage
Very Expensive	40	40%
Expensive	53	53%
Normal	07	07%
Total	100	100%

Table-12: Distribution of the respondents according to the service satisfaction level (n=100)

Satisfaction level	Frequency	Percentage
25%	0	0
50%	16	16%
75%	74	74%
100%	10	10%
Total	100	100%

Conclusion:

Patients are extremely satisfied with helpfulness of registration staff and admission time, availability of medicine and lab technician. They are happy with the attitude and behaviours of the doctors but some problems lie with the attitude of the nurses, cleanliness in the toilets and the wards and also the hospital bill. These findings can

promote improvement in service delivery and expectation of the patients. This assessment will give us an opportunity to find loopholes in our services and future rectification.

References:

1. Sharma RK. Patient satisfaction: a case study of zonal hospital, Mandi (HP). Nursing Midwifery Res J. 2005:1(3):151-8. 14.
2. Dayasiri MBKC, Lekamge ELS. Predictors of patient satisfaction with quality of health care in asian hospitals. Australasian Med J. 2010;3(11):739-44.
3. Kumari R, Idris MZ, Bhushan V, Khanna A, Agarwal M, Singh SK. Study on patient satisfaction in the government allopathic health facilities of Lucknow District, India, Indian J Community Med. 2009;34(1):35-42. 4.
4. Bhattacharya A, Menon P, Koushal V, Rao KLN. Study of patient satisfaction in a tertiary referral hospital.J Academy Hospital Admin. 2003;15(1):2003-6.
5. Mahapatra P, Srilatha S, Sridhar P. A patient satisfaction survey in public hospitals. J Academy Hospital Admin; 2001;13:11-5.
6. Kulkarni MV, Dasgupta S, Deoke AR, Nayse N. Study of satisfaction of patients admitted in tertiary care hospital in Nagpur. National J Community Med. 2011;2(1):37-9.
7. Sharma RK. Patient satisfaction: a case study of zonal hospital, Mandi (HP). Nursing Midwifery Res J. 2005:1(3):151-8. 14.

Note :

1. *6th Public Health Foundation Day Celebration & International Conference 2018: Oral presentation*
2. *20th Asian Bioethics Conference 2019: Poster Presentation*
3. *Annual Conference 2021 of The Public Health Association of Bangladesh : Scheduled for poster presentation*

Original Article

Anti-microbial Effect of Haritaki *(Terminalia chebuli)* Extract Against Dental Carries Causing Bacteria *Streptococcus Mutans*

Mizan RB[1]

Abstract:
There is a long and venerable history of the use of plants to improve dental health and promeote oral hygiene. Dental caries is still remained as a major health problem to people of Bangladesh. The treatment of dental carries is very expensive so alternative low-cost option from plant products are important for the rural people. Haritaki (Terminalia chebuli) is known to people for its medicinal values. The antibacterial activity of methanolic extracts of horitaki fruits were tested against dental caries causing bacteria Streptococcus mutans. It was found that crude extracts of fruits of haritoki have the antibacterial activity against Streptococcus mutans. The crude extract was purified with sillica gel (230-300 mesh) with gradient elution of methanol, ethanol and chloroform. The purified extract of haritoki also showed strong antibacterial activity against dental caries causing bacteria Streptococcus mutans. The rural people of Bangladesh may use the fruits of haritoki to control the dental caries problem locally.

Keywords: *Dental caries, Haritiki, Methanolic extract and Antibacterial*

Date of received: 19-05-2018
Date of acceptance: 01-09-2019
RDC Journal, January 2020; 8(1): 15-18

Introduction:
Dental diseases are recognized as major public health problems throughout the world. According to World Health Organization (WHO) report, dental caries are declining in many industrialized world but it is still an important public health concern to developing countries. The treatment of dental carries is very expensive for the developing countries like Bangladesh. On the other hand, the increasing resistance of pathogenic bacteria has necessitated the need for a global alternative prevention treatment options and products for oral diseases that are safe, effective and affordable (Tichy and Novak, 1998).

Streptococcus mutans belongs to the viridans group of streptococci, and is part of the normal oral flora of man, and is an etiological agent in smooth-surface dental caries (Hamada *et al*., 1980). Streptococci of the mutans group are highly acidogenic; they produce short-chain carboxylic acids which dissolve hard tissues such as dentine and enamel, and are the most carcinogenic pathogens (Shaw, 1987). In addition, they produce insoluble extracellular polysaccharides, which improve their adherence to the tooth surface and encourage biofilm formation by fermenting sucrose (Shen *et al*., 2004).

In drug discovery, most studies have examined on the antimicrobial potential of medicinal plants and other natural products measured as either killing or inhibiting the microbial growth. Natural products including medicinal plants are still major sources of innovative therapeutic agents for the various conditions of human diseases. The populations in rural developing countries rely heavily on traditional healers and medicinal plants as a basis to treat various maladies. The world health organization reported that 80% of the world populations rely mainly on traditional medicine. Herbal medicine of natives in every country forms a major part of the world heritage of the plant material medical (Al-Hussainiand Mahasneh, 2011).

Medicinal plants have been documented for prevention and cure of many systemic diseases since ancient times. With advancements in science and scientific procedures it is now known that plants have potential curative action for oral diseases such as dental caries (Kabra *et al*., 2011). The main objectives of this study were to evaluate the antibacterial activity of haritoki (fruits) extracts against dental caries causing bacteria *Streptococcus mutans*.

1. Dr. Razwana Binte Mizan, Assistant Professor & Head, Depertment of Dental Pharmacology, Rangpur Dental College

For correspondence: Dr. Razwana Binte Mizan*, Assistant Professor, Depertment of Dental Pharmacology, Rangpur Dental College, Rangpur. Cell: +8801717372307, Email: kanizrazwana2@gmail.com*

Materials and methods:

Clinical Sample Collection

Clinical sample for bacteria (*Streptococcus mutans*) was collected from the Outdoor Patients of Rajshahi Medical College & Hospital, Rajshahi during February, 2017. The dental plaque samples (10 nos.) were obtained by swabbing all surfaces of the teeth of a subject, using sterile cotton tipped swabs (Wan *et al*., 2002). The samples were placed into in sterile tubes containing 2ml normal saline which was sealed tightly labeled and transported immediately to the laboratory. The isolation and identification of bacteria was performed in Environmental Microbiology Lab of the Institute of Environmental Science, University of Rajshahi.

Isolation and Identification of Streptococcus mutans Bacteria

The isolation and identification of *Streptococcus mutans* bacteria was done on Mitis-Salivarius (MS) agar medium enriched with 5% sheep blood. The composition of MS agar medium is given in table-1 (Wan *et al*., 2002).

Table-1: Composition of mitis-salivarius (MS) agar medium

Ingredients	Amount
Mitissalivarius agar	90 gm
Potassium tellurite	10 gm
Sucrose	200 gm
Bacitracin	0.2 U
Distilled water	1000 ml

One hundred micro liter of undiluted sample were spread on the surface of MS-agar (Mitis-Salivarius agar) plates using sterile swabs. Cultures were incubated an anaerobically for 48hrs at 37^{0}C and count more than 250 colonies (104 cells/ml) was considered as positive samples. Samples were considered to be positive bacterial isolates about using selective MS agar (Mitis-Salivarius agar) medium. Mitis-salivarius medium is usually used which is composed of mitis-salivarius agar with sucrose and potassium tellurite. It has the ability to inhibit growth of most bacteria, except streptococci, because it contains trypan blue and crystal violet which suppress the growth of gram negative organism. After examination of positive samples on the surface of MS-agar medium, small colonies were sub-cultured on the surface of blood agar (5%) plates for further purification and incubated an anaerobically for two days at 37^{0}C. After preparing 90 mm petridis plate of blood agar base added different antibiotic (azithromycin, amoxicillin, doxycycline, cefradine, tetracycline, levofloxacin) disk and incubated for 24hrs at 37^{0}C bigger the clear zone of antibiotic disc means higher antibiotic sensitivity to *Streptococcus mutans*. Result showed that azithromycin (clear zone 30mm) is sensitive to *Streptococcus mutans*. Finally, the bacterial identification was done by various standard techniques such as shape and size, gram staining, hemolytic pattern, sugar fermentation test, bacitracin sensitivity test and catalase test (Beighton *et al*., 1991).

Plant Sample Collection and Crude Extract Preparation

The fruits of medicinal plant haritoki (*Terminalia chebuli)* were collected from the Botanical Garden of University of Rajshahi. The plant was authenticated by the botanist of the Department of Botany of University of Rajshahi. The plant parts (fruit) were washed first with tap water and later with distilled water. Then it was air-dried for 7-10 days. The dried plant materials were grounded to powder by grinding machine. About 100ml methanol was added to 25gm of powder and shaking for 2-days in shaker machine. After shaking the extract was filtered and the filtrate was evaporated to dryness by Rotary Evaporator at 55 using vacuum pressure.

Purification of crude extract

The crude extract of haritoki fruits was purified by sillica gel (230-300 mesh particle) column using a gradient a solvent system of methanol, ethanol and chloroform. Three solvent systems were used, methanol: chloroform (6:4), methanol: chloroform (9:1) and methanol:ethanol (5:5).

Antibacterial activity test

Antibacterial activity of the extracts was determined by the agar disk diffusion method. *Streptococcus mutans* bacteria were grown on blood agar base medium anaerobically at 37^{0}C for 24hrs. Several colonies of culture bacteria were transferred into blood agar base medium and the density was adjusted to FC Farland standard 0.5 or approximately equivalent to 108 CFU/ml. The density-adjusted bacteria were swabbed on blood agar base medium. After preparing the different concentrations of different extracts each sterile paper disc was impregnated with 10 diluted extracts. The disk was allowed to dry. Using a sterile forceps, the disks were placed on the inoculated blood agar medium. One paper disk on each plate was soaked in methanol as a negative control. One antibiotic (azithromycin) disk was placed on each plate for compare the clear zone of selected extract and antibiotic. Then the plates were incubated in an appropriate atmosphere at 37^{0}C for 24 hrs and the diameter of the inhibition zone was measured. Each test was done in triplicate and the average was recorded.

Results and discussion:

Plants and human are inseparable. The use of plants to alleviate human suffering is as old as the evolution of human civilization itself. From the early stages of human civilization, plants, especially medicinal plants have played a pioneering role for the welfare of human beings. Recently, dramatic changes have taken place in the primary health care system through the development of science, technology and medical science, but till today many peoples of the world are totally dependent on herbal medicine (Chitme *et al.*, 2003). It is revealed that even in the developed countries 25%, of the prescribed drugs come from plant sources, and herbal medicines are used by about 75-80% of the world's population for primary health care because of their better cultural acceptability, better compatibility with human body and lesser side effects (Sofowora,1982).

In Bangladesh, haritoki is recognized as a medicinal plant for its disease healing properties. Therefore, systematic and scientific study of haritoki fruits on dental caries causing bacteria are important to justify the medicinal value of haritoki plant. From this study, it was found that methanolic

extracts of haritoki fruits have strong antibacterial activity against dental caries causing bacteria *Streptococcus mutans*, zone of inhibition 19.1 mm for fruits (Table-2).Tazeena *et al.* (2012) tested the antimicrobial activity of ethanolic extracts of leaf and bark of *Azadirachta indica*, bark of *Vitex negundo*, leaves of *Spinacia oleracea*, fruits of *Momordica charantia, Phyllanthus embilica, Piper nigrum*, and *Tamarindus indica*, rhizome of *Curcuma longa* and *Zingiber officinale* against *Streptococcus mutans* and found considerable zone of inhibition for three extracts of *Curcuma longa*, *Tamarindus indica* and *Phyllanthus embilica*.

Table-2. Anti-bacterial activity of crude haritoki *(Terminalia chebuli)* extract against *Streptococcus mutans*

Name of plants	Scientific name	Concentration of plant extracts/disk (ig)	Zone of inhibition (mm)		
			Extract (10 il)	Antibiotic 15 ìg	Negative control (10il methanol)
Haritoki fruits	*Terminaliachebuli*	2000	19.1	29.7	0

After preliminary findings of antibacterial activities of high dose (2000g/disk) of crude extract of haritoki, a dose-dependent (250g – 2000g) activity test was carried out to find out the lowest concentration of crude extract against *Streptococcus mutans*. Antibacterial activity was found to decrease with decreasing of extract concentration (Table-3). Prashanth *et al.* (2007) reported dose dependent zone of inhibition for *Mangifera indica* against *Streptococcus mutans* at 10% and 50% concentrations were 1.5mm and 2.9mm, respectively.

Haritoki fruits extract showed higher antibacterial activity against *Streptococcus mutans*. Therefore, crude extract of haritoki fruits (without seeds) was purified by sillica gel (230-300 mesh particle) column using a gradient a solvent system of methanol, ethanol and chloroform. Out of three solvent systems, methanol: chloroform (9:1) was found suitable for the purification of bioactive compounds from the crude extract of haritoki fruits. The collected fraction in T4 and T5 tubes of this solvent system showed strong antibacterial activity against *Streptococcus mutans* with zone of inhibition 20-22 mm (Table-4).

Table-3: Dose-effect of crude haritoki *(Terminalia chebuli)* extractagainst *Streptococcus mutans*

Name of plants	Scientific name	Concentration of plant extracts/disk & zone of inhibition				Antibiotic 15 ìg	Negative control (methanol) 10il
		2000 ìg	1000 ìg	500 ìg	250 ìg		
Haritoki (fruit)	*Terminalia chebuli*	20.2mm	19.1mm	18.5mm	15.1mm	28.9mm	0mm

Table-4: Anti-bacterial activity of column purified extract of haritoki *(Terminalia chebuli)* fruits (without seeds) against *Streptococcus mutans*

Solvent	Ratio	Test tube nos.	Extract solvent ml	Weight of extract, mg	Concentration/ disk Ìg	Zone of inhibition (mm)	Control (methanol)
Methanol: Chloroform	6:4	T1	10	257.0	250	0	0
		T2	10	150.0	250	0	0
		T3	10	579.0	250	0	0
Methanol: Chloroform	9:1	T4	10	452.0	250	20	0
		T5	10	789.0	250	22	0
		T6	10	246.0	250	0	0
Methanol: Ethanol	5:5	T7	10	116.0	250	0	0
		T8	10	117.0	250	0	0
		T9	10	209.0	250	0	0

Conclusions:

The extracts of haritoki (*Terminalia chebuli)* showed strong anti-bacterial activity against dental caries causing bacteria *Streptococcus mutans*. Therefore, the peoples of Bangladesh are suggested to use the fruits of haritoki to control the dental caries problem locally.

Acknowledgements:

The authors are greatly acknowledged the generous help of the Department of Microbiology of Rajshahi Medical College, Bangladesh. The authors are also grateful to the Department of Veterinary and Animal Husbandry Sciences of University of Rajshahi for supplying sheep blood during this research.

