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Contents

A cross-sectional study of the association between prenatal consultation and low birth weight in Barangay Doña Imelda, Quezon City

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Abstract

Introduction The incidence of low birth weight infants remains high despite the measures such as prenatal consultation implemented by the Department of Health to prevent its occurrence. The purpose of this study was to determine the association of adequate prenatal consultation with low birth weight infants.

Methods This cross-sectional study was conducted in Barangay Doña Imelda, Quezon City among 20-34 year old women who were permanent residents of the barangay and gave birth in 2010. Subjects were selected by convenience sampling from those women who fulfilled the inclusion and exclusion criteria.

Results Of the 152 respondents, 26 (17.1%) women did not have prenatal consult. Of these 26 respondents, 16 delivered low birth weight infants (62%). Of 126 respondents who consulted, 8 of them delivered low birth weight infants (6.3%). The Prevalence Odds (PO) of 0.36 indicated that attending prenatal consultation among mothers is negatively related to the incidence of having low birth weight infants.

Conclusion The results show the importance of having prenatal consultation to prevent the occurrence of delivery of a low birth weight infant. The researchers recommend that the causality of the relationship be identified.

Key words: low birth weight, prenatal consult

Low birth weight (LBW) is defined as neonates who are born too small for gestational age. In the Philippine setting, newborns with a birth weight less than 2.3kg are considered LBW. The causes of low birth weight include poor maternal nutrition, social deprivation, exposure to teratogens, anemia, fetal infections, congenital malformation and placental anomalies. The survey conducted by the National Statistics Office in 2008 showed that 20% of babies weighed less than 2.5 kg at birth. Of those babies, 18.9% were born from mothers aged 20-34 years, which is considered to be the reproductive years.[1] The troubling number of LBW among infants worldwide, especially in developing countries, prompted the development of prenatal care as a tool in assessing the health of both the mother and her unborn child in an attempt to address LBW. It is one of the most popular public health interventions intended to improve birth outcomes.[2]

Prenatal care is a well-established practice: about 96% of Filipina mothers had visited a health care provider for their prenatal care; however, morbidity and mortality are still high regardless of this high coverage of prenatal care.[3] One of the possible reasons for this is that in general, only a few mothers get the guideline-recommended prenatal care.[4] The guideline of the World Health Organization (WHO) for prenatal care stresses the importance of observing the quantity and periodicity of prenatal visits. This guideline necessitates at least four (4) prenatal visits to ensure proper

care.[3] The WHO guidelines of prenatal care indicate that an adequate prenatal care includes at least four prenatal visits, one at 16 weeks, one at 24-28 weeks, one at 32 weeks, and one at 36-38 weeks. Skilled health personnel should supervise these visits. Furthermore, physical examinations must be performed that include collection of maternal medical history, anthropometric measurements, assessment of fetal heart sounds, blood pressure consultation, pelvic examination and blood and urine tests.

Despite aggressive efforts of the Department of Health, the incidence of low birth weight in the Philippines remains high.[5] As a result of the lack of scientific researches in the country that focuses on the possible association of prenatal care in lowering the incidence of low birth weight infants, the results from this study can help evaluate the importance of having adequate prenatal consultation in preventing the occurrence of low birth weight among infants. The objectives of the study are the following: 1) to estimate the percentage of low birth weight infants born from mothers with and without adequate prenatal consult in Barangay Doña Imelda, Quezon City in 2010-2011; 2) to determine the distribution of subjects who had prenatal consultations and its frequency, and 3) to determine the prevalence odds between prenatal consultation and low birth weight among infants.

Methods

The study utilized a cross-sectional study design. The prevalence of low birth weight among infants born in 2010 in Barangay Doña Imelda, Quezon City, the frequency of mothers who gave birth during that year with and without prenatal consultation, and the proportion of low birth weight infants born from mothers with and without prenatal consultation were measured. Convenience sampling was done based on accessibility and proximity of the subjects.

The study was conducted in Barangay Doña Imelda, one of the 142 barangays of the highly urbanized Quezon City. It had a population of 17,647 residents in 2007. Women permanently residing in the barangay, 20 to 34 years old, who gave birth in 2010 were eligible. Mothers diagnosed with any of the following conditions were excluded: twin (or more) birth, diabetes, hypertension, history of cigarette smoking, alcohol intake, and/or drug use during the pregnancy. The birth order and the mother's educational attainment were not considered in this study. A sample size of 152 was computed based on an incidence of low birth weight at 33.2%, an alpha error of 0.05 and a difference of 10%.

Data were collected by personal interview using a structured questionnaire which was pretested on 30 pregnant women in Cainta, Rizal. The data collected were mother's demographics, number and timing of prenatal consultations and birth weight. The prevalence odds (PO) were calculated to determine the association between prenatal consult and low birth weight.

