ASSESSMENT OF MATERNAL-INFANT BONDING BETWEEN MOTHERS AND THEIR BABIES WITH A CLEFT LIP

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A research report (in the format of a "submissible" paper) submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Medicine (Genetic Counselling)

Johannesburg, 2017

Declaration

I, **Elzette Nienaber**, declare that this research report (in the format of a “submissible” paper) is my own, unaided work. It is being submitted for the Degree of Master of Science in Medicine at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

Nienaber

(signature of candidate)

16th day of November in 2017 in Johannesburg

Contribution of the candidate to the paper

Declaration: Student's contribution to article(s) and agreement of co-author(s)

I, Elzette Nienaber, student number 762941, declare that this Research Report is my own work and that I contributed significantly towards research findings presented in the paper intended for publication below.

Signature of Student Nienaber

Date: 16 November 2017

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Date: 16 November 2017

Agreement by co-authors: By signing this declaration, the co-authors listed below agree to the use of the article(s) by the student as part of her Research Report. In cases where the student is not the 1st author of a published article, the primary supervisor must explain (under comments) why the student is entitled to use the paper for his/her degree purposes.

Article Title: Assessment of Maternal-Infant Bonding between Mothers and their Babies with a Cleft Lip

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Presentations arising from this research project

1. SASHG Biennial Congress 2017, 13th -16th August, Durban, KwaZulu-Natal (poster presentation)
2. University of the Witwatersrand Cross Faculty Symposium, 25th of October (poster presentation)
3. Division of Human Genetics Departmental Seminar, 8th November, National Health Laboratory Service (oral presentation)

Abstract

Currently there is no literature exploring how having a child with a cleft lip with or without a cleft palate affects the maternal-infant bonding in a South African context. This study aimed to describe bonding between mothers and their affected infants and to determine whether demographic factors are associated with bonding impairment. Thirty two mothers with affected children were recruited from two clinics at Johannesburg State Hospitals. The Postpartum Bonding Questionnaire was used to establish bonding impairment in this group. The results indicated that 4 (12.5%) of the mothers had some impaired bonding while the majority of mothers 28 (87.5%) had normal bonding. Some mothers displayed a degree of anxiety concerning planned reconstructive surgery. In conclusion, we found that having a child with a cleft lip does not significantly influence maternal-infant bonding, however investigations with larger cohort is needed for further clarification.

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To my Heavenly Father for strengthening me, for giving me wisdom and clarity and for always being my true North.

Therefore, my beloved, be steadfast, immovable, always excelling in the work of the Lord, because you know that in the Lord your labour is not in vain.

1 Corinthians 15:58

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Assessment of Maternal-Infant Bonding between Mothers and their Babies with a Cleft Lip

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Abstract

Purpose: A mother's attitude and emotions towards her infant is of crucial importance for the infant's development and well-being. It has been suggested that facial deformities, such as a cleft lip with or without a cleft palate, can elicit feelings of shock and desperation, which may have implications for the bonding process between mother and infant. Currently there is no literature exploring how having a child with a cleft lip with or without a cleft palate affects the maternal-infant bonding in a South African context. The aim of this study was to describe bonding between mothers and their infants with a cleft lip with or without a cleft palate and to determine whether any demographic factors were associated with bonding impairment.

Methods: This was a descriptive study. Thirty two mothers with a child affected by a cleft lip with or without a cleft palate were recruited from specialised clinics at two Johannesburg State Hospitals. The Postpartum Bonding Questionnaire was administered in an interview format to establish if there was any bonding impairment in the study group.

Results: A total of 32 mothers were included in the study. The results indicated that four (12.5%) of the mothers had a measure of impaired bonding while the majority of mothers 28 (87.5%) had normal bonding with their child. Some mothers did, however, display a degree of anxiety concerning planned reconstructive surgery.

Conclusion: We found that having a child with a cleft lip with or without a cleft palate does not significantly influence maternal-infant bonding, however, further investigations using a larger sample size would be needed for further clarification.

Keywords

Breastfeeding; cleft lip with or without a cleft palate; maternal-infant bonding; reconstruction surgery anxiety

Introduction

Orofacial clefts are amongst the most common birth defects worldwide affecting 1 in 700 newborn babies (Mossey and Modell, 2012). An orofacial cleft refers to a defect in the normal fusion of the lip and palate that results from arrested embryonic development in the first trimester. Clefts are referred to as syndromic when one or more additional defects are associated, but the majority are non-syndromic where the cleft occurs in the absence of other birth defects. Non-syndromic orofacial clefts include cleft lip (CL) only, cleft lip with a cleft palate (CLP) and cleft palate (CP) only (Stanier and Moore, 2004). Clefts can be categorized as unilateral or bilateral (involving one or both sides of the lip and/or palate). Males are more commonly affected by a CLP whilst females are predominantly affected with an isolated CP (Hopper et al., 2007).

The aetiology of the development of a non-syndromic CLP remains unclear and most are believed to result from a combination of genetic factors and prenatal teratogenic exposure including tobacco, retinoic acid and anticonvulsant medication (Mossey et al., 2009). Babies born with a CLP require extensive and coordinated care from a multidisciplinary team to optimise management outcome.

Newborn babies benefit from the physical closeness of breastfeeding and it has been established that mother-infant attachment and successful breastfeeding are closely linked (Phuma-Ngaiyaye and Kalembo, 2016). Feeding children with a CLP in the neonatal period is known to be difficult (Britton et al., 2006), and this may pose a challenge in the bonding process between mothers and their infants.

Having a child with CL or CLP is stressful in many ways; parents need to cope with the anxiety and shock of having a baby with a facial anomaly which may lead to feelings of anger, guilt and depression (Black et al., 2009). Sischo et al. (2015) indicated that parents of children with chronic conditions such as CLP often experience five stages of grief: shock denial, anger, adaptation and reorganization. The burden of caring for a child with CLP is substantial due to the ongoing evaluation, treatment and hospitalization which begins during infancy and extends over a period of time, often into young adulthood (Sischo et al., 2015).

Maternal-infant bonding is defined as the development of the reciprocal relationship between mother and child (Spinner, 1978). Bonding is a physical and psychological experience for both mothers and babies that provides comfort and protection. The mother is considered the "safe haven" for the establishment of the first emotional attachments of the child (Perrelli et al., 2014). Multiple factors have been associated with maternal-infant bonding such as level of education, employment, social support, parity, type of residence, pregnancy planning status as well as gender of the baby and feeding pattern (Rizk, 2016). Craniofacial anomalies may interfere with the initiation of parental nurturing which could impair bonding; structural facial abnormalities that affect the mouth may impede the recognition of smile responses or distort the vocalization necessary for the attachment process (Pillemer and Cook, 1989). It has also been hypothesized that affected children may be at risk for psychological problems and the bonding deficiency that they may encounter early in life may not be easily overcome, even with reconstructive surgery and improved facial appearance later in life (Perillo et al., 2017).