References:

1. Al-Hussaini, R and Mahasneh, A. M. 2011. Antibacterial and antifungal activity of ethanol extract of different parts of medicinal plants in Jordan. *Jordan Journal of Pharmaceutical Sciences*, 4(1), p.110-114.
2. Beighton, D.; Hardie, J.M. and Whiley, R.A. 1991. A scheme for the identification of Viridans Streptococci. *J. Med. Microbiol*., 35: 367-372.
3. Chitme,H. R.;Chandra, R. and Kaushik, S. 2003. Studies on anti-diarrheal activity of *Calotropis gigantea* R. Br. in experimental animals," *Journal of Pharmacy & Pharmaceutical Sciences*, Vol. 7, pp. 70–75.
4. Hamada, S. and Slade, H. D.1980. Biology, immunology, and carcinogenicity of *Streptococcus mutans*. *Microbiol. Rev*. 44:331-384.
5. Prashant, G. M.;Chandu, G. N.;Murulikrishna, K.S. and Shafiulla, M. D. 2007. The effect of mango and neem extract on four organisms causing dental caries: *Streptococcus mutans*, *Streptococcus salivavius*, *Streptococcus mitis* and *Streptococcus sanguis*: An *in vitro* study. *Indian J Dent Res*., 18:148– 51.
6. Shaw, J.H. 1987. Causes and control of dental caries. *N Engl. J. Med*., 317(16): 996–1004.
7. Shen, S., Samarnayake, L.P. and Yip, H.K. 2004. In-vitro growth, acidogenicity and carcinogenicity of predominant human root caries flora. *J Dent*; 37: 667–78.
8. Sofowora, A. 1982. Medicinal plants and traditional medicine in Africa. John Wiley & Sons Limited, New York.
9. Tazeena, H. I.; Azad, A.H.B.; Akter, S. and Datta, S. 2012. Antimicrobial activity of medicinal plants on *Streptococcus mutans*, a causing agent of dental caries. *International Journal of Engineering Research & Technology,* Vol. 1 (10): 1-6.
10. Tichy, J. and Novak, J. 1998. Extraction, assay, and analysis of antimicrobials from plants with activity against dental pathogens (*Streptococcus* sp.). *The Journal of Alternative and Complementary Medicine*, 4 (1): 39-45.
11. Wan, A. K. L.; Seow, W. K.; Walsh, L. J. and Bird, P. S. 2002. Comparison of five selected media for the growth and enumeration of *Streptococcus mutans*. *Australian Dental Journal*, 47 (1): 21-26.

Original Article

Health Seeking Behaviors of Parents Having Children with Autism and Assessment of Parent's Satisfaction on Health Facilities

Ahmad MS[1], Rahman MZ[2], Mamun MAA[3], Hannan MA[4], Akther F[5]

Abstrct:

Introduction: *Health seeking behavior of the parents having children with autism is essential to provide and develop need-based health care delivery to any population. Proper understanding of health seeking behavior could reduce delay to diagnosis, improve treatment cooperation and improve health promotion strategies.*

Objective: *The main objective of the study is to find out the health seeking behavior of the parents having children with autism and to assess the parents' satisfaction on services provided by hospitals in Shishu Bikash Kendra of Shaheed Suhrawardy Medical College Hospital and Dhaka Shishu (Children) Hospital.*

Methodology: *The study was conducted for 1 year from 1st January 2013 to 31st December 2013. It was a cross-sectional descriptive study conducted among 120 parents having children with autism were selected purposively. A semi-structured questionnaire was used for data collection through face to face interview. Data were analyzed precisely with the help of SPSS (version 21) software.*

Results: *In this study the mean age of respondents is 33.28±7.454 among them 43% respondents are female and 57% are male, 46.7% are living in urban and 53.3% are from rural area. About 34.8% urban and 5.6% from rural parents seeking health from national level for the first time, after observing the unusual behavior of the child. 68.5% rural and 4.5% from urban parents are going to upazila level. Parents satisfaction regarding dealing of doctor 45% of parents are highly satisfied, 29.2% are very satisfied, 23.3% are fully satisfied 1.7% are some satisfied, 0.8% of parents are poorly satisfied. Respondents reported a high level of satisfaction with their healthcare specially dealing with doctors and nurses.*

Conclusion: *The information about health seeking behavior of the parents having children with autism and its relationship with health systems can discover a new strategy for upazilla health complex. As this study reveals that the rural people are more likely to visit the upazilla health complex and there is almost no specialist like neurologist or psychologist for autism diagnosis or treatment. It is important for health center to ensure that staff understand how to interact with patient with autism and their families.*

Keywords: *Aautism, Autism spectrum disorders (ASD), Parents satisfaction*

Date of received: 02-05-2017
Date of acceptance: 01-09-2019
RDC Journal, January 2020; 8(1): 19-24

Introduction:

Autism is defined by the Autism Society of America (ASA) as: "Autism is a complex developmental disability that typically appears during the first three years of life and is the result of a neurological disorder that affects the normal functioning of the brain, impacting development in the areas of social interaction and communication skills. Both children and adults with autism typically show difficulties in verbal and non-verbal communication, social interactions, and leisure or play activities'.

Autism is a disorder of neural development characterized by impaired social interaction and verbal and non-verbal communication, and by restricted, repetitive or stereotyped behavior. The diagnostic criteria require that symptoms become apparent before a child is three years old. (American Psychiatric Association, 2000). Autism affects information processing in the brain by altering how nerve cells and their synapses connect and organize; how this occurs is not well understood. (Levy SE, 2009)

1. **Dr. Mohammad Sayeed Ahmad**, BDS, MPH (NIPSOM), Associate Professor, Dept. of Dental Public Health, Rangpur Dental College
2. **Dr. Md. Zahedur Rahman**, BDS, DDS (BSMMU), Assistant Professor & Head, Dept. of Science of Dental Materials, Rangpur Dental College
3. **Dr. Md. Abdullah Al Mamun**, BDS, MPH (NIPSOM), Associate Professor & Head, Dept. of Dental Public Health, Rangpur Dental College
4. **Dr. Md. Abdul Hannan,** BDS, MS (OMS), BCS, Assistant Professor, Dept. of Oral & Maxillofacial Surgery, Dhaka Dental College & Hospital
5. **Dr. Fatema Akther**, BDS, MPH (NIPSOM), Consultant, Dental World

***For correspondence: Dr. Md. Zahedur Rahman**, BDS, DDS (BSMMU), Assistant Professor & Head, Department. of Science of Dental Materials, Rangpur Dental College, Cell: 01612-561780, Email: dr.zahedur1998@gmail.com*

It is one of three recognized disorders in the autism spectrum (ASDs), the other two being Asperger syndrome, which lacks delays in cognitive development and language, and pervasive developmental disorder, not otherwise specified (commonly abbreviated as PDD-NOS), which is diagnosed when the full set of criteria for autism or Asperger syndrome are not met (Johnson CP, 2007). Autism has a strong genetic basis, although the genetics of autism are complex and it is unclear whether ASD is explained more by rare mutations or by rare combinations of common genetic variants (Abrahams BS, 2008). In rare cases, autism is strongly associated with agents that cause birth defects. (Arndt TL, 2005). Controversies surround other proposed environmental causes, such as heavy metals, pesticides or childhood vaccines; the vaccine hypotheses are biologically implausible and lack convincing scientific evidence (Gerber JS, 2009)".

The prevalence of autism is about 1–2 per 1,000 people world wide, and it occurs about four times more often in boys than girls (Newschaffer CJ, 2007). The Centers for Disease Control and Prevention (CDC) report 20 per 1,000 children in the United States are diagnosed with ASD as of 2012, up from 11 per 1,000 in 2008. The number of people diagnosed with autism has been increasing dramatically since the 1980s, partly due to changes in diagnostic practice and government-subsidized financial incentives for named diagnoses (Stephen J. March 2013). The signs usually develop gradually, but some autistic children first develop more normally and then regress. Early behavioral, cognitive, or speech interventions can help autistic children gain self-care, social, and communication skills. Although there is no known cure, (Myers SM, 2007).

World Health Organization explains that, Autism spectrum disorders (ASD), are a group of complex brain development disorders. This umbrella term covers conditions such as autism, childhood disintegrative disorder and Asperger syndrome. These disorders are characterized by difficulties in social interaction and communication and a restricted and repetitive repertoire of interests and activities. The level of intellectual functioning is extremely variable in persons with autism spectrum disorder ranging from profound impairment to superior non-verbal cognitive skills. It is estimated that around 50% of persons with ASD also suffer from an intellectual disability. The identification of an autism spectrum disorder is difficult before the age of about 12 months but diagnosis is ordinarily possible by the age of two years. Characteristic features of the onset include delay in the development or temporary regression in language and social skills and repetitive stereotyped patterns of behavior. Parents have an essential role in providing support to children with autism. They can help to ensure access to health services and education, and offer the affection and care needed as the child grows up. Recently, it has been shown that parents can also successfully deliver psychosocial and behavioral treatments to their own children (World Health Organization, September 2013).

The word "Autism" was not well known in Bangladesh before the last decade. People are not aware about disability with autism except the urban parents having autistic children. They are different from the other people of the society in respect of social and emotional behavior. Again, set of common developmental disorders are also known as Autism Spectrum Disorders, ASD. According to the Centers for Disease Control and Prevention (CDC) the rate of prevalence of ASD is 1/110 (CDC, 2009). Most of the children with Autism may show very few symptoms of it, when they reach their teen and adult years. Autistic children may have various types of symptoms or disabilities in various areas especially in the area of social communication skills, gross motor skills and sometimes intellectual skills. Though Autism is a life long disability, it appears in early childhood and it has an adverse effect in the education. According to the screening description of the University of Iowa the autistic children may be delayed in learning communicative behaviors as well as social interactions skills. They may not like to share information with others. Sometimes they prefer to be isolated as they have their own world. They are not conscious about their surroundings. Autistic children may do some aggressive behaviors like biting, screaming, hitting, kicking etc if they are confused (Kalim, T.10 January 2012).

It was found that autism was commonly occurs in the families where first and second degree relatives are engaged in some kind of object centered fields like engineering, physics or mathematics comparing to those who worked in the field of humanities (Baron- Cohen, 1998). It is impossible to estimate the economical cost of Autism affected the families including the emotional strains and altered lifestyles (Newschaffer, 2003). Recently, Bangladesh is also trying to create awareness about autism and autistic children, as it has become a social issue. There are a few trained parents of autistic children, who learn about autism and know how to deal with the autistic children (Bangladesh country paper). According to the estimation of Ministry of Social Welfare, there is a lack of knowledge about ASDs even among doctors. Very often, children are misdiagnosed and given antipsychotic drugs by psychiatrists. In Bangladesh, there are only 20 schools for disabled children; all of them are situated in the capital city of Dhaka (Autism in Bangladesh, February 2011).

This is true in a country with limited financial resources such as Bangladesh. While we are yet doesn't know the reliable statistic for autism prevalence in Bangladesh, and while resources and infrastructure may be scarce, there is no justification for in action. In fact, it is the very high time for us to act health seeking behavior of the parents having children with autism right now. Because health seeking behavior is essential to provide and develop need-based health care delivery to any population which eliminate socioeconomic disparities.

Methodology:

The study was a descriptive cross sectional study to find out the health seeking behaviors of parents having children with autism and to assess the satisfactions of the parent in getting

health facilities. Parents having children with autism who come to Shishu Bikash Kendra of Shaheed Suhrawardy Medical College Hospital and Dhaka Shishu (Children) Hospital and willing to participate in the interview are the study population.The study was conducted for 1 (one) year from 1st January 2013 to 31st December 2013. There was no rigidity about the sample size, as study population was selected purposively, sample size was 120. Semi-structured questionnaire was used to collect information from the parents having children with autism. The instruments were prepared keeping in view the objectives and variables of the study. Data were collected through face-to-face interview. Then the master tabulation sheet was prepared after proper checking, verifying and editing asperspecific objective and key variables. All data were entered and analyzed by using Statistical Packages for Social Science (SPSS) software version 21.0. The statistics purpose was done by SPSS. Then the data presentation was perfectly done by using table and graph.

In this research the parents were asked to give marks from 1 to 5 for the service of this hospital then I determine, 1= Poorly Satisfied, 2=Some Satisfied, 3=Very Satisfied, 4= Highly Satisfied, 5=Fully Satisfied. Again, the satisfaction of the parents regarding the service of present hospital is classified into 5 classes i.e. ≤25%=Poorly Satisfied, 26-50%=Some Satisfied, 51-75%=Very Satisfied, 76-95%= Highly Satisfied, ≥96%=Fully Satisfied.

Results:

This descriptive cross-sectional study was conducted and the main objective of the study is to find out the health seeking behavior of the parents having children with autism in Shishu Bikash Kendra of Shaheed Suhrawardy Medical College Hospital and Dhaka Shishu (Children) Hospital. The study was conducted for 1 (one) year. It was a cross-sectional descriptive study conducted among 120 parents having children with autism. A semi-structured questionnaire was used for data collection through face-to-face interview. The collected data were processed and analyzed precisely with the help of SPSS (version 21) software and presented by tables and figures.

Table-1: Distribution of respondents according to their age (n=120)

Age Group (In Year)	Frequency	Percent
18-27	26	21.7
28-37	61	50.8
38-47	28	23.3
48-57	4	3.3
≥58	1	0.8
Total	120	100

Table-1 shows that the respondents are grouped into five different age groups. Among them 28-37 years is 50.8%, 38-47 years is 23.3%. 18-27 years is 21.7%, and 48-57 years 3.3% and .8% is ≥58 years. Minimum age: 18 years, Maximum age: 58 years, , Mean: 33.28, Median: 31.00 SD:±7.454,

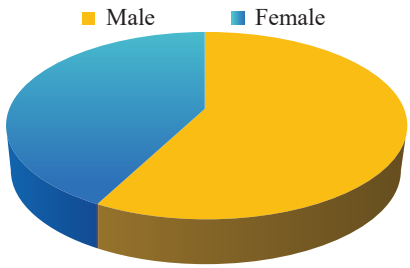

Figure-1: Distribution of children with autism according to their sex

Figure-1 shows the sexual variation among the respondents. According to the study 43% respondents are female, where 57% are male.

Table-2: Distribution of respondent according to their opinion on residence (n=120)

Residence	Frequency	Percent
Urban	56	46.7
Rural	64	53.3
Total	120	100

The Table-2 shows the residence of the respondent . Among them 46.7% are living in urban and 53.3% are from rural area.

Table-3: Distribution of health facilities visited by parents primarily after observing unusual behavior of child regarding residence of parents (n=120)

Health Facility	Rural		Urban	
	Frequency	Percent	Frequency	Percent
Level	5	9.3%	17	25.8%
Divisional Level		0.0%	6	9.1%
National Level	3	5.6%	23	34.8%
Private Hospital & Clinic	1	1.9%	16	24.2%
Union Level	6	11.1%		0.0%
Upazila Level	37	68.5%	3	4.5%
Ward Level	2	3.7%	1	1.5%
Grand Total	54	100.0%	66	100.0%

Table-3 shows 34.8% urban parents seeking health from national level, for the first time, after observing the unusual behavior of the child. where 5.6% from rural. 68.5% rural parents are going to upazila level, where 4.5% from urban.