Results

Among the 152 subjects interviewed, 83 (55%) were 21-25 years old, 41 (27%) were 26-30 years old, while 28 (18%) were 31-34 years old. One hundred twenty-six (83%) of these women had prenatal consultations, the frequency of which is shown in Table 1. The older age groups had more prenatal visits compared with the 21-25 year age group.

Table 1. Frequency of prenatal consultations.

Age Distribution (in years)	Frequency of Consultations 4 to 6	7 to 9	10 to 12	Total
21-25	10 (16%)	42 (69%)	9 (15%)	61
26-30	0 (0%)	12 (30%)	28 (70%)	40
31-34	0 (0%)	7 (28%)	18 (72%)	25

Of the respondents with consultation, all of them had their abdomen examined, 98% of them had their BP taken, and 97% were given advice by their obstetrician.

Table 2 shows that only 6% of mothers with consultation had infants with low birth weight. On the other hand, 62% of mothers without consultation had infants with LBW. The computed prevalence odds (PO) was 0.36. This means that, for the study population, the prevalence of infants born with LBW is related to mothers without prenatal consultation while the prevalence of those born without LBW is related to mothers with prenatal consultation.

Table 2. Conduct of prenatal consultation and low birth weight.

	(+) LBW (<2300 g)	(-) LBW (>2300 g)	Total
(+) Prenatal Consultations	8	118	126
(-) Prenatal Consultations	16	10	26
Total	24	128	152

Discussion

Disorders brought about by low birth weight accounted for more than half of the fetal deaths in the country in 2007. Low birth weight, together with prematurity, accounts for 24% of neonatal deaths from resulting complications.[6] Despite the urban concentration of facilities and trained health workers, the National Capital Region consistently has the highest low birth weight rates. In fact, in the Philippine General Hospital alone, low birth weight infants account for 38.2% of infant deaths.[7]

The impact of having a low birth weight baby has significant effects to overall health not only on the baby itself but also on the mother and the community. The birth of a low birth weight infant may cause psychological impact on the families, particularly on the mothers. Mothers of LBW babies also experience negative downstream effects such as depression on the event itself, stress of taking care of such a high risk and fragile infant, and guilt about the incidence.[8] Maternal stress is more prevalent among families of low birth weight infants as compared to families of infants with normal birth weight.[9] Another study undertaken by Taylor et al. found that families of babies with low birth weight presented with more stress and more negative impacts on the family as compared to the groups of families with normal birth weight babies.[10]

The health of the newborn also reflects the overall health of a community. Costs to care for the needs of these babies and to provide long-term care and attention throughout life are extremely high. Families of very low birth weight infants suffer a negative effect on their dynamics; and the mother is the one who is mostly affected and needs psychosocial support.[8]

The 83% consultation rate is low compared with the study of Lavado where it was 96%.[3] The low proportion of low birth weight infants in mothers with prenatal consultation supports the findings of Garrido that birth weight can be improved by providing the mother with adequate prenatal care.[2] The high percentage of low birth weight infants among mothers without prenatal consultations illustrates the huge impact of prenatal care on low birth weight infants. This is further supported by the low prevalence odds.

The study focused on the association of prenatal consultation with low birth weight. Future studies can attempt to determine if a causal relationship exists between prenatal care and low birth weight.

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The effect of aerobic exercise on the cognitive ability of physical therapy students

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Abstract

Introduction Exercise maintains or enhances physical fitness and overall health and wellness. The purpose of this study was to determine if cognitive ability could be improved with regular aerobic exercise.

Methods This experimental study was conducted among first year Physical Therapy students at UERMMMCI. Students who had low levels of physical activity or none at all based on a questionnaire, who passed a medical check-up and were willing to participate were included. Twelve students were assigned to the aerobic exercise group and 11 students to the control group. The exercise group underwent 30-minute sessions of tae bo three times a week for six weeks. Cognitive ability was measured before and after the six week study period in both groups using a Raven's Standard Progressive Matrices evaluation. The test scores were compared using paired and independent T-test.

Results Twelve students in the tae bo group and 11 in the control group completed the study. There was a significant increase in the mean Raven's scores in the tae bo group after the 18 sessions while a decrease was noted in the mean post-test scores of the control group. The mean Raven's scores were significantly higher in the tae bo group compared with those of the control group. The men in the tae bo group had higher scores than the women.

Conclusion Aerobic exercise was effective in increasing the cognitive ability of first year Physical Therapy students. Gender may be a factor in cognitive ability.

Key words: aerobic exercise, cognitive ability

The brain and body are integral components of any individual and both should be in a homeostatic condition in order to function well. Exercise is an integral part of human development. It enhances or maintains physical fitness and overall health and wellness. Exercising three times week for 30 minutes per session is enough to improve health. This is the parameter used in the Shortened Questionnaire to Assess Health (SQUASH).[1]

Stroth, Hille, Spitzer and Reinhardt[2] showed that young adults who adopted an exercise regimen consisting of 30 minute sessions three times a week demonstrated improvement in verbal memory, concentration performance and affect. Physiologically, physical activity such as aerobic workout increases blood circulation, body temperature and heart rate; these changes stimulate an increase in brain activity. Those changes were associated with reduction of stress, increased sensory sharpness and improved concentration.