In general, there is a paucity of recent literature on how CLP affects maternal-infant bonding. In addition, this subject has never been researched in South Africa. Therefore the aim of this study was to describe bonding between mothers and their infants with a cleft lip with or without a cleft palate (CL/P) and to determine whether any demographic factors were associated with bonding impairment.

Materials and Methods

Study design and setting

This was a descriptive study and non-probability purposive sampling was used based on the availability and willingness of subjects to participate. The study population comprised of mothers who had an infant with a CL/P in Johannesburg, Gauteng, South Africa. Participation was voluntary and mothers were recruited from the Cleft Lip and Palate Clinic and Speech Therapy Departments at Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) and Chris Hani Baragwanath Academic Hospital (CHBAH). A total of 32 participants were recruited into the study over a three month period spanning from May to July 2017.

Study participants

Mothers of any age, sociodemographic status, ethnicity or religion were eligible and they had to be proficient in English. Mothers were included if they have a biological child with a CL/P, and if the child was three years of age or younger, irrespective of whether reconstructive surgery had been performed or not. Mothers whose infants had other birth defects or were diagnosed with a known syndrome were excluded from the study, as were mothers whose infant had an isolated CP, as this does not present with a visible facial deformity.

Research tool and data collection process

The research tool comprised of two structured questionnaires; a *Demographic Questionnaire* consisting of 19 items was administered which assessed socioeconomic status and maternal characteristics and the *Postpartum Bonding Questionnaire* (PBQ), designed by Brockington et al. (2001). The PBQ is one of the most frequently utilised tools used to evaluate a mother's emotional response to her baby in the postpartum period (Perrelli et al., 2014). The questionnaire consists of 25 items that are assessed on a 6-point Likert scale. The aim of this tool is to identify problems in the relationship between mother and infant based on four components: 1) impaired bonding, 2) rejection and anger, 3) anxiety about caring for the baby, and 4) risk of abuse (Brockington et al., 2001). The Risk of Abuse scale has been found to be unhelpful in identifying mothers considering abuse (Wittkowski et al., 2007) and was eliminated from the assessment, making the questionnaire 23 items in length. The questionnaires were administered in English in an interview format by the principle investigator to ensure that accurate information was received by the participant and to answer any questions that may have arisen during the completion of the questionnaires.

Exposure variables

Household socioeconomic status (SES) indicators in the form of data on household assets were collected from the mother in the demographic questionnaire. This scoring system has been successfully used before in South African studies (Jones et al., 2008; Feeley et al., 2013). The information collected included access to electricity and ownership of electronic items (i.e. a fridge, microwave, cell phone, television, washing machine, car). The household assets were categorized as binary variables; if a participant had a particular household durable item they scored 1, and if they did not have the household asset, they scored 0.

Statistical analysis

Data were analysed using Microsoft Excel 2016 and STATA statistical software package version 15 (StataCorp LP). Prior to any statistical analysis normality of continuous variables (mothers' ages, SES scores, number of children per mother and infant ages) was assessed using the Shapiro-Wilk test. Sample characteristics were summarized using descriptive statistics for each variable. Normally distributed data were reported as means ± standard deviation (SD), and data that was not normally distributed were reported as medians and interquartile ranges (IQR). For categorical variables, frequencies and percentages are presented. Associations between categorical variables and bonding were assessed using the Fisher Exact Test. Associations between bonding and normally distributed continuous variables were assessed using the T-test and the Wilcoxon-Mann-Whitney Test was used for variables that were not normally distributed. A p-value of 0.05 or less was considered significant.

Ethics

Ethical clearance was obtained from The Human Research Ethics Committee (Medical) at the University of the Witwatersrand (Clearance Certificate Number M170258). Study participants gave written informed consent and were provided with an information document explaining the study with a contact number should they have any questions. Confidentiality was maintained during all stages of the research by ensuring that no names were disclosed and participants were allocated an identification number which was used on all questionnaires.

Results

Participant demographics

A total of 32 mothers participated in the study. The mothers' ages ranged between 19 years and 41 years with a mean age of 28.72 years ± 6.50 years. The majority of mothers (24/32; 75%) were black African women who had completed high school (15/32; 47%). A large proportion of the mothers were unemployed (28/32; 88%) at the time the study was conducted and half (16/32; 50%) received child support grants from the government. Eighteen (56%) of the mothers were single and 14 (44%) were either married or living with their partner. The mean number of children per mother was 2.22 ±1.24; primiparous mothers represented the largest group (12/32; 37%). A comprehensive summary of the demographic findings can be seen in Table 1.

Half (16/32; 50%) of the infants had undergone CL repair. Twenty-two (69%) of the mothers reported that they were not able to breastfeed. The reasons they gave for not breastfeeding were mostly due to the CL or CP. Some mothers reported that they did not produce milk and were thus unable to breastfeed. Only two (6%) of the mothers received the diagnosis of a CL/P prenatally (Table 1).

Table 1. *Association between demographic factors and bonding in mothers with normal bonding and mothers with impaired bonding.*

Characteristics	**Total**	**Mothers with normal bonding**	**Mothers with impaired bonding**	**P-value**
	N = 32	**N = 28**	**N = 4**	
Mother's age (years) mean ± SD	28.72 ± 6.5	28.93 ± 6.27	27.25 ± 7.79	**0.63**[a]
Marital status				**0.79**[b]
Single	18 (56%)	15 (54%)	3 (75%)	
Cohabiting/married	14 (44%)	13 (46%)	1 (25%)	
Population group				**0.66**[b]
Black African	24 (75%)	20 (71%)	4 (100%)	
White	6 (19%)	1 (4%)	0 (0%)	
Indian	1 (3%)	1 (4%)	0 (0%)	
Coloured	1 (3%)	6 (21%)	0 (0%)	
Level of education				**0.32**[b]
Primary school	1 (3%)	1 (4%)	0 (0%)	
Some secondary schooling	10 (31%)	7 (25%)	3 (75%)	
Completed secondary school	15 (47%)	14 (50%)	1 (25%)	
Tertiary	6 (19%)	6 (21%)	0 (0%)	
Occupation				**1.00**[b]
Working	4 (12%)	4 (14%)	0 (0%)	
Not working	28 (88%)	24 (86%)	4 (100%)	
Socioeconomic status mean ± SD	8.25 ± 3.26	8.50 ± 2.87	7.53 ± 4.24	**0.67**[a]
Social Grant				**0.60**[b]
Child support grant	16 (50%)	13 (46%)	3 (75%)	
No grant	16 (50%)	15 (54%)	1 (25%)	
Type of residence				**0.68**[b]
Flat	4 (12%)	4 (14%)	0 (0%)	
House	16 (50%)	13 (46%)	3 (75%)	
Rent	7 (22%)	7 (25%)	0 (0%)	
Informal settlement	5 (16%)	4 (14%)	1 (25%)	
Number of children mean ± SD	2.22 ±1.24	2.25 ±1.14	2 ±2.00	**0.058**[b]
One	12 (37%)	4 (14%)	3 (75%)	