Table-4: Parents satisfaction according to their opinion regarding sitting arrangement of patient and attendant (n=120)

Satisfaction	Frequency	Percent
Poorly Satisfied	3	2.5
Some Satisfied	11	9.2
Very Satisfied	54	45
Highly Satisfied	40	33.3
Fully Satisfied	12	10
Total	120	100

Table-4 reflects parents satisfaction regarding sitting arrangement of Patient and attendant. According to their opinion, 45% are very satisfied, 33% of parents are highly satisfied, 10% are fully satisfied, 9.2% are some satisfied, 2.5% are poorly satisfied.

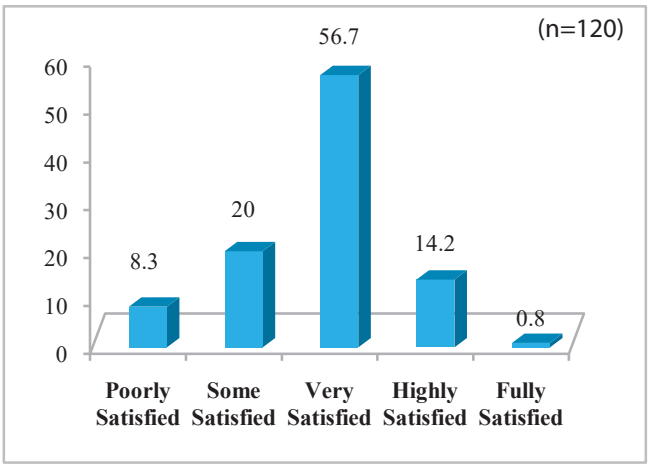

Figure-2: Parents satisfaction according to their opinion regarding waiting time for getting treatment

Figure-2 shows parents satisfaction regarding waiting time for getting treatment. According to their opinion, 56.7% of parents are very satisfied, 20% are some satisfied, 14.2% of parents are highly satisfied, 8.3% are poorly satisfied, 0.8% are fully satisfied.

Table-5: Parents satisfaction according to their opinion regarding dealing of doctor (n=120)

Satisfaction	Frequency	Percent
Poorly Satisfied	1	0.8
Some Satisfied	2	1.7
Very Satisfied	35	29.2
Highly Satisfied	54	45
Fully Satisfied	28	23.3
Total	120	100

Table-5 shows parents satisfaction regarding Dealing of Doctor. According to their opinion, 45% of parents are highly satisfied, 29.2% are very satisfied, 23.3% are fully satisfied 1.7% are some satisfied, 0.8% of parents are poorly satisfied.

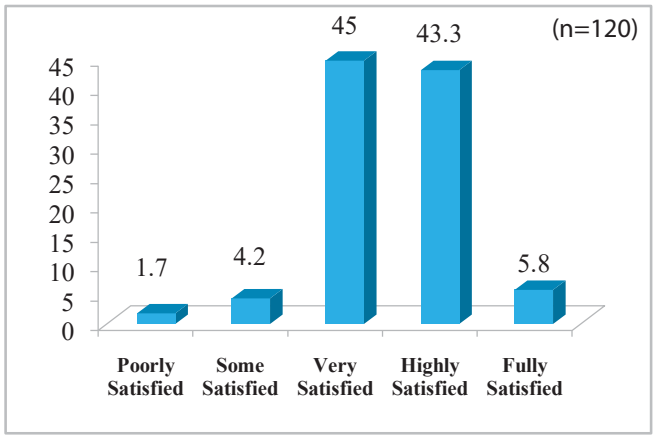

Figure-3: Parents satisfaction according to their opinion regarding dealing of nurses

Figure-3 shows parents' satisfaction regarding dealing of nurses. According to their opinion, 45% of parents are very satisfied, 43.3% are highly satisfied, 5.8% are fully satisfied 4.2% are some satisfied, 1.7% of parents are poorly satisfied.

Table-6: Parents satisfaction according to their opinion regarding medicine cost (n=120)

Satisfaction	Frequency	Percent
Poorly Satisfied	15	12.5
Some Satisfied	33	27.5
Very Satisfied	47	39.2
Highly Satisfied	16	13.3
Fully Satisfied	9	7.5
Total	120	100

Table-6 shows parents satisfaction regarding medicine cost. According to their opinion, 39.2% of parents are very satisfied, 27.5% are some satisfied, 13.3% are highly satisfied, 12.5% of parents are poorly satisfied, 7.5% are fully satisfied.

Figure-4: Parents satisfaction according to their opinion regarding diagnostic cost

Figure-4 shows parents satisfaction regarding diagnostic cost. According to their opinion, 38.3% of parents are very satisfied, 30.8% are some satisfied, 20.8% of parents are poorly satisfied, 8.3% are highly satisfied, 1.7% are fully satisfied.

Table-7: Parents satisfaction according to their opinion regarding the service provided in the hospital (Study site)

Service area	Score	Satisfaction
Overall cleanliness of the hospital	74.33	Very Satisfied
Behavior of the receptionist	78.50	Very Satisfied
Sitting arrangement of patient and attendant	78.66	Very Satisfied
Waiting time for getting treatment	70.16	Very Satisfied
Dealing of doctor	89.83	Highly Satisfied
Dealing of nurses	79.83	Highly Satisfied
Dealing of registration Clerk	72.16	Very Satisfied
Dealing of MLSS/ Aya	73.66	Very Satisfied
Medicine cost	69.33	Very Satisfied
Diagnostic cost	59.33	Very Satisfied

Table-7shows that parents are very satisfied with most of the service area. Especially they are highly satisfied with the dealing of doctor and nurses.

[In this research respondents were asked to give marks from 1 to 5 for the service of this hospital then determine, 1 =Poorly Satisfied, 2=Some Satisfied, 3=Very Satisfied, 4=Highly Satisfied, 5=Fully Satisfied. Again the satisfaction of the parents regarding the service of present hospital is classified into 5 classes i.e. ≤25%=Poorly Satisfied, 26-50%=Some Satisfied, 51-75%=Very Satisfied, 76-95%=Highly Satisfied, ≥ 96%=Fully Satisfied.]

Discussion:

Health seeking behavior is initiated with symptom identification, and based on symptom a strategy for treatment action is devised. Treatment choice involves a lot of factors related to illness like type and severity, pre-existing lay beliefs or traditional beliefs about illness, availability, accessibility, acceptability, and quality of therapeutic options, where the underlying determinants like age, gender, education, residence, occupation of the sick individual or the parents and satisfactions of the individual on services provided by health providers plays very important role in getting treatment.

The socieo-demographic variables are very strongly related with health seeking behavior of the parents. Respondents are grouped into five different age groups 28-37 years is 50.8%, 38-47 years is 23.3%. 18-27 years is 21.7%, and 48-57 years 3.3% and .8% is ≥58 years. Minimum age: 22 years, Maximum age: 58 years, Mean: 33.28, Median: 31.00 SD:±7.454. Among them 43% respondents are female, where 57% are male (Figure-1) 46.7% are living in urban and 53.3% are from rural area (Table-2).

After observing the unusual behavior of the child this study reveals the scenario of very initial symptoms that make parents to consult with physician regarding their child 34.8% urban parents seeking treatment from national level, for the first time where 5.6% from rural. 68.5% rural parents are going to upazila level, where 4.5% from urban (Table-3). This study exposes that, about two-third of urban parents are seeking health from medical doctor, for their child with autism for the first time but this study also disclose another dimension, that is among the rural parents more than two-third (70.3%) are seeking health from non-medical option.

Parents satisfaction regarding sitting arrangement of patient and attendant according to their opinion, 45% are very satisfied, 33% of parents are highly satisfied, 10% are fully satisfied, 9.2% are some satisfied, 2.5% are poorly satisfied (Table-4). Parents satisfaction regarding waiting time for getting treatment according to their opinion, 56.7% of parents are very satisfied, 20% are some satisfied, 14.2% of parents are highly satisfied, 8.3% are poorly satisfied, 0.8% are fully satisfied (Figure-2).

According to their opinion regarding dealing of doctor, 45% of parents are highly satisfied, 29.2% are very satisfied, 23.3% are fully satisfied 1.7% are some satisfied, 0.8% of parents are poorly satisfied (Table-5). Regarding dealing of nurses 45% of parents are very satisfied, 43.3% are highly satisfied, 5.8% are fully satisfied 4.2% are some satisfied, 1.7% of parents are poorly satisfied (Figure-3).

This study also found that regarding medicine cost 39.2% of parents are very satisfied, 27.5% are some satisfied, 13.3% are highly satisfied, 12.5% of parents are poorly satisfied, 7.5% are fully satisfied (Table-6) and regarding diagnostic cost 38.3% of parents are very satisfied, 30.8% are some satisfied, 20.8% of parents are poorly satisfied, 8.3% are highly satisfied, 1.7% are fully satisfied (Figure-4). Parents are very satisfied with most of the service area. Especially they are highly satisfied with the dealing of doctor and nurses.

Conclusion:

The process of responding to 'illness' or seeking care involves multiple steps (Uzma et al, 1999), health seeking behavior as a tool for describing how individuals engage with health system and services. Using the information about health seeking behavior of the parents having children with autism and its relationship with health system scan discover a new strategy for upazilla health complex. As this study reveals that the rural people are more likely to visit the upazilla health complex and there is almost no specialist like neurologist or psychologist for autism diagnosis or treatment.

References:

1. Abrahams BS, Geschwind DH. Advances in autism genetics: on the threshold of a new neurobiology. *Nature Reviews Genetics*. 2008;9(5):341–55. doi:10.1038/ nrg 2346. PMID 18414403.
2. Aman MG. Treatment planning for patients with autism spectrum disorders. *J Clin Psychiatry*. 2005;66(Suppl 10):38–45.
3. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: DSM-IV*. 4 ed. Washington, DC: American Psychiatric Association; 2000. ISBN 0-89042-025-4. OCLC 768475353.

4. Arndt TL, Stodgell CJ, Rodier PM. The teratology of autism. *Int J Dev Neurosci*. 2005;23(2–3):189–99.
5. Autism in Bangladesh. from Available: http://www.autismiliitto.fi/projektit/bangladesh-projekti/the_prerona_ project/autism_in_bangladesh Retrieved February 5, 2011.8:34pm.
6. Bangladesh leadership in Autism is exemplary. (Apr 6, 2011). *'Bangladesh leadership in Autism is exemplary' says Autism Speaks Co - founders at the NYSE Opening Bell.*. Available: http://www.un.int/ wcm/ webdav/ site/ bangladesh/ shared/ files/ Autism-NYSE-2.pdf. Last accessed 13-feb-14, 8:59pm.
7. Baron- Cohen, S. (1998). Autism occurs more often in families of physics, engineers, and mathematicians. Department of Experimental Psychology and Psychiatry. University of Cambridge. Cambridge. p. 296-301.
8. Baron-Cohen S. The hyper-systemizing, assortative mating theory of autism [PDF]. *Prog Neuropsychopharmacol Biol Psychiatry*. 2006 [archived 2012-05-12];30(5):865–72.
9. Centers for Disease Control and Prevention (CDC). (2009). Prevalence of autism spectrum disorders-Autism and Developmental Disabilities Monitoring Network, United States, 2006 (Surveillance Summaries), 58 (10), 1-20.
10. Gerber JS, Offit PA. Vaccines and autism: a tale of shifting hypotheses. *Clin Infect Dis*. 2009;48(4):456–61.
11. Johnson CP, Myers SM, Council on Children with Disabilities. Identification and evaluation of children with autism spectrum disorders. *Pediatrics*. 2007;120(5):1183–215.
12. Kalim,T. (10 January 2012 14:31). *Autism: A Public Health Issue.* Available: http://www.bdeduarticle.com/inclusive-education/54-uncatagorized/230-autism-a-public-health-issue. Last accessed 14-feb-2014, 6:25am.
13. Levy SE, Mandell DS, Schultz RT. Autism. *Lancet*. 2009;374(9701):1627–38. doi:10.1016/ S0140-6736 (09)61376-3. PMID 19819542.
14. Myers SM, Johnson CP, Council on Children with Disabilities. Management of children with autism spectrum disorders. *Pediatrics*. 2007;120(5):1162–82.
15. Newschaffer, C. J. & Curran, L K. (2003). Autism: An Emerging Public Health Problem, Public Health Reports, 118(5).
16. Stephen J. Blumberg, Ph.D., et al..Changes in Prevalence of Parent-reported Autism Spectrum Disorder in School-aged U.S. Children: 2007 to 2011–2012. *National Health Statistics Reports*. March 2013;(65).
17. World Health Organization. (September 2013). *Questions and answers about autism.* Available: http://www.who.int/ features/qa/85/en/. Last accessed 14th Feb 2014, 9:25am.
18. World Health Organization. (November2013). *The right to health.* Available: http://www.who.int/mediacentre/factsheets/fs323/en/. Last accessed 8th Feb 2014, 8:50am.

Original Article

Outcome of Breech Deliveries Between the Primiparous and Multiparous Women Two Years Experience in a Tertiary Care Hospital

Mousumi Rani Basak[1], Avijit Sharker[2], Nirmalay Roy[3], Prianka Modak[4], Ranjit Basak [5], Audhindra Nath Sarker[6]

Abstract:

Background*: Breech is the commonest mal-presentation where increased perinatal and maternal mortality and morbidity are reported compared to cephalic presentation. This unwanted outcome can only be prevented by planned delivery methods.*

Objective*: The objective of the study was to evaluate both the maternal and fetal outcome of breech delivery of both primiparous and multiparous women admitted in a tertiary care hospital.*

Methods: *This prospective observational study was done at the Department of Obstetrics & Gynecology of Rangpur Medical College & Hospital. Appropriate cases of breech presentation were included and all necessary information was noted including predictive factors, management details and outcome of the delivery.*

Results*: During the study period, total 1621 neonates were delivered. Among them 104 (6.41%) were in breech presentation. Among those cases, vaginal deliveries were 10 out of 53 patients (18.9%) in primiparas compared with 18 out of 51 (35.3%) in multiparas mothers. Successful vaginal deliveries were observed high (45%) in multiparous mothers. Regarding the fetal outcome, 28.3% (15/53) neonates delivered with complications in primiparous compared with 19.6% (10/51) in multiparous women. There was no difference in the rates of fetal birth asphyxia between neonates of primiparous and the neonates of multiparous (46.68% vs 50.0%, respectively; p=0.162). But birth traumas were significantly more frequent in the primiparous compared with multiparous (40.0% versus 30.0%, p=0.023). Higher percentage (43.4%) of neonates needed admission in primiparas group compared with 33.3% in multiparas; that is 69 statistically significant (p=012). Majority of the neonates admitted in neonatal ward due to birth asphyxia in both of the groups (39.1% in primiparas versus 41.1% in multiparas mothers).*

Conclusion*: Higher percentage of multiparas women suffered from different morbidities compared to primiparas that is statistically significant as a whole (p<0.05). Maternal complications in puerperium were higher in multiparas compared to primiparas that is statistically significant (p<0.05). Proper planning of delivery methods is important to decrease both the maternal and fetal morbidities and mortality irrespective of parity.*

Keywords: *Breech deliveries, Primiparous and multiparous women*

Date of received: 10-06-2018
Date of acceptance: 01-10-2019
RDC Journal, January 2020; 8(1): 25-31