The relationship of physical well-being to mental activity is seen in various studies. A study on preadolescents revealed that active students demonstrated increased responsiveness and better academic performance than the resting group.[3] Grade school students at a sports camp had better memory performance following an aerobic fitness program.[4] Masley found that subjects who exercised 5-7 times a week had better cognitive function than those who exercised less.[5]

Total awareness excellent body obedience (Tae-bo) is a form of aerobic exercise which incorporates both speed and agility, combining the moves of tae kwon do, karate, boxing, ballet and hip-hop dancing, developed by Billy Banks during the 1980's. The Korean word "tae" means foot and leg. Tae Bo involves a series of kicks, leg raises and pivots set to fast-paced music to liven up the routine, making it almost dance-like. Front kicks, sidekicks and back kicks are the foundation of the Tae Bo workout. "Bo" is a shortened word for "box" that Billy Blanks created. The use of punches and arm movements builds upper body strength and flexibility.

Raven's Standard Progressive Matrices from Pearson Talent Assessment is a global non-verbal measure of general mental ability. It helps identify individuals with advanced observation and clear thinking skills and can handle the complexity and ambiguity of the modern workplace. Raven's system offers information about an individual's capacity for analyzing and solving problems from complex information, abstract reasoning and the ability to learn. Because it adopts a non-verbal approach, the test is not influenced by language differences. It consists of a series of diagrams or designs with a missing part. The respondent is tasked to select the correct part to complete the designs from a number of options printed beneath.

The purpose of this study was to determine if the cognitive ability of first year Physical Therapy students with a low level of physical activity could be improved with regular aerobic exercise.

Methods

This was an experimental study on first year Physical Therapy students in UERMMMCI to determine whether or not regular aerobic exercise would improve their cognitive ability. The study was approved by the Ethics Review Committee of the Medical Center.

The subjects were recruited from first year students enrolled in Physical Therapy. Students whose level of physical activity was low or light, signed an informed consent and waiver, and passed a general check-up performed by a licensed physician, were included in the study. The level of physical activity was determined through a questionnaire based on the Short Questionnaire to Assess Health (SQUASH). The subjects were assigned to either experimental or control group. The experimental group was subjected to aerobic exercises in the form of tae bo 30 minutes three times a week for six weeks, conducted by a certified tae bo instructor. The control group was instructed to continue with their usual activities. Cognitive ability was measured before and after the six-week study period in both tae bo and control groups using Raven's Standard Progressive Matrices (SPM) administered by a psychologist. Raven's SPM is a test for general mental ability consisting of 60 items divided into five groups. Each subject was assigned a code which was written on the questionnaire instead of the subject's name.

Scores from Raven's SPM were encoded and analysed using SPSS Version 17. A paired T-test was done to compare the pre-test and post-post scores of the tae bo and control groups, respectively. An independent T-test was done to compare the pre-test scores of tae bo and control groups, and the post-test scores of both groups.

Results

One hundred thirty-nine first year Physical Therapy students were invited to take part in the study. Based on the evaluation of their level of physical activity, 50 students were eligible but only 36 students signed the waiver and informed consent. After the medical check-up, 24 students were cleared to take part in the exercise program. Thirteen students agreed to undergo 6 weeks of aerobic exercise and 11 students were assigned to the control group. One student in the tae bo group dropped out leaving 23 participants.

Table 1 shows that the aerobic exercise and control groups are comparable in terms of age and sex.

Table 1. Demographic characteristics of participants.

Variable	Experimental (n =12)	Control (n =11)
Age (years)	17 ± 1.5	16.7 ± 1
Gender	Mean/Percentage	Mean/Percentage
Male	6 (50%)	6 (55%)
Female	6 (50%)	5 (45%)

Table 2 shows a decrease in the mean Raven SPM post-test scores in the control group. Table 3 shows an increase in the mean post-test scores of the tae bo group which is statistically different from the mean pre-test score.

Table 4 shows that the difference between the mean pre-test scores of the control and tae bo groups was not significant. Table 5 shows that the mean post-test score of the tae bo group is significantly higher than that of the control group. The men in the tae bo group had higher mean post-test scores than the women (88.3 vs 85.0) but the difference was not significant.

Table 2. Raven's standard progressive matrices pre-test and post-test scores in the control group.

	Pre-test	Post-test
Mean	79.091	73.636
Std Dev	16.096	17.189
P Value	0.160	0.160

*P value > 0.05 was assessed using Paired t-test

Table 3. Raven's standard progressive matrices pre-test and post-test scores in the experimental group.