Two	8 (25%)	7 (25%)	0 (0%)	
Three	7 (22%)	9 (33%)	0 (0%)	
Four or more	5 (16%)	8 (27%)	1 (25%)	
Age of child with cleft (months) median (IQR)	7.00 (1.17-15.25)	7.00 (1.00-15.00)	17.50 (8.75-27.00)	**0.09**[c]
Mode of delivery				**0.55**[b]
Normal vaginal delivery	24 (75%)	20 (71%)	4 (100%)	
Caesarean section	8 (25%)	8 (29%)	0 (0%)	
Gender of child with cleft				**1.00**[b]
Male	22 (69%)	19 (68%)	3 (75%)	
Female	10 (31%)	9 (32%)	1 (25%)	
Cleft lip with/without palate				**1.00**[b]
Cleft lip	9 (28%)	8 (29%)	1 (25%)	
Cleft lip and palate	23 (72%)	20 (71%)	3 (75%)	
Type of cleft				**0.30**[b]
Unilateral	23 (72%)	19 (68%)	4 (100%)	
Bilateral	9 (28%)	9 (32%)	0 (0%)	
Cleft repaired				**0.61**[b]
Yes	16 (50%)	13 (46%)	3 (75%)	
No	16 (50%)	15 (54%)	1 (25%)	
Breastfeed				**0.11**[b]
Yes	10 (31%)	8 (29%)	3 (75%)	
No	22 (69%)	20 (71%)	1 (25%)	
Diagnosed				**1.00**[b]
Prenatally	2 (6%)	2 (7%)	0 (0%)	
Postnatally	30 (94%)	26 (93%)	4 (100%)	

[a]T-test; [b]Fisher Exact Test; [c]Wilcoxon-Mann-Whitney Test

Regarding infants with CL/P

Twenty four (75%) of the mothers reported that their child with the CL/P was born by normal vaginal delivery while the remainder had a Caesarean section. There were more than double the number of affected male infants than females (69% vs 31%). The majority of infants had a unilateral CLP, followed by infants with a bilateral CLP and unilateral CL (Table 2).

Table 2. *Types of clefts observed in study population.*

	Bilateral N (%)	**Unilateral N (%)**	**Total N (%)**
Cleft lip	1 (3%)	8(25%)	9 (28%)
Cleft lip and palate	8 (25%)	15 (47%)	23(72%)
Total	9 (28%)	23 (72%)	**32**

Scores on the Postpartum Bonding Questionnaire

Of the 32 mothers participating in the study, 28 (88%) did not show an indication of impaired bonding on the PBQ. Four (13%) mothers did show a measure of impaired bonding in one or more of the three scales. Of the four mothers who demonstrated impaired bonding, two (6%) had scores higher than 11 (scores of 12 and 13) for scale 1 (general impaired bonding) only, and two (6%) mothers had scores above the cut-off values for scale 1 and scale 3 (anxiety about care). The mean scores for mothers with normal bonding and mothers with impaired bonding are shown in Table 3.

Table 3. *Mean PBQ scores for mothers with and without impaired bonding.*

Groups	**Count**	**Scale**		
		1	2	3
Range of scores		0-59	0-34	0-20
Cut-off point		>11	>16	>9
Mothers without impaired bonding	28	4.57 ± 3.11	0.46 ± 0.73	2.39 ± 2.27
Range of scores		0-9	0-2	0-9
Mothers with impaired bonding	4	15.5 ± 3.04	7.25 ± 4.66	7 ± 5.24
Range of scores		12-19	2-14	10-14
Total scores (all mothers)	32	**5.94 ± 4.76**	**1.31 ± 2.87**	**2.97 ± 3.21**

[a]Results given as means ± SD or medians (IQR)

In the four mothers who indicated impaired bonding, all were of black African ancestry, unemployed and three of the four mothers were single parents. The infants of these mothers were delivered by normal vaginal delivery and diagnosed postnatally. Three (75%) of the mothers reported that the affected baby was their first child and three (75%) were affected by a unilateral CLP.

Association between demographic factors and bonding impairment

A comparison was made between the demographic factors of mothers with normal bonding and mothers with impaired bonding. No significant association was observed between any of the variables and maternal-infant bonding. Table 1 summarises the relationship between the demographic variables and the bonding scale.

Discussion

The feelings mothers experience after a child with a CLP is born can often be characterized as discouraging and confusing. Parents are unprepared for the challenging situation and the complications that are associated with having a baby with a CLP (Kuttenberger et al., 2010).

We anticipated that there would be higher levels of impaired bonding in mothers with children with CL/P due to the psychological impact and the associated complex challenges. It was also thought that some of the sociodemographic factors would be strongly associated with impaired bonding. However, in our study population, we observed that the majority of mothers had normal bonding with their infants.

The reasons for the four mothers showing a level of impaired bonding might be due to other causes, including the mother's relationship with her partner, poor socioeconomic status or unemployment. These may be contributing factors for impaired bonding or may have exacerbated the bonding impairment. A study conducted in Pennsylvania, USA, using the PBQ in a cohort of first-time mothers, revealed a socioeconomic bias in that older, more educated women who were not living in poverty and were married, reported better maternal-infant bonding (lower scores) (Kinsey et al., 2014). Support from the father of the baby, as well as social support, also resulted in better bonding. None of the sociodemographic factors showed a significant association with impaired bonding in our study sample, although the sample size was small.

Drotar et al. (1975) explained that due to the increased anxiety mothers experience when having a child with a congenital malformation, they typically described their relationship with their child as "closer than normal". This in turn can lead to an overly close relationship which develops between a mother and a child with an abnormality (Drotar et al., 1975). This may be an explanation for the normal bonding observed in the mothers in our study.

There was no statistical significance in the scores of mothers with babies who had undergone cleft repair and those who had not. However, from the PBQ, the question that had the highest score overall was question 19, "My baby makes me anxious". This may be attributed to the concern about potential surgical procedures as well as anxiety around feeding difficulties. Comments made during the interviews suggested that the mothers were anxious about the upcoming surgery for the cleft repair. A study by Kuttenberger et al. (2010) indicated that information about surgery and feeding are most frequently mentioned as the most important information that the parents require. According to Kuttenberger et al. (2010), the majority of parents prefer to see photographs of other children who have had surgery and also appreciate information about cleft patient organizations and support groups. In order to reduce anxiety and uncertainty in parents, clear and consistent information needs to be provided about the anomaly, treatment, surgery and the prognosis (Kuttenberger et al., 2010).

Currently in South Africa, there appears to be a lack of comprehensive preparation for parents of children undergoing surgery to alleviate feelings of anxiety and concern about the actual procedure. These preparation processes mentioned above could be adopted for parents of children undergoing any type of surgery. It is suggested from the current study and other studies that there is a need to counsel the patient and family to discuss pre and post-surgery concerns and discuss the relevant information (De Sousa et al., 2009). Empowering the parents, and teaching them the essentials of cleft care in the early stages after the baby is born will help alleviate the initial fear and feelings of hopelessness (Rey-Bellet and Hohlfeld, 2004).