Introduction:

Vertex is the usual presentation at the time of parturition. Breech is the commonest mal-presentation which is defined as the initial entrance of the gluteal region, rather than cephalic region, of the fetus into maternal pelvis. The incidence of breech presentation is 25% before week 28, 7% at week 32 and 3-4% at 38-40 weeks of gestation.[1-3] In pregnancies complicated by breech presentation, perinatal mortality, neonatal mortality or serious neonatal morbidity are increased as compared to pregnancies where the fetes is in cephalic position.[2,3,4]

This is a usual practice in Bangladesh to do the caesarean section to deliver the baby in breech presentation, although vaginal breech delivery is not an uncommon practice. Over the last three decade, it has been realized that breech presentation may well be a bad prognostic factor. It is thought that there is a higher peri-natal & maternal mortality and morbidity with breech presentation than for the fetus in a cephalic presentation.[5,6] In one study, it shows that irrespective of gestational age and low birth weight, the peri-natal mortality was higher in breech groups than in the vertex group.[7] But, every parent has a high expectation for

1. **Dr. Mousumi Rani Basak**, Assistant Professor (CC), Dept of Obstetrics & Gynecology, Rangpur Community Medical College & Hospital
2. **Dr. Avijit Sharker**, Intern Doctor, Sir Salimullah Medical Collge & Hospital, Dhaka
3. **Dr. Nirmalay Roy**, Medical Officer, International Organization of Migration (IOM)
4. **Dr. Prianka Modak**, Intern Doctor, Sir Salimullah Medical Collge & Hospital, Dhaka
5. **Dr. Ranjit Basak**, Professor, Dept of Paediatrics, Rangpur Community Medical College & Hospital
6. **Dr. Audhindra Nath Sarker**, Medical Officer, Maternal & Child Health & Family Planning, Boda, Panchagar

For correspondence: Dr. Mousumi Rani Basak*, Assistant Professor, Dept of Obstetrics & Gynecology., Rangpur Community Medical College & Hospital, Rangpur. Cell: +8801716859180, Email: mousumibasak55@gmail.com*

the best outcome of pregnancy-a healthy baby and mother. Later, it is realized that the peri-natal morbidity and mortality can be reduced by planned delivery methods.[3,8]

Here, parity is an important factor in considering delivery methods in breech presentation to have a better fetal outcome. It was observed in a study that successful vaginal deliveries were conducted 50% in nulliparous compared to 75.8% in multiparous women where neonatal complications were more in nulliparous.[9] It was observed improved fetal outcomes in breech presentation only with planned caesarean section in different studies irrespective of parity.[3,10-12] As a result, majority of the breech pregnancies underwent cesarean sections[3,11] although the overall rate of caesarean section in Asia was 27.3%.[13] But maternal morbidity was somewhat increased with caesarean section.[2,14] Elective cesarean section does not guarantee the improved outcome of the child but may increase risks for the mother including hemorrhage infection and prolonged hospital stay, compared to vaginal breech delivery.[8] In addition, caesarean deliveries need a lot of resources that may not be feasible in all settings in a poor country like Bangladesh. However, it is the time to think that not all breech presentation require caesarean delivery. So, parity, mode of delivery, resources and outcomes should be in consideration in planning breech delivery.

Materials and methods:

Study design:

The study is descriptive longitudinal in nature with some analytical components.

Period and place of study:

The study was carried out in in-patient section of the Department of Obstetrics & Gynecology, Rangpur Medical College & Hosptial, Rangpur and Neonatal Unit, Department of Pediatrics, Rangpur Medical College & Hospital, Rangpur during the period of January 2015 to December 2017.

Study population:

In this present study, total 104 cases were taken.

Inclusion criteria:

Breech presentation from 37 to 42 weeks of gestation.

Exclusion criteria:

i) Multiple pregnancies
ii) Intra-uterine death (IUD)
iii) Severe PE, eclampsia
iv) Systemic disease, i.e, SLE
v) Uncontrolled diabetes mellitus

Ethical consideration:

Written informed consent was taken from every study participant. None of the names were used in the data bases. Participants were able to withdraw themselves from the study at any time they desire. The study was carried out after approval of the ethical committee.

Methods and data collection:

After taking written consent, history was taken (age, weight, height, gravid, ante-natal check up) and breech presentation was confirmed by clinical examination and/or ultrasonongraphic findings among the admitted patients of obstetrics indoor department. After delivery, maternal complications like amount of bleeding after delivery, post-partum hemorrhage, shock, retained placenta, genital tract injury, sepsis, anesthetic complications, fever, urinary tract infections, wound infections, assisted delivery, maternal mortality and fetal details such as gestational age, sex, birth weight, apgar score and fetal complications like birth asphyxia, low birth weight, APGAR score, birth trauma, neonatal death, till birth, live birth without complications were recorded. Only term singleton breech pregnancies without other obstetric complications or medical diseases were selected for data collection. After collection of data, master sheet was prepared for analysis.

Statistical analysis:

The collected data was compiled and findings were presented in the form of tables and graphs. Appropriate statistical analysis of the data was done using statistical package for social science (SPSS) with student *t*-test, chi-square test and others where applicable.

Results:

During the study period, total 1621 babies were delivered. Among them 104 (6.41%) were in breech presentation and the rest 1517 (93.59%) were other presentations. Vaginal deliveries were 10 out of 53 patients (18.9%) in primiparas compared with 18 out of 51 (35.3%) in multiparas mothers. successful vaginal deliveries were observed high (45%) in multiparous mothers.

79.2% mothers in primiparous group had ante-natal care before delivery, while only 74.5% had ante-natal care in multiparous group that was not statistically significant. Rest of them had either no or poor ante-natal care. Mean height in primiparous and multiparous group was 150.3±3.8cm and 152.2±4.7cm respectively that was not statistically significant. Mean weight in primiparous and multiparous group was 66.3±5.5kg and 67.2±5.7kg respectively that was not statistically significant.

Table-I: Demographic characteristics and immediate fetal outcome by parity

	Primiparous women (Mean±SD)	Multiparous women (Mean±SD)
Maternal age (y)	24.58±5.16	28.9±6.14
Birth weight (gm)	3134.67±344.51	3246.87±433.23
5-min APGAR score	8.1±1.0	8.3±1.3

The table demonstrates the variation of maternal age in years, birth weight in grams and 5-minutes APGAR score according to parity.

86.8% of primiparas and 72.5% in multiparas did not suffer from any maternal complications during delivery. No mortality was reported. Higher percentage of multiparas women suffered from different morbidities compared to primiparas that is statistically significant as a whole ($p<0.05$) shown in table-2.

Table-2: Comparison of maternal complications during delivery in both the groups

Maternal complication at delivery	Primiparas mothers (n=53)		Multiparas mothers (n=5)		p-value
	Number	Percentage	Number	Percentage	
None	46	86.8	37	72.5	<0.05
Maternal death	00	00	00	00	
PPH	02	3.7	05	9.7	
Retained placenta	01	1.9	01	1.9	
Genital tract injury	03	5.7	04	7.8	
Anaesthetic complications	01	1.9	03	5.8	
Shock	00	00	01	1.9	

Maternal complications (shown in table-3) in puerperium were higher in multiparas compared to primiparas that is statistically significant (p <0.05). Fever was the commonest complication in both the groups.

Table-3: Relation between mode of delivery and maternal complications during puerperium

Causes of neonatal admission	Primiparas mothers (n=53)		Multiparas mothers (n=51)		p-value
	Number	Percentage	Number	Percentage	
None	32	60.4	19	37.4	<0.05
Secondary PPH	03	5.7	05	9.8	
Fever	09	16.9	11	21.6	
UTI	03	5.7	08	15.6	
Wound infection	06	11.3	08	15.6	

Regarding the fetal outcome, 28.3% (15/53) neonates delivered with complications in primiparous compared with 19.6% (10/51) in multiparous women Higher percentage of neonatal depression by Apgar score of (0-6) in 1st minute was seen in 39.6% in primiparas compared with 31.4% in multipara that is statistically significant (p-value=0.016). Improvement of neonatal depression in 5th minute of Apgar score was significantly higher in multiparous group (p-value=0.001). There was no difference in the rates of fetal birth asphyxia between neonates of primiparas and the neonates of multiparous (46.68% vs 50.0%, respectively; p=0.162). But birth traumas were significantly more frequent in the primiparous compared with multiparous (40% vs 30.0%, p=0.023). Higher percentage (43.4%) of neonates needed admission in primiparas group compared with 33.3% in multiparas; that is statistically significant (p=012).

Majority of the neonates admitted in neonatal ward due to birth asphyxia in both of the groups (39.1% in primiparas versus 41.1% in multiparas mothers). Neonatal admission due to birth trauma (bruises, fractures of the bones, intracranial hemorrhage) is more frequent in primiparas compared with the multiparas (21.7% versus 5.9% respectively) shown in table-4.

Table-4: Comparison between causes of neonatal admission in both the groups

Causes of Neonatal admission	Primiparas mothers (n=53)		Multiparas mothers (n=51)	
	Number	Percentage	Number	Percentage
Birth Asphyxia	09	39.1	07	41.1
Birth trauma	05	21.7	01	05.9
Neonatal Jaundice	06	26.1	08	47.1
Umbilical sepsis	01	04.4	00	00
Neonatal sepsis	02	08.7	01	05.9

Discussion:

During this study period, total number of deliveries in that maternity unit was 1621. Among them, 104 (6.41%) were in breech presentation and the rest 1517 (93.59%) were in other presentations It indicates that the percentage of breech delivery in this study was 6.41% that was comparable with the findings of some other accepted observations where it was 3-4% at 38-40 weeks of gestation.[1, 34] Among the women with breech presentation, vaginal deliveries were 10 out of 53 patients (18.9%) in primiparas compared with 18 out of 51 (35.3%) in multiparous mothers. So, cesarean deliveries were higher in both the groups with breech presentations. This higher rate of cesarean deliveries may be due to avoiding of arrest of after coming head of breech in vaginal delivery. Hannah et al. showed similarly in 2000 from 121 centers in 26 countries among 2083 women with singleton complete breech presentation where cesarean delivery was 71.7% that was remarkably higher than vaginal delivery (28.3%).[3] It is commonly thought that vaginal delivery is not a preferred method in breech presentation, especially in nulliparous women. This thinking is well supported by different authors[1-7,9-14,16,18,21]. Diro et al observed that vaginal breech delivery is 50% in nulliparous 60 compared to 75.8% in multiparous women.[35] Similar findings were also reported in another study in Turkey where only 32.2% of nulliparous women were undergone vaginal breech delivery. In case of multiparous women, vaginal delivery was chosen in more than double (75.04%) of the nulliparous group.[26] The present study also shows primiparous were not the common

candidates for vaginal delivery where only 18.9% under went this method. This observation is consistent with the reporting of the previously quoted authors. Different findings were also noted in other studies where vaginal delivery was the commonest method in breech primiparous that is contrary to the present study.[27-29] Most of the primiparous with breech presentation were not considered as the candidates for the trial of vaginal delivery in our institution as because majority of the patients admitted with labor pain with undetermined stage of labor, cesarean delivery might be higher in primiparas compared to multiparas women. Moreover, the higher ratio of caesarean section in this study is probably due to inadequate or no antenatal care and lack of pre-delivery assessment of the patients for breech delivery currently in our hospital. It is noted that only 22.7% primiparous women was delivered successfully per vaginally who were the candidates for planned vaginal delivery. But none of them was delivered vaginally who were the candidates for planned cesarean sections. In primiparas women, cesarean delivery was the commonest method even if they were selected for vaginal delivery. On the contrary, successful vaginal deliveries were higher (45%) in multiparas women with breech presentation planned for vaginal delivery. Appropriate selection of method of delivery contributes better success especially in case of 61 multiparas. Diro et al. showed the comparable results where multiparas women showed more successful vaginal delivery in breech presentation.[23] The evaluation of patients' baseline characteristics showed that the mean age of the primiparous women was 24.58±5.16 years and multiparas was 28.9±6.14 years comparable results are seen in a study by Giuliani et al. where the mean age of pregnant mothers was 28.7±5.1 years versus 28.2±4.7 years respectively. Breech delivery is more common among the women aged less than 30 years in some other studies too.[15,21-24] The reason for this young age is the relative increased gravidity and parity at a younger age in our society. The mean gestational age in this study for primiparas was 38.14±1.45 weeks and for multiparas, it was 39.16±1.53 weeks. This finding is almost nearer to the observations in another study in Austria where the mean gestational age was 39.9±1.4 weeks and 39.9±1.2 weeks in caesarean delivery group and vaginal delivery group respectively. It indicates that parity does not influence the gestational age of the fetus in breech presentation. In this study, birth weight of the babies in primiparas was 3134.67±344.51 grams and for multiparas, it was 3246.87±433. 23 grams. Again, 5-minute APGAR score in primiparas women and in multiparas was 8.1±1.0 versus 8.3±1.3 respectively (Table-1). There were no remarkable differences in both the parameters. Authors in different studies evaluated the similar findings.[18,21,26]