	Pre-test	Post-test
Mean	65.000	86.667
Std Dev	±16.514	±8.876
P Value	0.001	0.001

*P value < 0.05 was assessed using Paired t-test

Table 4. Independent t-test of mean pre-test scores in the control and experimental groups.

	Control	Experimental
Mean	79.091	65.000
Std Dev	±16.096	±16.514
P Value	0.051	0.051

*P value > 0.05 was assessed using Independent t-test

Table 5. Independent t-test of mean post-test scores control and experimental groups.

	Control	Experimental
Mean	73.636	86.667
Std Dev	±17.189	±8.876
P Value	0.031	0.031

*P value < 0.05 was assessed using Independent t-test

Discussion

This study showed a significant increase in the cognitive ability of students who underwent aerobic exercise for six weeks, as measured by Raven's SPM, compared to those without exercise. The findings are consistent with the study of Stroth, Hille, Spitzer and Reinhardt. The results also show that the men in the tae bo group performed better than the women in Raven's SPM, indicating that gender maybe a factor in congitive ability. This study was hampered by the limited number of students who were qualified and willing to join. If a future study with a broader bigger sample of students can validate these findings, then it can be recommended that aerobic exercise be offered or made part of the curriculum. A larger sample may have also shown whether or not the apparently better performance of the men is really gender-related.

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A case-control study of smoking and alcohol intake as preconception and prenatal risk factors for autism spectrum disorder (ASD) among Filipino children

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Abstract

Background Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that causes impaired intellectual, communicative and behavioral development. Current research shows that the etiology of autism is multifactorial, consisting of both genetic and environmental factors. The objective of this study was to determine the association of exposure to preconception and prenatal risk factors, specifically smoking and alcohol intake, in developing ASD among Filipino children.

Methods Using a case-control design, this paper determined the association between smoking and alcohol exposure during the preconception and prenatal periods with the development of ASD among Filipino children. Thirty five mothers of patients with autism from the Autism Society of the Philippines, and two private schools were compared with 70 control mothers in terms of smoking and alcohol intake. Data were analyzed using odds ratios.

Results The odds ratios of having a mother who was exposed to smoking or alcohol were higher for children with ASD compared with those of controls but the difference was not statistically significant.

Discussion Exposure to smoking and alcohol during the preconception and prenatal periods may be risk factors in the development of ASD among Filipino children.

Key words: Autism Spectrum Disorder, smoking, alcoholism

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder causing impaired intellectual, communicative and behavioral development.[1] As a lifelong debilitating condition, it affects not only children with the disease but also their families and caregivers. Thus, it is a disease that has both social and biological impact, and as such is an urgent public health concern.[2]

Autism ranks third among the top 10 developmental disorders in pediatric patients. A significant segment of the population is affected by the disease; it is estimated that one out of every 150 babies born in the Philippines has ASD.[3] However, only 2% of them are given appropriate care.[4] Moreover, the prevalence and risk factors of ASD in the Philippines are unknown because of lack of funding for studies about this disease. The lack of a national center or institute for diagnosis and treatment underscores the deficiencies in the identification and care of Filipino children with autism, as well as the lack of a centralized resource of knowledge about the disease.[4]

Studies agree that interplay between multiple genetic and environmental factors contribute to the development of ASD[5], however, findings obtained from studies abroad might not be applicable to the Filipino population. Therefore, research on the risk factors of Autism Spectrum Disorders helps to fill a gap in knowledge about the pathogenesis of the disease. It also lays the foundation for future researches about autism in the Philippines. The objectives of this study were 1) To determine the prevalence of maternal smoking and alcohol exposure among mothers with and without children with ASD; 2) To determine the prevalence of prenatal smoking and alcohol exposure

among mothers with and without children with ASD; 3) To determine the association of maternal smoking and alcohol intake before and during pregnancy and the development ASD among their children.

Methods

This is a case-control study that looked into smoking and alcohol intake among mothers of children diagnosed to have ASD and mothers of children without ASD. Thirty-five cases were recruited from 2 private schools and from the Autism Society of the Philippines (ASP). Controls were mothers of children without ASD. Seventy control participants were enrolled to obtain a 1:2 case to control ratio for total sample size of 115 subjects. Controls were matched to cases in terms of age, occupation and socioeconomic status. Thus, neighbors or workmates of the enrolled cases were recruited. Additional controls were obtained from the Pediatrics Outpatient Department of a tertiary hospital.

Only mothers of children aged 4-11 years old who were diagnosed to have ASD by a board-certified developmental pediatrician, and who were members of the Autism Society of the Philippines, or enrolled in special education schools in Metro Manila, were included in the study. Mothers with psychiatric disorders, illicit drug intake, or any congenital hereditary disease were excluded from the study. Children with ASD symptoms who were diagnosed with other co-morbid diseases such as Fetal Alcohol Syndrome and Down's syndrome were also excluded.