Most mothers who did not breastfeed their babies reported that it was due to the CP which made feeding often difficult or not possible. This might have contributed to the increase in anxiety scores of the mothers with infants with CLP. In many cases, mother and child are temporarily separated after birth because of assumed feeding problems (Kuttenberger et al., 2010). Literature shows that an inability to breastfeed is related to an increase in anxiety and depression in postpartum mothers (Ystrom, 2012). Initial counselling after the birth of a baby with a cleft is of significant importance for parents who need extra encouragement and support during this vulnerable period (Kuttenberger et al., 2010). These are important matters for doctors, nurses, midwifes and genetic counsellors to consider in the initial consultation with a mother with a child with a CL/P. Focussing on pre- and post-surgical preparation can also be of great value to parents.

There was no association between bonding and mothers who knew the diagnosis prenatally compared to those diagnosed postnatally. These findings may have been affected by the small sample size. It has been shown that there are some advantages in receiving a diagnosis prenatally as parents can prepare physically and emotionally for the birth of a baby with an anomaly, which may decrease anxiety levels. Rey-Bellet and Hohlfeld (2004) showed that in a group of couples who received a diagnosis of CL/P prenatally, 96% found the early diagnosis to be beneficial. The reason for the majority of mothers in our study not receiving a diagnosis of CL/P prenatally could be due to numerous factors. In Johannesburg, most local antenatal clinics in the public healthcare sector (at which most women receive their antenatal care) do not have the functional equipment or trained personnel to offer detailed ultrasound which may be able to detect a CL/P.

Although the PBQ is a well-established and validated questionnaire, a mother's subjective account based on a self-rating instrument will not be able to reliably assess the mother-infant relationship entirely. The gold standard will still remain direct clinical observation (Brockington et al., 2001). Further research could explore a wider range of sociodemographic factors such as support from the father of the baby, trauma during birth and maternal stress and depression.

Limitations

The small sample size obtained was due to time constraints and language barriers as English is not the first language in the majority of the South African population. Mothers attending regular follow-up appointments at the clinics affected the recruitment of new participants and limited the sample size, as well as the fact that infants were brought to the clinic by caregivers and family members and not the biological mothers. This may have caused a bias towards recruitment of mothers who are unemployed (87% unemployed vs 13% employed). Limitations related to generalizability of this study include, the overrepresentation of mothers who are committed to the management of their infant with a cleft lip by attending specialized clinics. Recruitment of mothers who are proficient in English may have introduced a bias, and mothers who might have benefitted the study may have been excluded due to their inability to answer the questionnaire effectively. The small sample size affected the power of this study and in further research a larger sample size will increase the statistical significance. The inclusion of a comparison group could strengthen the study.

Conclusion

Of all the mothers that had an infant with a CL/P, only four (12.5%) showed a measure of impaired bonding. The majority of mothers had good bonding with their infants with CL/P. The authors felt that this demonstrated the significance of prenatal maternal-infant bonding and the unconditional acceptance of a mother for her child. In this study, a need was identified for improved preparation and counselling for parents with regards to the reconstructive surgical process. Further research in a larger cohort is required to make more definitive conclusions and to substantiate the findings in this study with regards to the effect of a baby's CL on maternal-infant bonding. However, this research study has provided an indication of the current status of maternal-infant bonding in a group of mothers from Johannesburg. In summary, it was established from this study that having a child with a CL/P does not have a major influence on the bonding relationship between mother and infant.

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CURRENT QUALIFICATIONS: MSc (Med) Molecular and Cellular Biology

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DEGREE FOR WHICH PROTOCOL IS BEING SUBMITTED: MSc (Med) Genetic Counselling

PART-TIME OR FULL-TIME: Full-time

FIRST REGISTERED FOR THIS DEGREE:	TERM : 1	YEAR: 2016

DEPARTMENT: Human Genetics

TITLE OF PROPOSED RESEARCH:
Assessment of maternal-infant bonding between mothers and their babies with a cleft lip.

CANDIDATE'S SIGNATURE: Nienaber	DATE: 27/01/2017

SUPERVISOR #1'S NAME: Merlyn Glass

% OF SUPERVISION TO BE PROVIDED BY SUPERVISOR #1: 50%

SUPERVISOR #1'S QUALIFICATIONS: RN, RM, Dip Paeds, MSc (Nursing Education)

SUPERVISOR #1'S DEPARTMENT: Human Genetics

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SUPERVISOR #2'S NAME: Lindsay Lambie

% OF SUPERVISION TO BE PROVIDED BY SUPERVISOR #2: 50%

SUPERVISOR #2'S QUALIFICATIONS: MBBCh, DCH(SA), FCPaed(SA), Cert(Medical Genetics)(SA), MSc (Med)(Genetic Counselling).

SUPERVISOR #2'S DEPARTMENT: Human Genetics

SUPERVISOR #2'S ADDRESS / TEL / **E-MAIL**: Room 3, First Floor, Jack Metz Building, Cnr Hospital & De Korte Str, Braamfontein/ Tel: 0114899336/Email:Lindsay.lambie@nhls.ac.za

SYNOPSIS OF RESEARCH:

Orofacial clefts are among the most common birth defects worldwide. Some studies suggest that having a child with a cleft lip with/without a cleft palate may have detrimental effects on parent-child bonding. Yet other research found that "children with clefts and their mothers are doing as well as families without cleft with regards to emotional development and mother-child relationships". Little is known, however, about the effect of cleft lip and palate on mother-infant bonding in the South African context.The aim of this study is to describe maternal-infant bonding between mothers and their infants with a cleft lip, as well as to explore risk factors which may affect bonding. The study population will comprise of mothers who have an infant with a cleft lip with/without a cleft palate in Johannesburg, Gauteng, South Africa. The research tool will comprise two structured questionnaires, a Demographic Questionnaire and the Postpartum Bonding Questionnaire. The data will be analysed quantitatively. This research could facilitate the understanding of how a birth defect, such as a cleft lip may affect mothers' initial bonding experiences with their infants in South Africa. It could assist genetic counsellors to address potential concerns and make parents aware of the potential difficulties, thus assisting them to establish a better relationship with their babies.

ETHICS PENDING: ETHICS APPROVED: (circle appropriate symbol)	[✓ Ψ] Ψ	IF Y SUPPLY ETHICS CLEARANCE No:

SIGNATURE OF SUPERVISOR/S:	MGlass	LLambie

Assessment of maternal-infant bonding between mothers and their babies with a cleft lip

Elzette Nienaber

762941

MSc. (Med) Genetic Counselling

Supervisor 1

Merlyn Glass

(RN, RM, Dip Paeds, MSc) (Nursing Education)

Supervisor 2

Dr Lindsay Lambie

MBBCh, DCH(SA),FCPaed(SA),Cert(Medical Genetics)(SA), MScMed(Genetic Counselling)

1. Background

1.1 Introduction to cleft lip and palate

Orofacial clefts are among the most common birth defects worldwide and one in 700 new born babies have a cleft lip or palate or both (Tolarová and Cervenka, 1998). They represent a heterogeneous group of disorders affecting the lips and oral cavity (Mossey et al., 2009). Orofacial clefts refer to a defect or opening in the normal fusion of the lip and palate that results from arrested embryonic development in the first trimester. Clefts are referred to as syndromic where one or more additional defects are associated. The majority are non-syndromic where the cleft lip and/or palate occur in the absence of other birth defects. Non-syndromic orofacial clefts include, cleft lip only (CL), cleft lip with a cleft palate (CLP) and cleft palate only (CP) (Stanier and Moore, 2004).