The mean gestational age of the primiparous group was 38.4±1.0 weeks and for multiparous group 38.3±0.9weeks respectively that do not show any remarkable differences related to parity. Nkwabong E et al. also found no significant differences related to parity that favors this findings. 20.8% of the primiparous mothers and 25.5% of vaginal group had no ante-natal check-up in this study that was not statistically significant (p=0.11). Rest of the participants had either regular or irregular ante-natal check-up (ANC). So, parity was not considering factor to the families of the pregnant women. In this study, rural and urban mothers were not discriminated, but overall candidates for ante-natal care were remarkably high in the context of some previous reporting from Bangladesh.[27-29] In a study from northern area of Bangladesh showed that only half of the rural women received ANC, although few more percentage added to the urban areas.[27] Most of the patients in both the groups belonged to average height and weight. Mean height in primiparas and multiparas women were 150.3±3.8 and 152.2±4.7cm respectively that was not statistically significant (p=0.53). Height is an important parameter for neonatal outcome described in some studies. Height less than 145 cm irrespective of parity is correlated with bad obstetrical outcome.[30] In this study, average height of the mothers in both the groups was above this limit that would not affect neonatal morbidity. Mean weight in primiparas and multiparas group were 66.3±5.5 kg and 67.2±5.7 respectively, p=0.17. Here, these findings elucidate 63 that maternal anthropometric criteria do not significantly affect the outcome in this study in context of the parity with breech presentation. Among the primiparas, 15 out of 53 (28.3%) babies were born with complications and the rest (71.7%) were healthy live births. On the contrary, higher percentage (80.4%) of delivery of healthy live births was observed in multiparas women here, multiparas women with breech presentation showed better neonatal outcome as a whole irrespective of mode of delivery process. Similarly, majority of multiparas with breech presentation were delivered without any neonatal morbidity demonstrated in different studies.[31,32] Although, Mode of delivery was an important factor in anotherstudy[33], and outcome was focused mainly in this study not considering the delivery process. Several neonatal complications were noted in both the groups like still birth, birth asphyxia, different birth traumas (injury to the brachial plexus, fracture, soft tissue injury, hemorrhage, facial nerve palsy etc.) and neonatal death above all. Neonatal mortality accounted for 6.66% in primiparas and 10% in multiparas (p>0.05) in this study whereas Erkaya et al. reported 0.8% neonatal mortality in delivery with breech presentation.[24] This relatively high mortality was probably due to heavy patients' load despite prompt and appropriate intervention in neonatal care unit. Like neonatal mortality, still birth did not show any remarkable difference in both the groups. A study in the United Arab Emirates regarding obstetrical outcome of breech multiparas women 64 informed no significant increase in perinatal mortality rate among them compared to counterpart that supports the findings of this study.[26] Neonatal mortality has been used traditionally as a measure of the quality of care. Recently neonatal morbidity is being taken into account to assess the burden of the disease. It is estimated that 71.7% in primiparas and 80.4% in multiparas group (p>0.05) had no fetal morbidity. This good outcome may be the reflection of ready availability of emergency obstetric services. There was no difference in the rates of fetal birth asphyxia between

neonates of primiparas and neonates of multiparous (46.68% vs 50.0%, respectively; p=0.162). Although birth asphyxia was accounted as a major disease burden irrespective of parity like some other overseas studies.[17,28] Unlike other fetal complications, birth traumas were significantly more frequent in the primiparous compared with multiparous (40% versus 30.0%, p=0.023). This finding is supported by a Canadian article where it is described that neonatal trauma, especially genital trauma is more common among the primiparous breech delivery.[29] Moreover, Erb's paralysis, soft tissue injuries were also common in breech deliveries in primiparas noted by different authors.[10,21] Higher neonatal trauma in primiparas may be due to lack of timely decision of operative delivery, proper delivery assistance during vaginal delivery and tight perineal ligaments as well. Admission to the Neonatal Intensive Care Unit (NICU) was 43.4% versus 43.3% in primiparas and multiparas group respectively; that is statistically significant (p=0.012).[25] It reflects higher percentage of neonatal admission for special care compared to international standard. In primiparous group, lack of planned vaginal breech delivery and improper ante-natal care can be the causative explanation. In addition, delayed referral and no previous experience of the parturient ladies and tight perineal ligaments may be probable explanation of higher rate of fetal complications. On the other hand, in multiparas group, most of the pregnant women were undergone home trial before arriving to the hospital as they may have previous experience of successful home delivery. Therefore, in these late cases, the neonates had the increased tendency to develop complications and needed NICU support.[27] Here, 39.1% in primiparas group and 41.1% in multiparas admitted neonates suffered from birth asphyxia which was the commonest cause of NICU admissions in both the groups. There was no remarkable difference in percentage of asphyxiated children in both the groups in this study as supported by the findings of another author.[20] Jaundice was commoner among the babies in multiparas women (47.1%). Higher percentage of neonatal jaundice among those babies was probably due to major and minor blood group incompatibilities observed in subsequent pregnancies.[12,23] Although increased neonatal morbidity is not a common picture in multiparas described by different authors.[14, 25] Unlike other conditions like neonatal sepsis and umbilical sepsis, as birth trauma was common among the babies of primiparas, neonatal admission due to trauma was also common to them (21.7% versus 5.9% in primiparas and in multiparas respectively)[16] similar to that found by Hameed et al and Uhing MR. It is well known that duration of all stages of labor in primiparas are prolonged compared to multiparas women. Risk of neonatal trauma and fetal depression is significantly more with prolonged first stage of labor described by Perl FM et al.[27] There by, it can be well be explained the more percentage of neonatal trauma found in this study with primiparas women with breech presentation. Apgar scoring is used commonly for initial neonatal evaluation following delivery. In this study, Apgar score of (0-6) was seen in 39.6% in primiparas and 31.4% in multiparas group in 1st minute. At 5th minute, 24.5% of primiparas and 11.8% of multiparas group scored below[7] that is statistically significant (p<0.05). Babies delivered by primiparas' women are significantly more prone to develop fetal depression in this study and this finding is supported by different authors' abroad.[19, 27] Increased number of neonates with low Apgar score in primiparas group is probably due to lack of planned delivery methods with proper monitoring, not detecting prolonged first stage of labor that is commonly practiced in developed centers worldwide. Like neonates, maternal mortality and morbidity is considered as the good indicator for a quality care. Only 3.7% of primiparas mother and 9.7% of the multiparas suffered from post-partum hemorrhage (PPH), none of them had no major casualties. PPH is considered as a leading cause of maternal morbidity and mortality worldwide.[28] Although significantly higher incidence of PPH is noted among the multiparas probably due to post-delivery uterine inertia, overall low figure of this complication in this study[17] reflected the prompt and appropriate intervention given to the patients with hemorrhage in this tertiary setting. Genital tract injuries were 5.7% in primiparas and 7.8% in multiparas women (p<0.05). Moreover, anesthetic complications (5.8%) and shock (1.9%) was found significantly higher in multiparas. Single incidence of retained placenta was observed in both the groups. Again, 86.8% in primiparas and 72.5% in multiparas did not suffer from any type of maternal complications during delivery process that reflected better obstetrical care. Multiparas mothers suffered most during puerperium in all context compared to primiparas women that is statistically significant (p<0.05). In this study, multiparas mothers suffered almost double due to urinary tract infection and significantly higher due to wound infection as supported by Jadoon S.etal[29] probably due to more manipulation of adhesion of previous operation and keeping the urinary catheter for prolonged period. Fever was the commonest maternal ailment in both the groups. This higher value may be due to excess patient load and lack of appropriate infection control measures in post-operative period even in the tertiary hospital. Policy of planned delivery method irrespective of parity is substantially better for singleton fetus in breech presentation at term with lower perinatal mortality and morbidity rates. Maternal mortality and morbidity is also a major concern.

Conclusion:

In brief, planned caesarean section deliveries irrespective of parity have decreased rate of adverse perinatal outcome, although maternal morbidities are more in puerperium. It suggests vigilant intra-partum monitoring and appropriate management protocol for delivery methods in breech presentation may balance the maternal and fetal outcome. Primiparous mothers with breech presentation are more prone to undergo cesarean deliveries and thereby develop post-operative complications. But multiparous mothers have more complications during delivery process. Overall neonatal complications especially the birth traumas are more common among the babies of primiparous mothers. Therefore, efforts should be made to follow the an appropriate management protocol to choose planned delivery methods for each and every cases of breech

presentation to prevent unwanted maternal and fetal outcome.

Recommendation:

There is no wide scale study in Bangladesh on fetal and maternal outcome in breech deliveries including the evaluation of predictive factors for breech presentation. Though Rangpur Medical College is the biggest tertiary care hospital in this region, these results do not reflect the overall situation existing all over the country. So, large scale study on this topic can be done to gather information that might help in preparing standard management protocol for breech presentation. There are some more suggestions:

- All the patients should have regular ante-natal check-up. Routine investigations should be advised to exclude mal-presentation and other complications.
- External cephalic version (ECV) can be practiced in possible cases that will prevent unnecessary caesarean section and thereby reduce maternal complications in puerperium.
- All breeches should be delivered at hospital where facilities for caesarean section are available.
- Patients should be properly counseled regarding possible problems of each delivery methods before delivery.
- Patients should be closely monitored with partograph in labor room, if possible.
- Lastly, birth process in breech presentation should be conducted in presence of skilled medical personnel and importantly neonatologists when available.

References:

1. Talas BB, Altinkaya OS, Talas H, Danisman N, Gungor T. Predictive factors and short-term fetal outcomes of breech presentation: a case-control study. Taiwan J Obstet Gynecol 2008; 47(4):402-407.
2. Vlemmix F, Rosman N A, Fleuren HA M, Rijnders EB M, Beuckens A, Haak CM et al. Inplementation of thec external cephalic version in breech delivery. Dutch national implementation study of external cephalic version. BMC Pregnancy and Childbirth 2010; 10:20,
3. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willian AR: presentation at term: a randomized multicentre trial. Term Breech trial collaborative group. Lancet 2000; 356: 1375-1383.
4. Danielian PJ, Wang J, Hall HM. Long term outcome by method of delivery of fetuses in breech presentation at term: population based follow-up. BMJ 1996; 312: 1451-3.
5. Arias F. Abnormal labor and delivery. In: Daftary SN, Bhide AG (eds.) Practical guide to high risk pregnancy and delivery. 3rd ed. New Delhi, Elsevier; 2008. p 382-3.
6. Koike T, Minakami H, Sasaki M, Sayama M, Tamada T, Sato I. The problem of relating fetal outcome with breech presentation to mode of delivery. Arch Gynecol Obstet 1996;258:119-123.
7. Schutte MF, van Hemel OJ, van de Berg C, van de Pol A. Perinatal mortality in breech presentations as compared to vertex presentations in singleton pregnancies: an analysis based upon 57 819 computer-registered pregnancies in The Netherlands. Eur J Obstet Gynecol Reprod Biol. 1985; 19(6): 391-400. 73
8. Pradhan P, Mohajer M, Deshpande S. Outcome of term breech births: 10-year experience at a district general hospital. BJOG 2005; 112: 218-222.
9. Singleton term breech deliveries in nulliparous and multiparous women: A 5-year experience at The University of Miami/Jackson Memorial Hospital. Diro M, Puangsricharern A, Royer L, O'Sullivan M J, Burkett G. Am J Obstet Gynecol 1999; 181: 247-252.
10. Gilbert WM, Hicks SM, Boe NM, Danielsen B. Vaginal Versus Cesarean Delivery for Breech Presentation in California: A Population-Based Study. Obstet Gynecol 2003;102:911–7.
11. Lee HC, El-Sayed YY, Gould BJ. Population Trends in Cesarean Delivery for Breech Presentation in the United States 1997–2003. Am J Obstet Gynecol. 2008; 199(1): 59.
12. Fortney JA, Higgins JE, Kennedy KI, Laufe LE, Wilkens L. Delivery type and neonatal mortality among 10,794 Breeches. Am J Public Health 1986; 76:980-986.
13. Lumbiganon P, Laopaiboon M, Gülmezoglu MA, Souza JP, Taneepanichskul S, Ruyan P, et al. Method of delivery and pregnancy outcomes in Asia: the WHO global survey on maternal and perinatal health 2007–08. Lancet 2010; 375: 490–499.
14. Hofmeyr GJ, Hannah M. Planned caesarean section for term breech delivery. Cochrane Database of Systematic Reviews 2003, Issue 2. Art. No.: CD000166.
15. Pajntar M, Verdenik I, PestevSek M. Cesarean section in breech by birth weight. Eur. J. Obstet. Gynecol. Reprod. Biol. 1994; 54: 181-184.
16. Dunn LJ, Vanvoorhis L, Napier J. Term breech presentation; a report of 499 consecutive cases. Obstet Gynecol 1965; 25: 170-6. 74
17. Katsumata T, Miyake A, Aki T, Hirooka IK, Hayashida IM, Toyoda M et al. Length of the human umbilical cord in multiple pregnancy. Eur. J. Obstet. Gynecol. Reprod. Biol. 1991; 40:25-27. 18. Adinma JI. The umbilical cord: a study of 1,000 consecutive deliveries. Int J Fertil Menopausal Stud. 1993;38(3):175-9.
19. Fianu S, Václavinková V. The site of placental attachment as a factor in the aetiology of breech presentation. 1978; 57 (4):371-372.
20. Filipov E, Borisov I, Kolarov G. Placental location and its influence on the position of the fetus in the uterus. Akush Ginekol (Sofia) 2000;40(4):11-2. [In Bulgarian]
21. Luterkort M, Persson PH, Weldner BM. Maternal and fetal factors in breech presentation. Obstet Gynecol. 1984; 64(1):55-9.
22. Penkin P, Cheng M, Hannah M. Management of the term breech. J Soc Obstet Gynecol Can. 1996; 18: 233-43.
23. Diro M, Puangsricharern A, Royer L, O'Sullivan MJ, Burkett G. Singleton breech deliveries in nulliparous

and multiparous women: A 5-year experience at the University of Miami/Jackson Memorial Hospital. Am J Obstet Gynecol 1999; 181: 247-252.
24. Abu-Heija AT, Ziadeh S, Obeidat A. Breech delivery at term: do the perinatal results justify a trial of labor? J Obstet Gynaecol. 1997; 17 (3): 258-60.
25. Deutsch A, Salihu HM, Lynch O, Marty PJ, Belogolovkin V. Caesarean delivery versus vaginal delivery: impact on survival and morbidity for the breech fetus at the threshold of viability. J Matern Fetal Neonatal Med. 2011; 24(5):713-7. 75
26. Ziadeh S, Abu-Heija AT, El-Jallad MF, Abukteish F. Effect of mode of delivery on perinatal results in singleton breech breech presentation weighing ≥1500 g. J Obstet Gynaecol. 1998; 18 (1): 30-32.
27. Crowley P, Hawkins DF. Premature breech delivery-the caesarean section debate. J Obstet Gynaecol. 1980; 1: 2-6.
28. Kaukwell S, Joels LA, Kyle PM, Mills MS. Women's attitude towards management of breech presentation at term. J Obstet Gynaecol. 2002; 22(5): 486-488.
29. Bako AU, Audu LI. Undiagnosed breech in Zaria, Nigeria. J Obstet Gynaecol. 2000; 20(2): 148-150.
30. Usta IM, Nassar AH, Khabbaz AY, Musa AA. Undiagnosed term breech: Impact on mode of delivery and neonatal outcome. Acta Obstet Gynecol Scand. 2003; 82: 841- 844.
31. Schiff E, Friedman SA, Mashiach S, Hart O, Baraki G, Sibai BM. Maternal and neonatal outcome of 846 term singleton breech deliveries: Seven-year experience at a single center. Am J Obstet Gynecol 1996; 175:18-23.
32. Bassaw B, Rampersad N, Roopnarinesingh S, Sirjusingh A. Correlation of fetal outcome with mode of delivery for breech presentation. J Obstet Gynaecol 2004; 24(3): 254-58.
33. Uotila J, Tuimala R, Kirkinen P. Good perinatal outcome of selective vaginal delivery at term. Acta Obstet Gynecol Scand 2005; 84: 578-583. 76
34. Herbst A et al. Term breech delivery in Sweden: mortality relative to fetal presentation and planned mode of delivery. Acta Obstet Gynecol Scand 2005; 84: 593-601.
35. Lindqvist A, Norden-Lindeberg S, Hanso U. Perinatal mortality and route of delivery in term breech presentations. Br J Obstet Gynaecol 1997; 104:1288-1291.