All participants were asked to answer a questionnaire on demographic data, alcohol intake and cigarette smoking habits, before and during the period in which they were pregnant with the autistic child. The questionnaire was formulated based on literature review, approved and critiqued by a board-certified pediatrician, and subjected to a series of pre-tests in a separate special education school prior to implementation. For alcohol intake, respondents were classified as having low, moderate or high alcohol intake. For smoking, they were classified as having low, moderate or high smoking exposure. In addition to the questionnaire, controls were also asked to accomplish a screening checklist containing major Diagnostic and Statistical Manual for Mental Disorders-IV Text Revision (DSM-IV-TR) criteria for the diagnosis of ASD. This ensured that the children of control mothers did not have symptoms of ASD or other similar disorders. Only subjects who answered "no" to all questions were enrolled as controls.

Preconception risk was defined as the exposure of mothers to first-hand cigarette smoke and alcoholic beverages before the onset of pregnancy. **Prenatal risk** was defined as the exposure of mothers to first-hand cigarette smoke and alcoholic beverages during pregnancy. **Smoking** was defined as a practice in which tobacco is inhaled through cigarettes, expressed in number of cigarettes per day.

- Low smoking exposure: 1-2 cigarettes, occasionally or on a semi-regular basis (weekly or monthly)
- Moderate smoking exposure: 3-5 cigarettes, on a semi-regular basis (weekly or monthly)
- High smoking exposure: ≥5 cigarettes per day on a regular basis
- No exposure: never smoked

Alcohol intake was defined as the consumption of any beverage containing ethanol and may include beers, wines and spirits. One drink was defined as 12 ounces or 1 bottle of beer, 5 oz or 1 glass of wine and 1.5 oz or 1 shot of hard liquor.

- High alcohol intake: consuming an average of more than 1 drink per day
- Moderate alcohol intake: no more than 1 drink per day or 4 or more drinks on a semi-regular basis (weekly or monthly)
- Low alcohol intake: 2-3 drinks per year or occasionally
- No exposure: no consumption of any alcoholic beverage

Data were encoded in Microsoft Excel in accordance with a coding manual. A crude analysis was done to assess the association of maternal smoking and alcohol intake during the preconception and prenatal periods with the development of ASD among children. A stratified analysis was done to determine whether or not the degree of exposure to cigarette smoke and alcoholic beverages during the preconception and prenatal period affected the odds of having a child with ASD. Odds ratios were computed for both analyses. STATA 12.0 software was used to compute for the p-values.

Results

Table 1 shows the socio-demographic characteristics of the cases and controls. The mothers of children with ASD were younger than the controls and tended to have a higher educational attainment. The marital status distribution was similar for cases and controls. Ninety four percent of cases had only one child with ASD while the rest had two or more children with ASD. More than half (57%) of children with ASD were first-born, 22.9% were youngest children and the rest were middle

Table 1. Socio-demographic characteristics of mothers of children with and without ASD.

	Mothers with ASD children (N=35) n (%)	Mothers without ASD children (N=70) n (%)	P-value
Age of mothers when they conceived their child with ASD:			
• Below 18 years old	1 (2.0)	0 -	
• 18 - 25 years old	12 (34.4)	4 (5.7)	0.001
• 26 - 35 years old	16 (45.7)	23 (32.9)	0.201
• 36 - 40 years old	2 (5.7)	14 (20)	0.016
• Above 40 years old	4 (11.4)	29 (41.4)	0.004
Highest educational attainment:			
• Elementary	1 (2.7)	1 (1.4)	0.621
• High school	2 (5.7)	21 (30)	0.011
• College	26 (74.3)	42 (60)	0.118
• Post grad	6 (17.1)	6 (8.6)	0.201
Marital status:			
• Single	6 (17.4)	6 (8.6)	0.000
• Married	27 (77.1)	61 (87.1)	0.276
• Widowed	2 (5.7)	3 (4.3)	0.001
Comparison of smoking and alcohol exposure between mothers with and without children with ASD			
SMOKING			
Without exposure	22 (62.9)	48 (68.6)	0.331
With low exposure	7 (20)	12 (17.1)	0.720
With moderate exposure	4 (11.4)	4 (5.7)	0.307
With high exposure	2 (5.7)	4 (5.7)	1
ALCOHOL			
Without exposure	13 (37.1)	33 (47.1)	0.559
With low exposure	19 (54.3)	35 (50.0)	0.890
With moderate exposure	3 (8.6)	2 (2.9)	-
Comparison of prenatal smoking and alcohol exposure between mothers with and without children with ASD			
SMOKING			
Smoked while pregnant	1 (2.9)	0	-
Did not smoke while pregnant	34 (97.1)	70 (100)	-
ALCOHOL			
Drank alcohol while pregnant	3 (8.6)	0	-
Did not drink alcohol while pregnant	32 (91.4)	70 (100)	-

Table 2. Odds ratios for preconception smoking and alcohol exposure.