1.2 Epidemiology of cleft lip and palate

Clefts of the lip and palate are divided into two general groups, cleft lip with or without palate and isolated cleft palate. Occurrence estimates range between one in 1 500 for cleft palate only and between one in 300 and one in 2 500 for cleft lip with or without palate (Wyszynski et al., 1996). The most common is CLP (46%), followed by isolated CP (33%) and lastly isolated CL (21%). Clefts can be categorized as unilateral or bilateral (involving one or both sides of the lip and/or palate), and as 'incomplete' or 'complete' (involving only the soft palate versus both the soft and hard palates, and/or involving only the lip versus the lip and gumline) (Hopper et al., 2007).

The occurrence of a unilateral cleft is nine times more common than a bilateral cleft and occurs mostly on the left side. Males are more commonly affected by a cleft lip and palate whilst females are predominantly affected with isolated cleft palates (Hopper et al., 2007).

1.3 Aetiology of cleft lip and palate

The aetiology of CLP is complex and is thought to involve genetic factors with variable influences from the environment. The majority of clefts are non-syndromic and thus not associated with any other birth defects. The aetiology for the development of a non-syndromic cleft lip or palate remains unclear and most are believed to result from a combination of genetic factors and prenatal teratogenic exposure including tobacco, retinoic acid and anticonvulsant medication (Mossey et al., 2009). The multigenic inheritance combined with non-genetic factors makes it challenging to identifying key genes involved in CLP. Through linkage studies, various loci have been reported to have a causal role in the formation of CLP (Prescott et al., 2000). A meta-analysis of 13 genome scans by Marazita et al. (2004) revealed multiple CLP genes on 16 chromosomal regions. Although there is a definite genetic component influencing the development of non-syndromic cleft lip and/or palate, it still seems to be attributed to multifactorial factors (Hopper et al., 2007).

1.4 Management

Babies born with a cleft lip or palate require extensive and coordinated care from a multidisciplinary team to optimise outcome. Clefts may be detected by ultrasound in utero, but many cases are still being missed and the diagnosis is often only made after birth. Cleft lip is normally repaired surgically by five months of age, followed by the cleft palate repair when children are between 12 and 18 months old. Surgical revision and follow up procedures are scheduled according to the patients' needs.

New-born babies benefit from the physical closeness of breastfeeding and it has been established that there is a link between mother-infant attachment and breastfeeding, however, feeding children with a CLP in the neonatal period is known to be difficult (Britton et al., 2006). This may also pose a challenge in the bonding process of mothers and their infants. The effects of CLP on appearance, speech, hearing and the psychological impact can lead to long-lasting adverse effects for health and social integration (Mossey et al., 2009). Rehabilitation is possible with good and effective health care; orofacial clefts can pose a great burden on the individual, family and society.

1.5 Mother-infant bonding

Maternal-infant bonding is defined as the development of the reciprocal relationship between mother and child (Spinner, 1978). Bonding is a physical and psychological experience for both mothers and babies which provides comfort and protection. The mother is considered the “safe haven” for the establishment of the first emotional attachments of the child (Biaggio et al. 2001). Having a child with CLP is stressful in many ways; parents need to cope with the anxiety and shock of having a baby with a facial anomaly which may lead to feelings of anger, guilt and depression. Research has indicated that parents with children with chronic conditions such as cleft lip and/or palate often experience five stages of grief: shock denial, anger, adaptation and reorganization (Sischo et al., 2015). As well as coping with the reality of having a child who is “different”, parents must also endure the added care associated with CLP which reportedly increases parental stress. The burden of caring for a child with CLP is substantial due to the ongoing evaluation, treatment and hospitalisation which begins during infancy and extends over a period of time, often involving young adulthood (Sischo et al., 2015).

The birth of a baby with a chronic condition such as a CLP has an immense impact, not only on the parents, but on the entire family and can profoundly disrupt the family system (Sischo et al., 2015). St. John et al., (2003), found that divorce rates are higher in families with a child with a craniofacial anomaly compared to a control group. Another study, however, concluded that families with children with chronic conditions fare the same if not better than the healthy control group (Rodrigues and Patterson, 2007). The effect/impact that a child with CLP has on the family structure and function may be influenced by the type of cleft, the characteristics of the family (such as age of the child, number of children and income), background factors (such as family values), social support and cultural issues (Sischo et al., 2015).

In addition to parental stress and the impact on family system, the effect of a CLP on parent-infant bonding and interaction has been explored (Sischo et al., 2015). Some studies suggest that having a child with a CLP may have detrimental effects on parent-child bonding. Murray et al. (2008) found that mothers of children with a cleft have less maternal sensitivity towards their children compared with controls. Late surgical repair of a child's cleft also resulted in mothers who were less positively involved and looked at their children less often than the controls did (Murray et al., 2008). Yet other research found that "children with clefts and their mothers are doing as well as families without cleft with regards to emotional development and mother-child relationships" (Habersaat et al., 2013). Little is known, however, about the effect of CLP on maternal-infant bonding in the South African context.

2. Study objectives

2.1 Aim

The aim of this study is to describe maternal-infant bonding between mothers and their infants with a cleft lip attending specialised clinics at Johannesburg State Hospitals, as well as to explore risk factors which may affect bonding.

2.2 Objectives

- To determine whether there is bonding impairment in the maternal-infant relationship in mothers with infants with a cleft lip attending clinics at Johannesburg State Hospitals.
- To explore whether sociodemographic factors influence bonding in mothers with infants with a cleft lip.
- To establish if there is better maternal-infant bonding when infants have had their cleft repaired.

- To establish whether breastfeeding was possible and if not, was the cleft lip the reason for this.
- To determine whether there is a difference in maternal-infant bonding in mothers who knew the diagnosis prenatally, compared to mothers who did not know the diagnosis prenatally.

3. Methodology

3.1 Study participants and sampling

The study population will comprise of mothers who have an infant with a cleft lip with/without a cleft palate in Johannesburg, Gauteng, South Africa. Participation will be voluntary and mothers will be recruited from the cleft lip and palate clinic and speech therapy departments at Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) and Chris Hani Baragwanath Academic Hospital (CHBAH). Between 30 and 60 participants will be recruited from these clinics.