Original Article

Efficacy of Two Application Methods of Glutaraldehyde Disinfectant Solution on Alginate Impression

Haque SM[1], Sultana N[2], Akhtar M[3], Maniruzzaman[4], Ahsun MN[5]

Abstract

Statement of problem: *Cross infection through the impression material among patients, dentists and laboratory person should be prevented with proper disinfectingof the impression tray. Although Impression materials cannot tolerate heat sterilization therefore they must be disinfected chemically which might be a chance to distort the dimensional accuracy of a dental impression. Rinsing the impression with water solely does not remove contamination, therefore disinfecting of the impression and further rinsing the disinfectant off is required. There are many disinfectant solutions like chlorine combination, phenol, and iodide combination were taken as a disinfectant but few are done with glutaraldehyde.*

Purpose: *To evaluate the efficacy of two application methods of glutaraldehyde disinfectant solution on alginate impression.*

Materials and methods *A total of 334 maxillary impressions taken from the patient of the Prosthodontic department were examined in this study. In group-A, 167 maxillary alginate impressions were disinfected by spray method and in group B, 167 maxillary alginate impressions were disinfected by immersion method. Colony-forming micro-organisms were observed under the microscope.*

Results: *The microbes before and after culturing the sample pre-disinfected rinsed with distilled water 94 (56.29%) sample were found no growth in group A and 102 (61.08%) sample was found in group B. In other remaining samples were found normal flora, Acinetobacter and Pseudomonas SPP, the p-value was 0.73 which was not statistically significant. After disinfecting with 2% Glutaraldehyde 100% samples of both groups were free from the microorganism.*

Conclusion: *Use of both the disinfection methods (spray and immersion) of 2% glutaraldehyde solution eradicates microorganisms from alginate impression surface.*

Clinical Implication: *2% use of gluteraldehyde in the form of spray method for disinfecting the alginate impression is more reliable while compared with disinfecting impression in immersion way of glutaraldehyde.*

Keywords: *Glutaraldehyde, Alginate*

Date of received: 05-04-2019
Date of acceptance: 01-12-2019

RDC Journal, January 2020; 8(1): 32-35

Introduction:

Impression making of the oral cavity is a routine practice in prosthodontics. Replacement of missing teeth is almost impossible without making an impression. So, the necessity of the impression cannot be denied. The oral cavity is the port of entry of micro-organisms. Saliva is the harbour of oral microbes. At the time of taking impression saliva containing micro-organisms contaminate the tray as well as the impression material. These organisms produce cross infection to the dentist, dental ancillaries and laboratory staff. The proper method of disinfection of the impression material is therefore an important step to prevent cross-infection.[1]

Prevention of cross-infection between dental surgery and the laboratory is of paramount importance to protect patients and staff.[2] Dental impressions are considered potentially infectious items as they are contaminated with the patient's saliva and blood. Pathogens, if present in high enough number, can survive several days on impressions and then can be transferred onto set gypsum material.[3] Impression materials cannot tolerate heat sterilization therefore they must be disinfected chemically. Sterilization is a process intended to kill all microorganisms and is the highest level of microbial decontamination that can be achieved. Disinfection is a less-lethal process than sterilization and is intended to kill disease-producing microorganisms but not bacterial endospores.[4] Disinfectants are classified into three levels high, intermediate and low, based on their efficiency against vegetative bacteria, tubercle bacilli, fungal spores, lipid and non-lipid containing viruses and bacterial endospores.[5]

1. **Dr. Shehab Monirul Haque**, MS (Prosthodontics), Department of Prosthodontics, Bangabandhu Sheik Mujib Medical University, Dhaka
2. **Nahid Sultana,** BDS, MSc in Public Health, Consultant at Vasantek Clinic & Diagnostic Centre, Dhaka
3. **Dr. Marina Akhtar,** Assistant Professor & Head, Orthodontics & Dentofacial Orthopedics, Rangpur Dental College & Hospital
4. **Dr. Maniruzzaman,** MS In course Prosthodontics, BSMMU
5. **Dr. Md. Nazmul Ahsun,** MS In course Prosthodontics, BSMMU

For correspondence: Dr. Shehab Monirul Haque*, MS (Prosthodontics), Department of Prosthodontics, Bangabandhu Sheik Mujib Medical University, Dhaka, Cell: +8801717262672, Email: drshehabbds@gmail.com*

The gold standard for disinfection of dental impressions is by immersion although spray techniques are also available.[6] The antimicrobial effect of spraying and immersing methods was almost equal while mere water rinsing showed no significant disinfection effect.[7]

It is known that a variety of chemical agents can be used efficiently for impression disinfection provided that each type is applied to the impression according to the manufacturer's instructions. However, it has been reported that rinsing the impression with water solely does not remove contamination, therefore disinfecting of the impression and further rinsing the disinfectant off is required. As chemical disinfection is a surface phenomenon, it is important that before immersion in the disinfectant, the surface of the impression is washed to remove obvious debris so that contact with the disinfectant solution is maximized.

Modern standards of infection control require that impressions are disinfected before sending to the laboratory. Disinfection is an essential step for preventing cross-infection from patient to dentist and also exposure of laboratory personnel. If the procedure is performed properly, disinfection does not affect the accuracy or surface details reproduction from the impression. In previous studies, some chemicals like alcohols chlorine combination, phenol, and iodide combination were taken as a disinfectant but few are done with gluteraldehyde. So, this study was done to evaluate the efficacy of two application methods of gluteraldehyde disinfectant solution on alginate impression. The hypothesiswas the immersion of alginate impression into glutaraldehyde solution eradicate more microorganisms than the alginate impression disinfected with glutaraldehyde spray.

Materials and methods:

The prospective comparative experimental study was conducted in the Department of Prosthodontics, Faculty of Dentistry, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh from January 2019 to December 2018. Total 334 alginate impressions of the maxillary arch were taken from 334 patients with Lygine TM (Lot -95453 and 97260) Dentamerica, USA. Maxillary impressions were taken from the patients who were receiving treatment from the prosthodontic department. Impression material was mixed with sterile water to prevent contamination from mixing water and manipulated according to manufacturer company recommendations. After setting completely the impressions had been taken out from the mouth of the patient. All impressions were rinsed with distilled water to remove food debris and dirt. In Group-A Impressions were rinsed with 250 ml of distilled water for 2 minutes. 20 ml sterile normal saline was poured on the impression surface and vibrated with a vibrator for 2 minutes to detach the micro-organisms from the impression surface. Then 2 ml of saline suspension from each impression was collected as a pre-disinfection sample by an auto pipettor (TopPettepipettor by dragon lab in Beijing) in a sterile test tube and covered with a sterile cover. Then impressions were sprayed with 2% glutaraldehyde disinfectant solutions 10 puffs in 15 seconds. Impressions were rinsed with 250 ml of distilled water for 2 minutes to remove the disinfectant solution from the alginate surface. Again 20 ml sterile normal saline was poured on the impression surface and vibrated with a vibrator for 2 minutes to detach the microorganisms from the impression surface. 2 ml of saline suspension from each impression was again collected as post disinfection sample by the auto pipettor and covered with a sterile cover. Group-B impressions were rinsed with 250 ml of distilled water for 2 minutes. Impression bearing fluid was poured with 20 ml sterile normal saline and vibrated with a vibrator for 2 minutes to detach the microorganisms from the impression surface. Then 2 ml of saline suspension from each impression was collected as a pre-disinfection sample in a sterile test tube and covered with a sterile cover. Impressions were immersed in 2% glutaraldehyde disinfectant solution for 2 minutes and then impressions were rinsed with 250 ml of distilled water for 2 minutes. Residual fluid was added 20 ml sterile normal saline and vibrated with a vibrator for 2 minutes to detach the microorganisms from the impression surface. 2 ml of saline suspension from each impression was collected as a post disinfection sample in a sterile test tube and covered with a sterile cover (Cidex, Jonson and Jonson- India). As the solution is available at 2.45% concentration it was diluted to achieve 2% concentration. Collected fluids were transferred to the laboratory for proceeding with further microbiological laboratory procedures.

Microbiological laboratory procedure:

In the microbiology laboratory, 2 micro-litres of pre and post disinfected fluids were transferred aseptically in sheep blood and MacConkey agar plate by inoculation loop method. Agar plates were labelled and incubated at 37°C for 24 hours in an aerobic condition (in presence of 5% CO2) in a Memmect incubator (West Germany). After 48 hours microbial colonies were observed under the microscope. Pseudomonas SPP gave greenish colour to the agar in McConkey agar media, Acinetobacter (diplococci) gave pinkish head and whitish body, Normal flora of saliva like cocci gave grape-like irregular cluster grown in culture media. No growth results showed no growth of microorganisms in culture media. Unpaired t-test was used for continuous variables and Chi-square test was used for categorical variables. P values <0.05 was considered statistically significant.

Result:

Table-I: Demographic characteristics and immediate fetal outcome by parity

Micro-organism	Pre-disinfection		Total	p-value
	Group A (n=167)	Group-B (n=167)		
No growth	94(56.29)	102(61.08)	196	0.374ns
Acinatobector (Scanty Growth)	4(2.40)	8(4.79)	12	0.240ns
Normal Flora	57(34.13)	49(29.34)	106	0.347ns
Pseudomonas SPP (Scanty Growth)	12(7.19)	8(4.79)	20	0.357ns
Total	167(100)	167(100)	334	

- Group A= Maxillary alginate impressions sprayed with 2% gluteraldehyde disinfection solution
- Group-B= Maxillary alginate Impressionsimmersed in 2% gluteraldehyde disinfection solution.
- X2 test was done for significance.

Table-**1** shows microbes after culturing of the samples pre-disinfected washed with distilled water 94(56.29%) sample was found no growth in group A and 102(61.08%) sample was found in group B. In other remaining samples were found normal flora, Acinatobector (Scanty Growth) and Pseudomonas SPP (Scanty Growth) p-value was <0.05 which was not statistically significant and non-pathogenic.

Table-2: Findings of the microbes after post-disinfecting 2% gluteraldehyde between two groups.

After 2% gluteraldehyde	Study group		Total	p-value
	Group A (n=167)	Group-B (n=167)		
No growth	167(100)	167(100)	334	
Acinatobector (Scanty growth)	00	00	00	
Normal flora	00	00	00	
Pseudomonas SPP (Scanty growth)	00	00	00	
Total	167(100)	167(100)	334	

- Group A= Maxillary alginate impression sprayed with 2% gluteraldehyde disinfection solution
- Group-B= Maxillary alginate impression immersed in 2% gluteraldehyde disinfection solution

Table-2 shows microbes after culturing of the samples post-disinfected with 2% gluteraldehyde, 167(100%) samples were found no growth in group A and 167(100%) samples were found in group B. No organism was found viable for growth between two groups after 48 hours of incubation.

Discussion:

In present study showed that microbes after culturing of the samples disinfected with 2% gluteraldehyde 167(100%) samples were found no growth in group A and 167(100%) samples were found in group B. No organism was found between two groups. Al Shikh and Milosevic (2020) study reported aldehyde-based spray and immersion disinfection methods are the effective and gold standard. Egusa et al. (2008) reported by immersion for 10 minutes in 2% glutaraldehyde resulted in almost complete removal of these microorganisms. Glutaraldehyde functions as a fixative reagent against proteins.

The gtutaraldehyde might fix the surface portion of the proteins retained on the impressions, thus resulting in a protective effect on the oral flora existing in the depths of the fixed proteins. In another Bustos et al. (2010) study 2% glutaraldehyde after a 10-minute exposure time was 100% successful in eliminating bacteria. Al Shikh and Milosevic (2020) also reported that the post-disinfection bacterial growth according to impression material and disinfectant solution. There was no growth after disinfection with the glutaraldehyde spray on both PVS and polyether impressions. Ulgey et al. reported dental impression materials which are commercially available, not applicable for disinfection. Disinfection procedures may harm dental impressions. Ulgey et al. (2020) also reported spray is a 100% effective method of disinfection of impression materials concerning *Pseudomonas aeruginosa* and Spray is the most reliable method of disinfection of impression materials of all tested methods.

It has been shown that just rinsing impressions under running tap water is insufficient to remove microbes but it may spread them over the surface of the impression material. Disinfection is therefore required (Egusa et al. 2008). Spray disinfectants have been introduced which can provide good disinfection and avoid the problems associated with immersion techniques such as adverse effects on dimensional stability (Doddamani et al. 2011).

Conclusion:

Both spray and immersion method of 2% gluteraldehyde disinfection solution eradicates all microorganisms present inmaxillary alginate impression equally.

References:

1. Ahmad, S., Tredwin, C.J., Nesbit, M. and Moles, D.R., 2007. Effect of immersion disinfection with Perform-ID on alginate, an alginate alternative, an addition-cured silicone and resultant type III gypsum casts. British dental journal, 202(1), p.E1.
2. Salvia, A.C.R.D., dos Santos Matilde, F., Rosa, F.C.S., Kimpara, E.T., Jorge, A.O.C., Balducci, I. and Koga-Ito, C.Y., 2013. Disinfection protocols to prevent cross-contamination between dental offices and prosthetic laboratories. Journal of infection and public health, 6(5), pp.377-382
3. Sofou, A., Larsen, T., Fiehn, N.E. and Öwall, B., 2002. Contamination level of alginate impressions arriving at a dental laboratory. Clinical oral investigations, 6(3), pp.161-165.
4. Miller, C. and Palenik, C. 2013. Infection Control and Management of Hazardous Materials for the Dental Team. 5th ed. Elsevier Health Sciences; pp.121–122.
5. Mushtaq, M.A. and Khan, M.W.U. 2018. An overview of dental impression disinfection techniques – a literature review. J Pak Dent Assoc, 27, pp. 207–212
6. Al Shikh, A. and Milosevic, A., 2020. Effectiveness of Alcohol and Aldehyde Spray Disinfectants on Dental Impressions. Clinical, Cosmetic and Investigational Dentistry, 12, pp.25-30
7. Rueggeberg, F.A., Beall, F.E., Kelly, M.T. and Schuster, G.S., 1992. Sodium hypochlorite disinfection of irreversible hydrocolloid impression material. The Journal of prosthetic dentistry, 67(5), pp.628-631

8. Egusa, H., Watamoto, T., Matsumoto, T., Abe, K., Kobayashi, M., Akashi, Y. and Yatani, H., 2008. Clinical evaluation of the efficacy of removing microorganisms to disinfect patient-derived dental impressions. International Journal of Prosthodontics, 21(6), pp. 531-8

9. Marya, C.M., Shukla, P., Dahiya, V. and Jnaneswar, A., 2011. Current status of disinfection of dental impressions in Indian dental colleges: a cause of concern. The Journal of Infection in Developing Countries, 5(11), pp.776-780

10. Bustos, J., Herrera, R., González, U., Martínez, A., Catalán, A. and González, U., 2010. Effect of inmersiondesinfection with 0.5% sodium hypochlorite and 2% glutaraldehyde on alginate and silicone: Microbiology and SEM study. Int J Odontostomat, 4(2), pp.169-77

11. Ulgey, M., Gorler, O. and Yesilyurt, G., 2020. Importance of disinfection time and procedure with different alginate impression products to reduce dimensional instability. Nigerian Journal of Clinical Practice, 23(3), p.284

12. Doddamani, S., Patil, R.A. and Gangadhar, S.A., 2011. Efficacy of various spray disinfectants on irreversible hydrocolloid impression materials: An in vitro study. Indian Journal of Dental Research, 22(6), p.764

Original Article

Emergency Medical Service (EMS) Management in a Tertiary Level Hospital in Dhaka City

Zaman MH[1], Ahmed GI[2], Kafi MAH[3], Ferdouse S[4]

Abstract

Objective*: Emergency department of hospitals is often the point of major public interest and is the most vulnerable to criticism. The reputation of a hospital rests to very large measures on two important factors, i.e. the emergency and OPD. The sudden and unexpected nature of the emergency produces panic and psychological disturbance of relatives which must be appreciated and born in mind in organization and management of services.1 This assignment is to assess the emergency service management in Dhaka Medical College and Hospital. This is the largest teaching hospital in public sector in Bangladesh having under the Ministry of Health & Family Well-fare of Government of Bangladesh.*

Result: *summarizes the age group of the patients which were collected from the medical record of the emergency department. Among the 598 patients nearly 39.5% (236) were between 21-30 years of age group, followed by 21.4% (128) between 11-20 years, 17.4% (104) between 31-40 years, 9.7% (58) between 41-50 years, 6.9% (41) was up to 10 years, 3.3% (20) between 51-60 years and least one was 1.8% (11) which were 61 & above years of age. The mean age of the patient's was 28.06±13.008 years of age and the lowest and highest ages was 1 and 82 years respectively. Majority of the patients 75.3% (452) was male and 24.7% (148) was female. maximum cases of emergency 44% (255) were due to Injury of any kind except RTA, 36.2% (210) were due to physical assault, 18.1% (105) were for road traffic accidents and few of them 0.2% (1) for injury caused by biting by human beings, 0.9% (5) for injury caused by biting by other animals, 0.5% (3) for medical emergencies (HCR, COPD, Granuloma) and 0.2% (1) brought dead. Nearly 50% of the records of the patients at emergency of Dhaka Medical College and Hospital were found incomplete.*

Keywords: *Emergency Medical Service*

Date of received: 15-06-2017
Date of acceptance: 01-11-2019

RDC Journal, January 2020; 8(1): 36-39

Introduction:

What is the area of service in the hospital, which is often neglected but requires considerable improvement? Undoubtedly, it is the emergency service. It is often no-man's land. Serious concern has been expressed regarding the inadequacy of emergency services, throughout the country, whether in the government or voluntary sector. It is a part of the outpatient department. Yet, the requirements are different.