	OR	P-value	95% CI
Smoking			
Smoking exposure	1.2	0.559	0.55 - 3.02
Low preconception smoking	1.2	0.720	0.42 - 3.40
Moderate preconception smoking	2.1	0.307	0.49 - 9.07
High preconception smoking	1	1	0.17- 5.74
Alcohol			
Alcohol exposure	1.5	0.331	0.65 - 3.46
Low alcohol intake	1.1	0.890	0.46 - 2.39
Moderate alcohol intake	1	-	-

children. Almost two-thirds (65.7%) were diagnosed at 1-3 years, 34.4%, at 4-6 years, and the rest at an older age. Both cases and controls had no or low exposure to smoking and alcohol. 2.9% and 8.6% of cases smoked and drank alcohol, respectively, compared with none among the controls.

Table 2 shows that the computed odds ratios for the different levels of exposure to smoking and alcohol during the preconception period are not significant. Odds ratios for prenatal exposure to smoking and alcohol could not be computed because all the controls denied smoking and alcohol intake.

Discussion

The focus of current research on autism is expanding to include the role of environmental factors in the pathogenesis of the disease.[5] Although studies on the possible genetic causes of ASD are numerous, they agree that affected individuals are heterogeneous in terms of the cause of their disorder as well as the degree to which each is affected functionally and neurobiologically.[6] The exact etiology of ASD is not yet known, and studies agree that interplay between multiple genetic and environmental factors contribute to the development of ASD. For example, prenatal factors significantly associated with ASD are advanced maternal age, parity, and advanced paternal age.[7] Although there is insufficient evidence to implicate any one factor in autism etiology, exposure to a broad range of conditions that compromise perinatal and neonatal health may increase the risk.[8] Exposure to smoking and alcohol intake during pregnancy are two common factors for the development of neurodevelopmental disorders, and as such may be associated with the pathogenesis of ASD.[9,10]

Results show that maternal smoking in the preconception period may be a risk factor for the development of ASD among children. The odds of a child with ASD being born to a mother who smoked cigarettes before pregnancy are higher than the odds of a child without ASD. Furthermore, the odds of a child with ASD being born to a mother who smoked more cigarettes increased. This finding is supported by the results of Hultman, et al.[11] who showed that intrauterine and neonatal factors related to deviant intrauterine growth or fetal distress are important in the pathogenesis of autism. A prospective study by Brubakk, et al.[12] concluded that smoking in pregnancy may be a marker for increased risk of psychiatric symptoms in the offspring. A cohort study by Kotima, et al. found an association between maternal smoking and hyperactivity in 8-year-old children (OR=1.30; CI=1.08-1.58), and that a positive dose-response relationship was seen.[8] Thus, studies support the association between maternal smoking and adverse behavioral response in children, and that a dose-response relationship may be present.

There is a possible biologic mechanism for this association. Tobacco is considered one of the biggest environmental hazards and it has been established that maternal smoke exposure affects the mental development of a child, including decreased cognitive functioning by 3 years old, decreased in vigilance in the child and behavior problems.[13] Children in utero who were exposed to smoking may exhibit cognitive deficits such as delayed language development, difficulties in learning and memory tasks, reading and mathematics, and decreased general cognitive functioning.[12] Studies that focus on the mechanisms regarding the specific effects of smoking to prenatal development are numerous. Tobacco contains over 2000 chemical constituents, all of which may induce neurotoxic effects such as decreasing cerebral blood causing brain hypoxia resulting to production of high levels of carboxyhemoglobin and relative brain hypoxia.[14] There are approximately 60 different chemicals found in cigarette smoke, such as tobacco specific N-nitrosamines, benzenes, pesticides, formaldehyde which are classified under carcinogens. Cigarette smoke also contains toxic metals and chemicals like arsenic, cadmium, ammonia, carbon monoxide, hydrogen cyanide and nicotine which cause physical stress. Nicotine may affect a broad spectrum of neurotransmitter receptors in the fetal brain leading to abnormal cell proliferation and differentiation as well as abnormal up-regulation and down-regulation of neurotransmitter receptors.[15] Post-mortem studies on autistic subjects have exhibited a notable reduction in cortical nicotinic receptor binding[16]. Moreover, other findings have suggested that fetal nicotine exposure may affect brain development and 5HT synaptic function linked with behavioral abnormalities.[17] Thus, the increased risk for development of ASD among smoking mothers may be caused by the effects of nicotine on the fetal brain.