Non-probability, purposive sampling will be used based on the availability and willingness of subjects to participate in the study. A verbal explanation will be given by the principle investigator (PI) describing the aim of the study and what will be required of them after which, any queries will be clarified. Participants will be provided with an information document with all the details of the study (Appendix A). The individuals who are willing to participate in the study, and who meet the inclusion criteria, will be required to sign informed consent (Appendix B). The questionnaires will be administered in an interview format by the PI to ensure accurate information is obtained by the participant and to answer any questions that may arise during the completion of the questionnaire. A separate room will be arranged in the respective departments where the questionnaires will be completed to ensure confidentiality. The questionnaires that will be used in this study will require approximately 20 minutes to complete. Participants will not be disadvantaged in any way with regards to their waiting time or treatment if they choose to participate in the study. During the recruitment and questionnaire process, if participants are identified that require further counselling or support, referrals will be made to the appropriate professionals. A Genetic Counselling pamphlet with information about the service and contact information will be given to participants should they wish to seek additional service.

Inclusion criteria

- Women of any age, sociodemographic group, ethnicity or religion.
- Mothers with
  - A biological child with a cleft lip with/without cleft palate.
  - An infant or child younger than 3 years of age, irrespective of whether reconstructive surgery has been performed.
- Women who are able to communicate proficiently in English.

Exclusion criteria

- Mothers with infants/children who have other birth defects or have been diagnosed with a known syndrome.
- Infants with an isolated cleft palate.

3.2 Study Design

This will be a non-experimental study as there is no manipulation of the independent variable, nor is the setting controlled (Brink et al., 2006). The study will be a quantitative study focussing on a combination of descriptive and correlation research designs. The descriptive design will describe the variables in the data. It will be used to obtain the first objectives set out in this study. A descriptive correlational design will be used to determine and describe what relationships exist between independent and dependent variables and address the remaining objectives. The independent variable will be the mothers with an infant with a cleft lip. The dependent variables will be the level of impaired bonding and the sociodemographic factors.

3.3 Research tool and data collection

The research tool will comprise two structured questionnaires. The questionnaires will be administered by the PI at State Hospitals (CMJAH and CHBAH) in Johannesburg together with an information document and informed consent document.

Demographic Questionnaire: Mothers will complete a questionnaire designed to obtain basic demographic information consisting of 20-items which will help identify commonalities and differences within the group (Appendix C).

Postpartum Bonding Questionnaire (PBQ): The PBQ, designed by Brockington et al. (2001) is one of the most frequently used tools to evaluate the mother's emotional response in relation to the baby in the postpartum period (Perrelli et al., 2014). The questionnaire consists of 25-items that are assessed on a 6-point Likert scale. This tool aims to identify problems in the mother-baby relationship based on four components: 1) impaired bonding, 2) rejection and anger, 3) anxiety about caring for the baby, and 4) risk of abuse (Brockington et al., 2001). The Risk of Abuse Scale was eliminated from the assessment, making the questionnaire 23 items in length. The Risk of Abuse scale has been found unhelpful in identifying mothers considering abuse. In addition, mothers may feel more comfortable completing the assessment if these items were omitted. It is a validated and reliable tool used to identify dysfunction in the relationships between a mother and her child and provides a consistent and valid indication of the early emotional bond (Brockington et al., 2006; van Bussel et al., 2010) (Appendix D).

4. Data analysis

The data will be analysed quantitatively. Data from the Demographic Questionnaire will be summarised using descriptive statistics to become familiar with the data and to characterize our sample. The descriptive statistics such as frequency distributions, measures of central tendency, dispersion and variability will be used to describe and summarize variables obtained in the data.

Spearman’s rank correlation coefficient will be used to assess the relationship between continuous variables such as bonding score and sociodemographic factors. These analyses will help determine whether there is a relationship between these variables and the bonding level. Statistical analysis will be done using software that is freely available. The data obtained from the DQ and PBQ will be captured in an Excel spreadsheet and data will be analysed using Excel 2016.

5. Ethics

An information document explaining the research will be distributed to participants. The participants will be informed that the results of this study may be published. Participation is voluntary and participants are free to withdraw from the study at any time with no impact on their treatment or management. Written informed consent will be obtained from all participants,

Confidentiality will be maintained during all stages of the research by ensuring that no names are disclosed. Participants will be assigned a specific participant number in the research report. This number will be on an additional form where participants give their information and contact details for the PI to get in contact with them if indicated. The participant will be made aware that they will be personally contacted by the PI should the results of the PBQ indicate potential impaired bonding between mother and child. They will be offered a referral to a non-profit centre in Johannesburg specialising in mother-infant bonding relationship and support (Ububele Baby Mat Project) (Frost,

2012) where a contact person has been identified. This may be viewed as a breach of confidentiality, making the participants hesitant to participate in the study or affect the outcome of the questionnaire.

The Heads of the Speech Therapy Departments as well as the Cleft Lip and Palate Clinic at CMJAH and CHBAH have been contacted and are in the process of giving written permission (Appendix E). Thereafter, permission will be obtained from the CEO's at CMJAH and CHBAH (Appendix F). The Human Research Ethics Committee at the University of the Witwatersrand will be approached for ethics approval on the 7th of February 2017.

6. Timing

This study will commence in as soon as ethical approval is obtained and the final research report will be submitted at the end of August 2017.

Chart 1: Gant chart indicating time expected to be taken on the various components.

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Protocol planning and design	▨	▨										
Internal Protocol Assessment		▨										
Protocol amendments		▨										
Application to Ethics			▨									
Protocol Assessment			▨									
Collecting Data				▨	▨	▨						
Data Analysis						▨	▨	▨				
Write up - research report								▨	▨			
Write up - paper										▨	▨	▨

7. Funding

Predicted budget

Expenses	Estimated Cost
Travelling cost from NHLS to recruiting clinics twice a week for a period of 12 weeks.	NHLS to CMJAH = 2.7 km NHLS to CHBAH= 16.3 km 19 km x 24 = 456 km @ 82.4c/km **Total = R 375.74**
Printing cost : Information document, Consent form, DQ, PBQ (6 pages) for a maximum of 60 participants.	6 x 60 = 360 2 x 80 = 160 Total of 520 pages @ 39c/page

Research report (max of 80 pages, 2 copies)	**Total = R 202.80**
Total	**R 578.54**

No funding is required for conducting this study as participation will be voluntary during attendance at the respective clinics. The research tool is freely available and statistical analysis will be done using available software. Travelling and printing costs will be covered by the PI.

8. Potential limitations.

A potential limitation of this study may be reaching the anticipated number of participants. This will depend on willingness to participate in the study, and finding participants who meet the inclusion criteria. The small sample size will also potentially limit the statistical power of this study.

The characteristics of mothers who agree to participate may confound the results. Mothers who feel they have the capacity to engage in the research report at this difficult time in their lives may represent those with higher coping mechanisms. This may affect the data by reflecting a highly motivated and more capable group than exists in the general population. The external validity may be affected by participant bias.

External validity may be affected by experimenter effects when the PI administers the questionnaires in an interview manner (when researcher characteristics or behaviour influence subject behaviour). Internal validity will be affected by the purposive selection bias.

Value of the study

This research could facilitate the understanding of how a birth defect, such as a cleft lip may affect mothers' initial bonding experiences with their infants in South Africa. It could assist genetic counsellors to address potential concerns and make parents aware of the potential difficulties, thus assisting them to establish a better relationship with their babies. The study will assist in the implementation of coping strategies for parents to help deal with the initial shock, denial and anger, which often occurs when a baby is born with a birth defect. This study will make a valuable contribution in improving the understanding and effect that facial deformities may have on mother-infant bonding.