The emergency services provide immediate, emergency diagnostic and therapeutic care to patients with:

- Injuries by accidents, or
- Sudden attacks of illness or exacerbation of the disease

These patients require immediate attention and treatment. Emergency patients receive resuscitation and life-saving treatment.[2]

Emergency medical services (EMS) are an integral part of the hospital. The emergency department is frequently thought of as a microcosm of the hospital as a whole. It is also the "Front Door" of the hospital, the portal of entry that interacts with the highest volume of patients requiring critical care. The reputation of a hospital rests to a large extent on the service of emergency department. Emergency means serious, it needs quick attention and immediate action. Emergency department is primarily meant for immediate action. It is primarily meant for immediate medical attention and resuscitation of serious ill patients. They should have priority over less serious patients. Quick and competent care can save lives and also reduce suffering and duration of illness. Hence, emergency service must be avoiding delay in attending to the management.2 Emergency health services

1. **Dr. Maruf Hasan Zaman**, Assistant Professor, Department of Paediatrics, Rangpur Dental College & Hospital
2. **Dr. Gazi Ikhtiar Ahmed**, Assistant Professor, Dept. of Dental Public Health, Dental Unit, Khwaja Yunus Ali Medical College, Enayetpur, Sirajganj
3. **Dr. Md. Abdullah Hil Kafi**, Assistant Professor & Head, Dept. of Dental Public Health, Dental Unit, Islami Bank Medical College, Rajshahi
4. **Dr. Shahana Ferdouse**, Assistant General Manager, Department of Quality Assurance, Ispahani Islamic Eye Institute & Hospital

For correspondence: Dr. Maruf Hasan Zaman*, Assistant Professor, Department of Paediatrics, Rangpur Dental College & Hospital, Rangpur. Cell: +8801711956406, Email: marufhzaman@yahoo.com*

are usually delivered by a general practitioner, ambulance personnel or by attendance at the accident and Emergency department of a hospital. The objectives of the services are–

- Provision of immediate relief and management of patients arriving at the hospital with acute medical and surgical emergencies.
- Managing accident victims, providing first-aid, treatment of minor injuries and referred to appropriate specialty or hospital, in case specialized care is necessary and cannot be provided in this hospital.
- Attending to all medico-legal formalities, including documentation of clinical condition and other particulars and intimation to and liaison with police.
- Attending to patients coming outside the routine outpatient working hours, and
  i. Screenings them for admission,
  ii. Observing them for short period to determine whether they need admission, or
  iii. Providing outpatient care.[1]

Emergency department of hospitals is often the point of major public interest and is the most vulnerable to criticism. The reputation of a hospital rests to very large measures on two important factors, i.e. the emergency and OPD. The sudden and unexpected nature of the emergency produces panic and psychological disturbance of relatives which must be appreciated and born in mind in organization and management of services.[3]

This aim of the study is to assess the emergency service management in Dhaka Medical College and Hospital. This is the largest teaching hospital in public sector in Bangladesh having under the Ministry of Health & Family Well-fare of Government of Bangladesh.

Materials and methods:

This descriptive type of cross sectional study was conducted in Dhaka Medical College and Hospital. The findings of the study obtained from data which were collected for a period of 7 days from the medical record of emergency department of DMCH. Then the tabulation sheet was prepared after proper checking, verifying and editing as per specific objective and key variables. Analysis of data was finally done with Statistical Package for Social Science (SPSS 17) program on the basis of different variables.

Results:

From the record it was found that the highest percentage 39.5% of the patients was between 21-30 years of age group and about three quarters (75.3%) of the patients were male. The data of the present study showed that nearly half (44%) of the patients were attended in the emergency due to injury of any kind except RTA and burn. DMCH is the largest teaching hospital in public sector in Bangladesh but the record shows that nearly about 50% of the records of the patients at emergency of DMCH were found incomplete.

The findings of the study obtained from data which were collected for a period of 7 days from the medical record of emergency department of DMCH. are analyses and are presented under the four headings namely the patient's age, sex, according to their diagnosis and according to the completeness of the medical record. The findings of collected data have been described and presented in tables and figures. The figures and tabular forms are in the following pages.

Table-1: Distribution of the patients' attending in the emergency department according to their age group

Age group (Years)	Frequency	Percent
Up to 10	41	6.9
11-20	128	21.4
21-30	236	39.5
31-40	104	17.4
41-50	58	9.7
51-60	20	3.3
61 & Above	11	1.8
Total	598	100.0

Table-1 summarizes the age group of the patients which were collected from the medical record of the emergency department. Among the 598 patients nearly 39.5% (236) were between 21-30 years of age group, followed by 21.4% (128) between 11-20 years, 17.4% (104) between 31-40 years, 9.7% (58) between 41-50 years, 6.9% (41) was up to 10 years, 3.3% (20) between 51-60 years and least one was 1.8% (11) which were 61 & above years of age.

Table-2: Age of the patient attended for emergency treatment

Statistics	Value
Mean	28.06
Median	26.00
Mode	30
Std. Deviation	13.008
Variance	169.215
Range	81
Minimum	1
Maximum	82

The mean age of the patient's was 28.06±13.008 years of age and the lowest and highest ages was 1 and 82 years respectively.

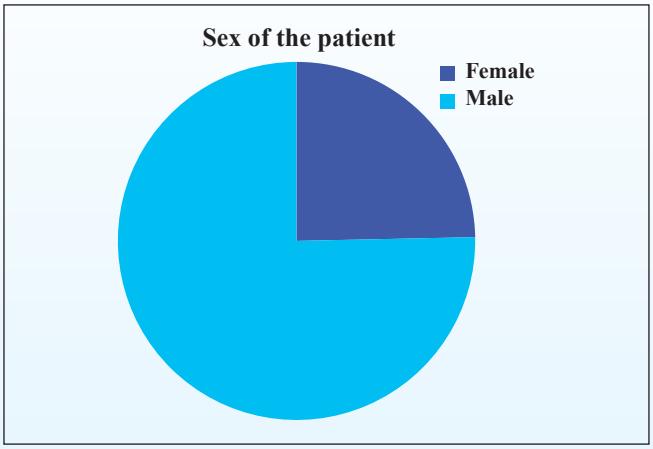

Figure-1: Distribution of the patients according to their sex.
[n = 600]

The figure-1shows that majority of the patients 75.3% (452) was male and 24.7% (148) was female.

Table-3: Distribution of the patients according to their diagnosis. [n = 580]

Code No.	Diagnosis of Patients	Frequency	Percent
1	Physical assault	210	36.2
2	Injury due to Road Traffic Accident (RTA)	255	44
3	Injury of any kind except RTA	105	18.1
4	Injury caused by biting by human beings	1	.2
5	Injury caused by biting by other animals	5	.9
6	Medical emergencies(HCR, COPD,Granuloma)	3	.5
7	Brought dead	1	.2
	Total	580	100

Table-2 shows that maximum cases of emergency 44% (255) were due to Injury of any kind except RTA, 36.2% (210) were due to physical assault, 18.1% (105) were for road traffic accidents and few of them 0.2% (1) for injury caused by biting by human beings, 0.9% (5) for injury caused by biting by other animals, 0.5% (3) for medical emergencies (HCR, COPD, Granuloma) and 0.2% (1) brought dead.

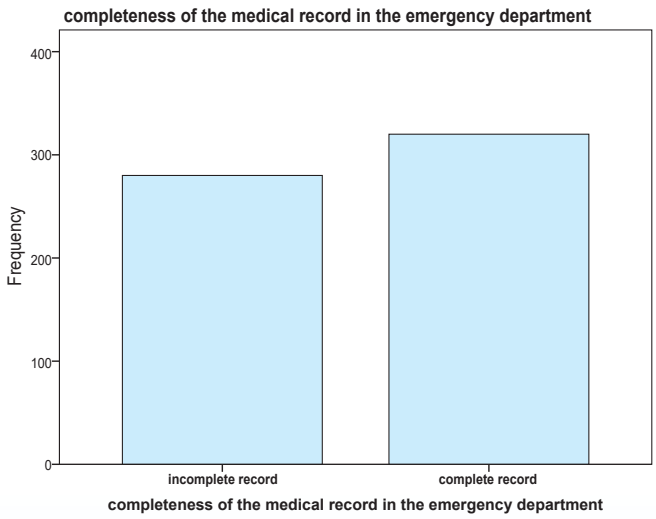

Figure-2: Distribution of the patients according to the completeness of the medical record. [n = 600]

Figure-2 shows that nearly 50% of the records of the patients at emergency of Dhaka Medical College and Hospital were found incomplete.

Discussion:

The description of the patients attending in the emergency for 7 days:

From the medical record of emergency of DMCH the patients were analyzed and found as per following:

From the record it was found that the highest percentage 39.5% of the patients was between 21-30 years of age group and about three quarters (75.3%) of the patients were male. The data of the present study showed that nearly half (44%) of the patients were attended in the emergency due to injury of any kind except RTA and burn. DMCH is the largest teaching hospital in public sector in Bangladesh but the record shows that nearly about 50% of the records of the patients at emergency of DMCH were found incomplete.

However it was observed that the sanctioned post for the emergency medical officers is 15 but only 10 medical officers are in available post and all the staffs are not properly trained that is no professional training were given to the medical staffs in handling the emergency patients. So the experience of the professional staff (medical and nursing) is very limited. The supporting staffs for emergency are available but not adequate to run the emergency department smoothly. Security service are available but not but not sufficient for the medical staffs as well as for the patients. The emergency services of DMCH do not provide ambulance services for transporting emergency patients. The resuscitation facilities and the observation facilities of emergency is present but inadequate for the patients.

All the necessary equipments for the management of all emergencies are available but not adequate and the equipment available is often poor quality. The supporting services were inadequate.

Strength of emergency services of DMCH:

1. Integrated emergency service to the ill and wounded people.
2. A lot of specialist manpower.
3. Twenty four hours emergency duties are available.
4. Any type of emergency patients can seek treatment at this hospital.
5. The most important strength of emergency is the presence of One stop Crisis Center

Weakness of emergency services of DMCH:

1. Emergency ambulances are present but they are not functioning.
2. General cleanliness of the emergency department is not up to the mark. Often wound infection occurred as emergency ward is not well cleaned.
3. Improper documentation, esp. in medico legal cases.
4. Lack of courtesy of the medical staffs.

Conclusions:

In the light of data analysis and discussion therefore it can be concluded that the management of emergency services were satisfactory but not up to the mark. However, the problems as revealed need to be critically appraised by the management authority to remove barriers and to improve the service further.

Emergency department is an important component of healthcare delivery. It should be well-planned and scientifically designed to effectively manage emergencies and disasters, as well as provide prompt and appropriate treatment to prevent death, disability and suffering. A good management can facilitate the emergency service to cross its limitation as well

as to reach to the satisfactory landmark. From global health perspective, it is now the time demanding issue, to achieve MDG, well organized and efficient management should be implemented at every corner of emergency services from policy level.

References:

1. CM Francis, MC De Souza, Hospital Administration, 3rd Edition, New Delhi, Jaypee Brothers Medical Publishers, 2004.
2. Hasan MD.A. Planning Emargency Department. Hospital Management, Dhaka. 2011.
3. Standard Operating Procedure (SOP), OPD at District Hospital of Bangladesh. Standards for District Hospital. DGHS. 2010.

Case Report

A 38 Years Old Female With Class-I Malocclusion Associated With Spacing and Proclination Managed by Removable Orthodontic Treatment: A Case Report

Kawsar MA[1], Prodhan MRA[2], Rezwana R[3]

Abstract:
A 38 years old female presented with Class – I malocclusion with spacing and proclination on both upper and lower arch in the anterior region. Treatment involves different types of tooth movements. The alignment of teeth of both arches was achieved by removable orthodontic components and procedure. After completion of treatment a functional and good looking occlusal result was achieved.

Key words: *Class-I malocclusion, spacing, proclination, removable orthodontic therapy, old aged patient*

Date of received: 15-06-2017
Date of acceptance: 01-11-2019
RDC Journal, January2020; 8(1): 40-43

Introduction:
Management of spacing and proclination in early dentition requires a thorough understanding of the patient's behavior, awareness and attitude. A patient's requirement to undergo dental treatment for space management is governed by a number of considerations like caries susceptibility, food habits, oral hygiene, social and economic status, attitude and awareness of own and family members towards the orthodontic treatment[1].

History and diagnosis:
A 38 years old female came to the department of Orthodontics and dent facialorthopedics, TMSS Medical College Dental Unit with the complaints of spacing and proclination on both upper and lower jaw.
The patient was in the permanent dentition. She had no relevant dental, medical or family history and had no history of previous orthodontic treatment.
On extra oral examination (Fig-1) she had symmetrical face with straight profile, lips are competent. Her temporomandibular joint was endogenous in position and normal path of closer.
Clinical examination (Fig-2) reveled in case of upper arch spacing in between two central incisors & between left lateral incisor and canine and proclination in the anterior segment. In case of lower arch space in between two central incisors with mild proclination.
Patient's model analysis was carried out by Carey's analysis[2] and ideal dental chart.[3] In Carey's analysis there was total -7 mm spacing in maxilla and -5mm spacing in mandibular arch. She had Class-I molar relationship canine relationship was Class-I with 4mm over jet and 3mm over bite.