Results show that maternal alcohol intake in the preconception period may be a risk factor for the development of ASD among children. Although ethanol consumption among pregnant women have been found to have a damaging effect in the central nervous system of an infant, the association of maternal alcohol exposure in developing ASD alone is not established in other studies.[18] A case-control study by Kotimaa, et al. explored the relationship between Fetal Alcohol Syndrome (FAS) and ASD and found that 72% of the subjects had autism.[8] Neither study stated whether ASD was due to prenatal alcohol exposure or was just a co-

morbid, or a manifestation of FASD. A study on "autism families with a high incidence of alcoholism" results also showed an association between prenatal alcohol exposure and autism.[18] Nonetheless, the researchers also pointed out that there are no literatures or studies that distinctly indicate that alcohol exposure among mothers can be associated to ASD simply because the incidence of alcoholism is so much greater than autism that the sample size of children with autism should be larger in order to have a valid association.[10]

Maternal exposure to smoking and alcohol during the preconception period may be risk factors for the development of ASD among children. This is consistent with the results of other studies.[11,12, 13,18,19]

This research acknowledges that the study did not include certain variables that could affect the outcome, such as second hand smoke, maternal age, binge drinking and paternal factors. It is recommended that these factors should be included in future studies.

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Awareness, attitudes and practices of Filipino fathers in artificial family planning: A descriptive study

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Abstract

Background The contribution of fathers in artificial family planning practices is pivotal to the actual implementation of these methods within individual households. However, there is a scarcity of literature regarding male involvement in artificial family planning, especially within the Philippines. This cross-sectional study describes the awareness, attitudes and practices of Filipino fathers from a selected barangay in Quezon City to artificial family planning.

Methods A one-on-one questionnaire-guided interview was conducted on 88 respondents selected through convenience sampling, using a standardized survey questionnaire. Descriptive analysis of data was carried out using Microsoft Excel and STATA® 12 software.

Results This study showed that the most familiar artificial family planning method among fathers was the condom (96.59%); that artificial family planning methods were deemed less acceptable than natural family planning methods; and that the fathers who used artificial family planning methods outnumbered those that did not (51.14% vs 48.86%).

Discussion Filipino fathers have limited awareness with regard to artificial family planning. However, their attitudes and practices towards these methods are generally favorable and positive.

Key words: Filipino fathers, reproductive health, artificial family planning, male involvement, artificial contraceptives

Due to the assumption that fertility and contraception are primarily a woman's domain, much of the literature concerning family planning is focused mainly on the role of women and on artificial family planning methods developed specifically for female use.[1,2] In comparison, male involvement in family planning has received relatively far less attention, especially in the Philippines.

In a patriarchal society such as the Philippines, the role of the husband is pivotal in the effective implementation of household family planning practices. Male involvement in family planning encourages deeper partnerships between spouses in terms of determining their families' futures[1], leading to the achievement of child-bearing goals, better reproductive health outcomes[3], and decreased poverty incidence.[4] Despite these apparent advantages, male participation in reproductive health is still generally limited in countries with culturally defined gender roles.[2] In the Philippines, factors such as limited resources and access to contraceptive methods, the Filipino machismo attitude favoring having more children, religious constraints, and a lack of proper health education, have resulted in poorer male involvement in healthy family planning policies.[4]

Over the past few decades, however, interest in male participation over matters such as contraceptive use and the fulfillment of various reproductive responsibilities has increased.[5] In the light of this trend, and because of the scarcity of local data, this study sought to determine the level of involvement of Filipino fathers in family

planning by assessing their awareness, attitudes and practices regarding artificial family planning methods.

The aims of this study were to describe the fathers' level of awareness of artificial family planning methods and their attitudes on the use of these methods, determine the prevalence of their use, and the factors that promoted or hindered their use. The results of this research will help health authorities determine which of the three components (awareness, attitudes, or practices) should be addressed.

Methods

A survey was conducted among men from a selected barangay in Quezon City between May and June 2012 to describe their awareness, attitudes, and practices towards artificial family planning methods.

Filipino males from the selected barangay who were 18-49 years old, currently in a relationship with a woman, had fathered at least one child, and whose partner was in the same age group as the man's, were included in the study. Men who used natural family planning alone were excluded, because its use would have negated their need to employ artificial family planning methods. The subject for the key-informant interview (KII) was chosen based on the following: expertise in reproductive health, knowledge analyst of family planning in the Philippines and affiliation with Family Planning Organization of the Philippines.

Non-probability convenience sampling was used to select the subjects from ten of the most easily accessible and densely populated streets in the barangay. Eight to ten subjects were recruited from each street to complete the computed sample size of 85.

A key-informant interview (KII) was conducted based on a structured guide that covered men's role in reproductive health, men as family planning users, and how they could influence the family planning choices and options of women. The information from the KII and the National Demographic and Health Survey (2010) were used to guide the researchers in the construction of the questionnaire. The questionnaire was pre-tested among ten randomly chosen males with the same characteristics as the study population from a neighboring barangay and then revised. The interviewers were trained on the use of the questionnaire. The survey was administered through a one-on-one questionnaire-guided interview. Verbal informed consent was obtained before the interview.