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APPENDIX A
INFORMATION DOCUMENT

Good day,

Introduction: My name is Elzette Nienaber and I am currently doing a Master's Degree in Genetic Counselling at the University of the Witwatersrand. I am conducting a study for research purposes to describe maternal-infant bonding between mothers and their infants/children with a cleft lip, as well as to find out about risk factors which may affect bonding. Research is just the process to learn the answer to a question.

Invitation to participate: You are invited to take part in this research study. If you choose to participate in this study, you will need to answer two questionnaires, which will take approximately 20 minutes to complete.

- The first questionnaire will be basic questions about your age, marital status, residence as well as other details.
- The second questionnaire is called the Postpartum Bonding Questionnaire which will assess the bonding between you and your child.

Risks: There is no risk in participating in this study.
Benefits: By choosing to participate we will be able to determine if there is impaired bonding in mothers with babies with a cleft lip.

Participation is voluntary: You do not have to take part in the study. If you choose to take part, you do not have to answer all the questions. You will not be disadvantaged in any way with regards to your waiting time or treatment and we will ensure that you do not lose your place in the queue if you choose to participate in the study. You also have the right to withdraw from the study at any time and this will not affect your child's management and treatment in any way.

Confidentiality: If you choose to take part in the study, you will remain anonymous, as no names will appear on the questionnaire, which will be kept strictly confidential. On completion of the questionnaire you will be required to put it in the provided, unmarked envelope which you will seal yourself. Only I will have a list to link you to this number, and will not give this information to anyone without your permission.

If the results of the Postpartum Bonding Questionnaire indicate potential impaired bonding between you and your baby I, Elzette Nienaber, will refer to my list to contact you directly. We will refer you to a psychologist at Ububele, a non-profit centre in Johannesburg specialising in mother-infant bonding relationship and support. A genetic counsellor will also be readily available if needed.

The appropriate committees of the University of the Witwatersrand as well as the Head of the Speech Therapy Department and the CEO of the study sites have granted approval for this study.

Should you have any queries regarding this study or about your participation in the study, I or my supervisors can be contacted on the following number:

Principle Investigator	Elzette Nienaber:	011 489 9223
Supervisors	Merlyn Glass	011 489 9335
	Lindsay Lambie	011 489 9336

Contact details of REC administrator and chair

Ms. Zanele Ndlovu	011 717 1252/2700/1234/2656	zanele.ndlovu@wits.ac.za
Mr. Rhulani Mkansi	011 717 1252/2700/1234/2656	rhulani.mkansi@wits.ac.za

NATIONAL HEALTH LABORATORY SERVICE
School of Pathology, University of the Witwatersrand
Division of Human Genetics

APPENDIX B

GENETIC COUNSELLING CLINIC

Hospital Street, Johannesburg, 2001 | PO Box 1038, Johannesburg, 2000
[T]: +27 11 489 9223 [F]: +27 11 489 9226 [E]: human.genetics@nhls.ac.za

Prof A Christianson: +27 11 489 9239 **Prof A Krause +27 11 489 9219**

NR:____

INFORMED CONSENT

I have read and understood the attached information sheet and agree to take part in the research study entitled "**Assessment of maternal-infant bonding between mothers and their babies with a cleft lip**", conducted by Elzette Nienaber.

I hereby acknowledge that my participation in this study will be completely voluntary and I am allowed to withdraw at any time. I understand that if the results of the Postpartum Bonding Questionnaire indicate potential impaired bonding between me and my baby, that I will be contacted and referred to a non-profit centre in Johannesburg specialising in mother-infant bonding relationship and support.

I understand that taking part in this study will not provide any direct benefit to my child or change the care and treatment of my child in any way.

Name: ________________________

Surname: ______________________

Contact number 1: __________________________

Contact number 2:___________________________

Date: _________________________ Signature: ______________________

Nr: _____

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

DATE: ___________

1. Mother's age: _____________

2. Marital Status: ☐ Single ☐ Married ☐ Separated

☐ Divorced ☐ Widowed ☐ Living together

3. Population group: ☐ Black ☐ Coloured ☐ White

☐ Indian ☐ Other

4. Highest grade completed/level of education: _______________

5. Occupation: _______________ ☐ Not working

6. SASSA Grant for your child: ☐ Child support grant ☐ No Grant

☐ Care Dependency Grant

7. Household socio economic status

Item

a) Electricity		h) Television	
b) Motor vehicle		i) Radio	
c) Fridge		j) Video machine/DVD	
d) Microwave		k) MNet	
e) Washing machine		l) DSTV/Satellite	
f) Landline telephone		m) Computer	
g) Cell phone		n) Internet access	

8. Type of residence: ☐ Flat ☐ House ☐ Rent

☐ Own ☐ Shack/Informal settlement

9. Number of children: _________

10. Ages of children: _________

11. Age of child with cleft lip with/without palate: _________ (months)

12. Mode of delivery: ☐ Cesarean section ☐ Normal vaginal delivery

13. Gender of child with CLP: ☐ Male ☐ Female

14. Cleft lip with/without palate: ☐ Cleft lip only ☐ Cleft lip and palate

15. Type of cleft: ☐ Unilateral ☐ Bilateral cleft

16. Cleft repaired: ☐ Yes ☐ No

    a. If YES, baby's age when repaired? ______________

17. Did you breastfeed? ☐ Yes ☐ No

18. If not, why? ____

19. Did you receive the diagnosis ☐ Prenatally ☐ Postnatally

APPENDIX D

POSTPARTUM BONDING QUESTIONNAIRE (Brockington et al., 2001).

Please indicate how often the following are true for you.
There are no right or wrong answers:
Choose the answer which best seems right in your recent experience.

NUMBER:

DATE:

		Always	**Very Often**	**Quite Often**	**Some-times**	**Rarely**	**Never**
1.	I feel close to my baby						
2.	I wish the old days when I had no baby would come back						
3	I feel distant from my baby						
4.	I love to cuddle my baby						
5.	I regret having this baby						
6.	The baby does not seem to be mine						
7	The baby winds me up						
8.	My baby irritates me						
9.	I feel happy when my baby smiles or laughs						
10.	I love my baby to bits						
11.	I enjoy playing with my baby						
12.	My baby cries too much						
13.	I feel trapped as a mother						
14.	I feel angry with my baby						
15.	I resent my baby						
16.	My baby is the most beautiful baby in the world						
17.	I wish my baby would sometimes go away						
19.	My baby makes me anxious						
20.	I am afraid of my baby						
21.	My baby annoys me						
22.	I feel confident when changing my baby						
23.	I feel the only solution is for someone else to look after my baby						
25.	My baby is easily comforted						

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

MEDICAL ADVISORY COMMITTEE
CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL

PERMISSION TO CONDUCT RESEARCH

Date: 27 Feb 2017

TITLE OF PROJECT: Assessment of maternal-infant bonding between mothers and their babies with a cleft lip

UNIVERSITY: Witwatersrand

Principal Investigator: E Nienaber

Department: Human Genetics

Supervisor (If relevant): M Glass

Permission Head Department (where research conducted): Yes

Date of start of proposed study: Feb 2017
Date of completion of data collection: Dec 2019

The Medical Advisory Committee recommends that the said research be conducted at Chris Hani Baragwanath Hospital. The CEO /management of Chris Hani Baragwanath Hospital is accordingly informed and the study is subject to:-

- Permission having been granted by the Human Research Ethics Committee of the University of the Witwatersrand.
- the Hospital will not incur extra costs as a result of the research being conducted on its patients within the hospital
- the MAC will be informed of any serious adverse events as soon as they occur
- permission is granted for the duration of the Ethics Committee approval.