Right lateral | Frontal | Left lateral

Figure-1: Initial extra oral photograph

1. **Dr. Mohammad Ali Kawsar**, BDS, MS (Orthodontics), Associate Professor, Dental Unit, TMSS Medical College & Hospital, Bogra
2. **Dr. Md. Rubayet Alam Prodhan**, BDS, FDS Grade-01, Doctoral (PhD) Course, Section of Orthodontics and Dentofacial Orthopedics, Faculty of Dental Science, Kyushu University, Fukuoka, Japan
3. **Dr. Rifat Rezwana**, BDS, Lecturer, Department of Dental Anatomy, Dental Unit, TMSS Medical College & Hospital, Bogra

For correspondence: ***Dr. Mohammad Ali Kawsar,*** *BDS, MS (Orthodontics), Associate Professor, Dental Unit, TMSS Medical College & Hospital, Bogra. Cell: +8801816811192, Email: dralikawsar@gmail.com*

Figure-2: Intra oral photograph

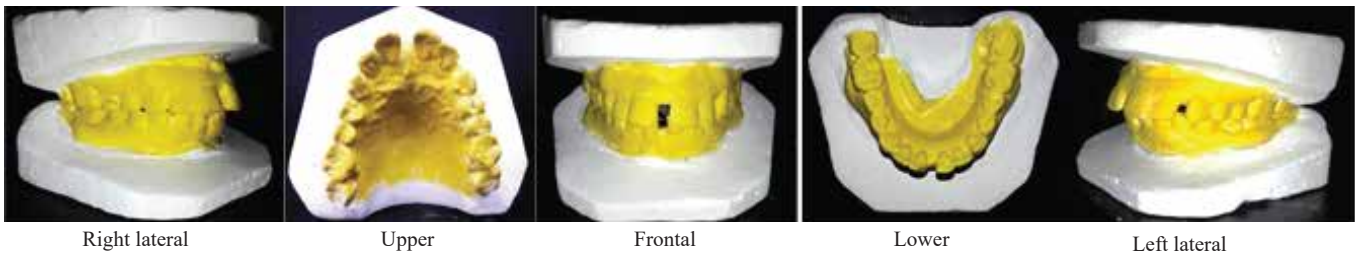

Figure-3: Initial model photograph

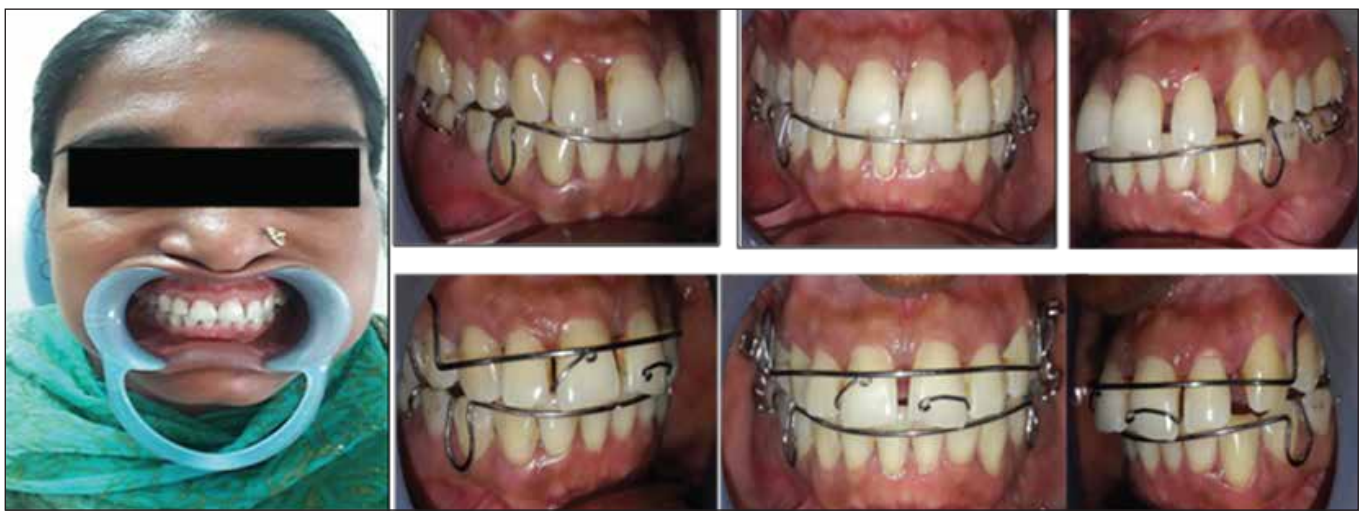

Figure-4: Pre-operative photograph

Figure-5: After completion of orthodontic treatment

Figure-6: After composite restoration.

Right lateral | Upper | Frontal | Lower | Left lateral

Figure-7: Post-operative model

Right lateral | Upper | Frontal | Lower | Left lateral

Figure-8: After placement of FSW

Figure-9: After placement of clear retainer

Figure-10: After completion of treatment

Treatment objectives:
Considering the above findings the objectives of orthodontic treatment were to:

1. Elimination spacing and proclination present in the both arches.
2. Establish normal over jet and over bite.
3. Establish and maintain occlusal harmony and interdigitation for improved aesthetics and proper function.

Treatment plan progress

Treatment plane and progress
After taking the proper consent from the patient through consent prescribed consent paper and giving flash light on her economic condition, the treatment choice was removable orthodontic for approximate the both arches. The appliance was designed by orthodontic 0.7mm SS wire (Dentarum, Germany), 0.5mm SS wire (Dentarum, Germany) and self-cure acrylic resin (DPI-RR Cold cure, Mumbai, India). Treatment as started from the lower arch. Lower removable appliance (LRA) incorporated with two palatal finger spring (PFS) by 0.5 mm SS wire positioned distal to the central incisors for the mesial movement, Long labial bow (LB) by 0.7mm SS wire for retraction of anterior segment and adam's clasp (AC) on both 1stpermanent molars for retention were used. First, PFS was activated to close the space between two central incisors. When space created among the incisors then long LB was activated to retract the anterior segment and approximate the space.

In the upper arch, same diameter wire was used with the same design of upper removable appliance (URA). PFS was placed distal to the both central incisors with long LB and AC for retention. After partial closer of the midline space by PFS, Long LB is activated for approximate the space. In both arch for the anchorage and retention, self-cure acrylic resin was used.

After arch coordination and finishing, the appliance was removed and residual space is closed by packable composite restorative materials (Kurary, Japan) with the help of Conservative dentistry and Endodontics of the TMSS Medical College Dental Unit. Retention involved upper and lower arches by bonded canine to canine fixed spiral wire (FSW) (Dentarum, Germany), diameter was 0.45×0.63 mm. with clear retainer by thermoplastic 1 mm sheet (Korea) by pressure molding machine (India). All the pressure for tooth movement was within 2nd degree biological force.

Results and discussion:

Total treatment time was 20 months, this is partly related to the long term required to totally closer of the space. Post treatment records show that the treatment objectives were achieved. Facial photograph show improve profile and attractive smile (Fig-3). Ideal over jet and over bite both sere achieved. Proper alignment and normal gingival contour were attained (Fig-4). A functional and good looking occlusal result was achieved. The patient was satisfied with teeth and appearance.

References:
1. Orthodontics: The Art and Science. Management of spacing. S.I. Bhalaji 5th edition:2012; 357
2. Hunter S: Application of analysis of crowding and spacing of the teeth. Dent Clin North Am 1978; 563-578
3. Downs WB: Analysis of the dentofacial profile. Angle Orthod 1956; 26:191

INFORMATION TO AUTHORS

The *Rangpur Dental College Journal* agrees to accept manuscript prepared in accordance with the 'Uniform Requirements Submitted to the Biomedical Journals' published in the New England Journal of Medicine 1991; 324: 424-8.

Aims and scope: Rangpur Dental College publishes half-yearly journal based in clinical and laboratory study. It features the best clinical and laboratory based study on various disciplines of medical and dental science to provide a place for medical and dental professionals to relate experiences which will help others to render better patient care.

Conditions for submission of manuscript:

- All manuscripts are subject to peer-review.
- Manuscripts are received with the explicit understanding that they are not under simultaneous consideration by any other publication.
- Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher upon acceptance. Accepted manuscripts become the permanent property of the *Rangpur Dental College Journal* and may not be reproduced by any means in whole or in part without the written consent of the publisher.
- It is the author's responsibility to obtain permission to reproduce illustrations, tables etc. from other publications.

Ethical aspects:

- Ethical aspect of the study will be very carefully considered at the time of assessment of the manuscript.
- Any manuscript that includes table, illustration or photograph that have been published earlier should accompany a letter of permission for re-publication from the author(s) of the publication and editor/publisher of the Journal where it was published earlier.
- Permission of the patients and/or their families to reproduce photographs of the patients where identity is not disguised should be sent with the manuscript. Otherwise the identity will be blackened out.

Preparation and criteria of manuscript:

Information provided in the manuscript is important and likely to be of interest to an international readership.

Preparation:

1. Manuscript should be written in English and typed on one side of A4 (290 x 210cm) size white paper.
2. Double spacing should be used throughout.
3. Margin should be 5 cm for the header and 2.5 cm for the remainder.
4. Style should be that of modified Vancouver.
5. Each of the following section should begin on separate page:
   Title page
   - Summary/abstract
   - Text
   - Acknowledgement
   - References
   - Tables and legends.
6. Pages should be numbered consecutively at the upper right hand corner of each page beginning with the title page.

Title Page: The title page should contain:

- Title of the article (should be concise, informative and self-explanatory).
- Name of each author with highest academic degree
- Name of the department and institute where the work was carried out
- Name and address of the author to whom correspondence regarding manuscript to be made
- Name and address of the author to whom request for reprint should be addressed

Summary/Abstract: The summary/abstract of the manuscript-

- Should be informative
- Should be limited to less than 250 words
- Should be suitable for use by abstracting journals and include data on the problem, materials and method, results and conclusion.
- Should emphasize mainly on new and important aspects of the study
- Should contain only approved abbreviations

Introduction: The introduction will acquaint the readers with the problem and it should include:

- Nature and purpose of the study
- Rationale of the study/observation
- Strictly pertinent references
- Brief review of the subject excepting data and conclusion

Materials and Methods: This section of the study should be very clear and describe:

- The selection criteria of the study population including controls (if any).
- The methods and the apparatus used in the research.
- The procedure of the study in such a detail so that other worker can reproduce the results.
- Previously published methods (if applicable) with appropriate citations

Results: The findings of the research should be described here and it should be:

- Presented in logical sequence in the text, tables and illustrations.
- Described without comment.
- Supplemented by concise textual description of the data presented in tables and figures where it is necessary

Tables: During preparation of tables following principles should be followed:

- Tables should be simple, self-explanatory and supplement, not duplicate the text.
- Each table should have a tittle and typed in double space in separate sheet.
- They should be numbered consecutively with roman

numerical in order of text. Page number should be in the upper right corner.
- If abbreviations are to be used, they should be explained in footnotes.

Illustrations: Only those illustrations that clarify and increase the understanding of the text should be used and:
- All illustrations must be numbered and cited in the text.
- Print photograph of each illustration should be submitted.
- Figure number, tittle of manuscript, name of corresponding author and arrow indicating the top should be typed on a sticky label and affixed on the back of each illustration.
- Original drawings, graphs, charts and lettering should be prepared on an illustration board or high-grade white drawing paper by an experienced medical illustrator.

Figures and photographs: The figures and photographs:
- Should be used only where data can not be expressed in any other form
- Should be unmounted glossy print in sharp focus, 12.7 x 17.3 cms in size.
- Should bear number, tittle of manuscript, name of corresponding author and arrow indicating the top on a sticky label and affixed on the back of each illustration.

Legend: The legend-
- Must be typed in a separate sheet of paper.
- Photomicrographs should indicate the magnification, internal scale and the method of staining.

Units:
- All scientific units should be expressed in System International (SI) units.
- All drugs should be mentioned in their generic form. The commercial name may however be used within brackets.

Discussion: The discussion section should reflect:
- The authors' comment on the results and to relate them to those of other authors.
- The relevance to experimental research or clinical practice.
- Well founded arguments.

References: This section of the manuscript-
- Should be numbered consecutively in the order in which they are mentioned in the text.
- Should be identified in the text by superscript in Arabic numerical.
- Should use the form of references adopted by US National Library of Medicine and used in Index Medicus.

Acknowledgements: Individuals, organizations or bodies may be acknowledged in the article and may include:
- Name (or a list) of funding bodies.
- Name of the organization(s) and individual(s) with their consent.

Manuscript submission: Manuscript should be submitted to the Editor or via e-mail: rdcjournal@gmail.com and must be accompanied by a covering letter and following inclusions:
- A statement regarding the type of article being submitted.
- A statement that the work has not been published or submitted for publication elsewhere.
- A statement of financial or other relationships that might lead to a conflict of interests.
- A statement that the manuscript has been read, approved and signed by all authors.
- A letter from the head of the institution where the work has been carried out stating that the work has been carried out in that institute and there is no objection to its publication in this journal.
- If the article is a whole or part of the dissertation or thesis submitted for diploma/degree, it should be mentioned in detail and in this case the name of the investigator and guide must be specifically mentioned.
- Submissions must be in triplicates with three sets of illustrations. The article must be additionally submitted in CD.

Editing and peer review: All submitted manuscripts are subject to scrutiny by the Editor in-chief or any member of the Editorial Board. Manuscripts containing materials without sufficient scientific value and of a priority issue, or not fulfilling the requirement for publication may be rejected or it may be sent back to the author(s) for resubmission with necessary modifications to suit one of the submission categories. Manuscripts fulfilling the requirements and found suitable for consideration are sent for peer review. Submissions, found suitable for publication by the reviewer, may need revision/ modifications before being finally accepted. Editorial Board finally decides upon the publishability of the reviewed and revised/modified submission. Proof of accepted manuscript may be sent to the authors, and should be corrected and returned to the editorial office within one week. No addition to the manuscript at this stage will be accepted. All accepted manuscripts are edited according to the Journal's style.

Reprints for the author(s): Copies of each published article will be provided to the corresponding author free of cost. Additional reprints may be obtained by prior request and only on necessary payment.

Subscription information: The *Rangpur Dental College Journal* is published by the Editor twice a year in January and July. *Annual Subscription:* Local BDT 300.00 and Overseas US$ 30.00. Subscription request should be sent to The Editor, The *Rangpur Dental College Journal*, Rangpur Dental College, Medical East-gate, Dhap, Rangpur-5400, Bangladesh. Any change in address of the subscriber should be notified at least 6-8 weeks before the subsequent issue is published mentioning both old and new addresses.

Communication for manuscript submission: Communication information for all correspondence is always printed in the title page of the journal. Any additional information or any other inquiry relating to submission of the article the Editor or the Journal office may be contacted.

RANGPUR DENTAL COLLEGE JOURNAL
(RDC JOURNAL)

Rangpur Dental College
Medical East-Gate, Rangpur
Phone: +88 0521-53111
principal.rdc.bd@gmail.com

RDC Journal is Recognized by Bangladesh Medical and Dental Council (BM&DC)