....
Recommended
(On behalf of the MAC)
Date: 27 February 2017

....
[✓ Approved]/Not Approved
Hospital Management
Date: 28/12/17

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL

Enquiries:
Mr. Johannes Maepa
Office of the Clinical Director
Tell: (011) 488-3365
Email:johannes.maepa@gauteng.gov.za
04 April 2017

Dear Ms Elzette Neinaber

STUDY TITLE: "Assessment of maternal-infant bonding between mothers and their babies with a cleft lip".

Permission to conduct the above mentioned study is provisionally approved. Your study can only commence once Ethics approval is obtained. Please forward a copy of your ethics clearance as soon as the study is approved by the Ethics committee for the CEO's to give you the final approval to conduct the study.

Supported/~~not supported~~

Dr M.I. Mofokeng
Clinical Director
DATE: 5/4/2017

[✓ Approved]/not approved

Bogoshi
Ms G. Bogoshi
Chief Executive Officer
Date: 06.04.2017

R14/49 Miss Elzette Nienaber

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M170258

NAME: Miss Elzette Nienaber
(Principal Investigator)

DEPARTMENT: Human Genetics
National Health Laboratory Service

PROJECT TITLE: Assessment of Maternal-Infant Bonding between Mothers and their Babies with a Cleft Lip

DATE CONSIDERED: 24/02/2017

DECISION: Approved unconditionally

CONDITIONS:

SUPERVISOR: Ms Merlyn Glass and Dr Lindsay Lambie

APPROVED BY:
Professor P Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 03/04/2017

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 301, Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated. from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in February and will therefore be due in the month of February each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

ENienaber
Principal Investigator Signature

4 April 2017
Date

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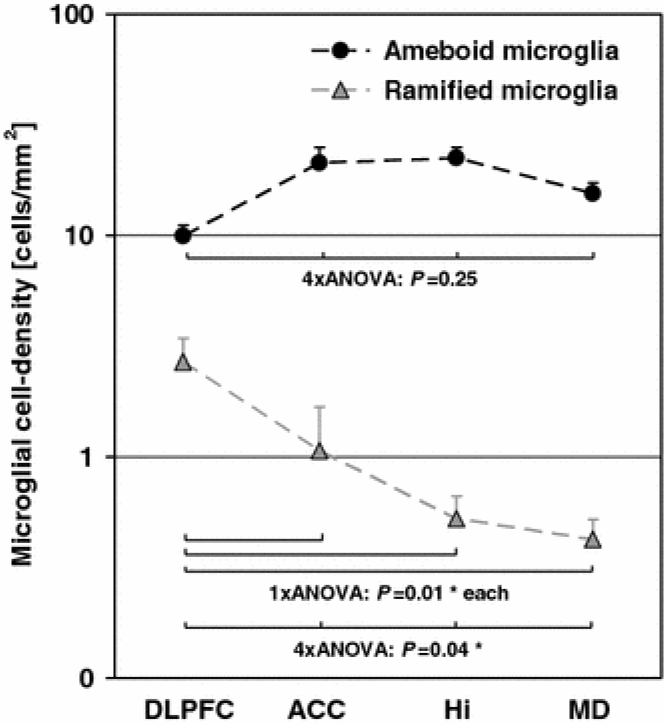

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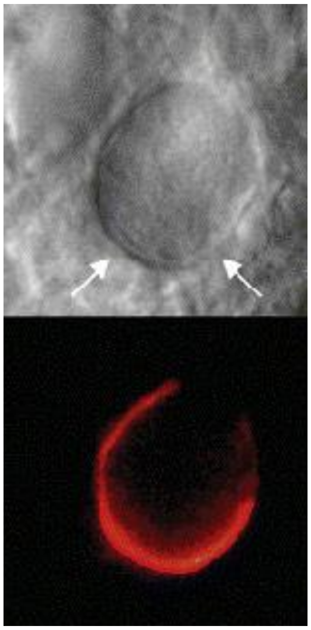

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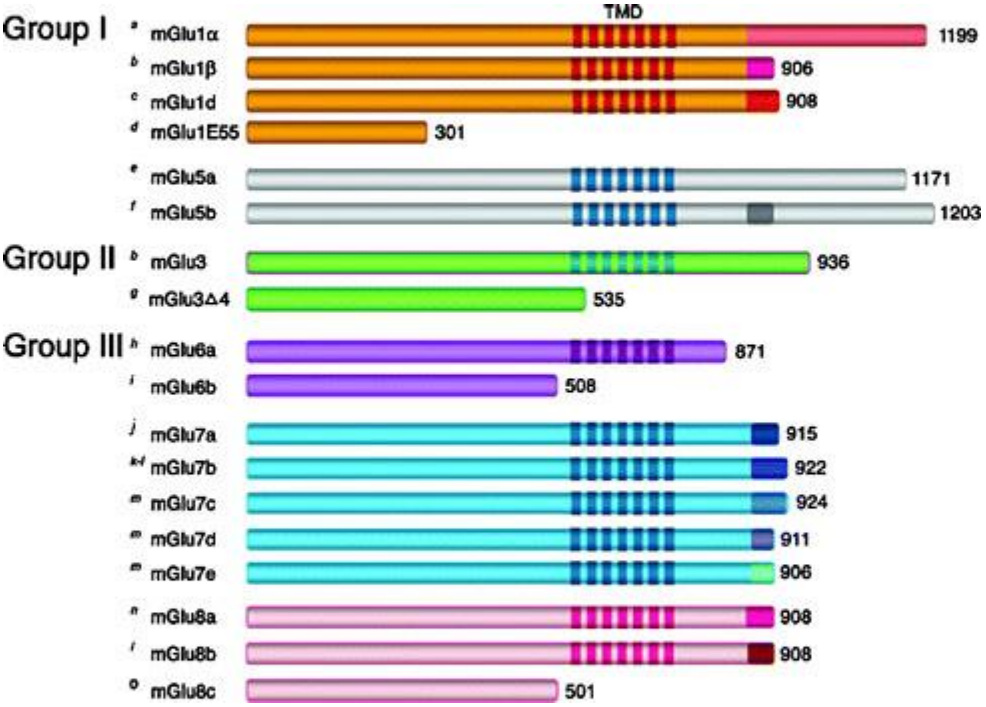

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