The answered questionnaires were checked for eligibility of the respondent, completeness, and consistency of responses. Those qualified were coded using MS Excel. Frequencies were determined and percentages were computed.

This study was approved by the Ethics Review Committee of UERMMMCI.

Results

The descriptive statistics for the socio-demographic profiles of our respondents are presented in Table 1. Seventy-six respondents (86.36%) were currently living together with their partners for an average of 9.55 years. Most of the respondents were Roman Catholic (89.8%). The respondents had an average of 2-3 children. More than half (46) were contented with the number of children while a third (32) wanted more children; a minority (8) wanted fewer children.

Table 1. Demographic characteristics of respondents (N = 88).

Response	No. of responses (%)
AGE	
18-25	8 (9.09)
26-33	25 (28.41)
34-41	28 (31.82)
42-49	26 (30.68)
Mean= 36.76	
CIVIL STATUS	
Single	33 (37.5)
Married	47 (53.41)
Separated	8 (9.09)
RELIGION	
Born Again Christian	4 (4.55)
Iglesia ni Cristo	3 (3.41)
Muslim	1 (1.14)
Mormon	1 (1.14)
Roman Catholic	79 (89.77)
EDUCATIONAL ATTAINMENT	
Elementary	13 (14.77)
High School	51 (57.95)
College	15 (17.04)
Vocational	9 (10.23)
AGE OF PARTNER	
Average Age= 33.19	
AVE. MONTHLY INCOME	
<5000	17 (19.32)
>5000 to 10000	8 (9.09)
>10000 to 15000	4 (4.55)
>15000 to 20000	7 (7.95)
>20000 to 30000	41 (46.59)
No information	11 (12.5)

The fathers were aware of the various methods - condoms (96.6%), pills (85.2%), tubal ligation (64.7%), injectables (60.2%), intrauterine devices (54.6%), and vasectomy (54.6%). Fourteen respondents reported knowing about other types of artificial family planning methods. However, when asked to specify, they wrongly identified the calendar method (42.86%), abstinence (28.57%), withdrawal (21.43%), and not sleeping in the same room (1.14%), as types of artificial family planning methods. Their sources of information were multimedia: television (64.8%), radio (44.2%) and print (42.1%). Eighty-three out of 85 respondents who knew about male condoms reported that they could obtain them from private facilities such as pharmacies (82.4%) and convenience stores (50.6%), and government facilities such as health centers (43.5%) and hospitals (11.8%).

Table 2 shows that the respondents obtained information regarding specific methods from family and friends, media and health workers.

When asked if there are certain days women are more likely to get pregnant during their menstrual period, 72.73% respondents said yes. Among 75 respondents aware of contraceptive pills, 63 (84%) said it is safe to have sexual intercourse with a woman as long as she is on the pill, while 11 said otherwise. Most respondents (66.7%) reported that pills should be taken daily and 16% said that it should be taken a day before intercourse. Among 48 respondents aware of vasectomy, 16 knew at least one person who had undergone a vasectomy.

Table 3 shows the attitudes of respondents regarding various aspects of family planning. Table 4 shows that the respondents tend to favor discussion on matters requiring a decision. Less than a third (28 out of 88) of respondents discussed their family planning with a health professional.

Table 2. Sources of information about specific methods of artificial family planning.

Source of Information	Male Condom N= 85 n (%)	Pill N= 75 n (%)	Vasectomy N= 48 n (%)
Family / Friends	50 (58.82%)	45 (60%)	24 (50%)
Electronic media	44 (51.77%)	24 (32%)	23 (47.92%)
Health workers	26 (30.59%)	35 (46.67%)	18 (37.5%)
Prints	7 (8.24%)	2 (2.67%)	6 (12.5%)
Others	5 (5.88%)	9 (12%)	9 (18.75%)

Table 3. Attitudes of Filipino fathers regarding artificial family planning.

	No. of Responses (n)		Percentage (%)
Discuss Modern FP with a Health Worker	Strongly Agree	34	38.64
	Agree	39	44.32
	Neutral	8	9.09
	Disagree	4	4.55
	Strongly Disagree	3	3.41
Men are Primary Decision-Makers	Strongly Agree	26	29.55
	Agree	22	25.00
	Neutral	17	19.32
	Disagree	16	18.18
	Strongly Disagree	7	7.95
Family Planning is a Joint Decision	Strongly Agree	41	46.59
	Agree	42	47.73
	Neutral	4	4.55
	Disagree	1	1.14
	Strongly Disagree	0	0
Male Partner Adopts Contraception	Strongly Agree	9	10.23
	Agree	19	21.59
	Neutral	13	14.77
	Disagree	30	34.09
	Strongly Disagree	17	19.32
Female Partner Adopts Contraception	Strongly Agree	14	15.91
	Agree	22	25.00
	Neutral	20	22.73
	Disagree	21	23.86
	Strongly Disagree	11	12.50
Active Participation of Partners in FP Programs	Strongly Agree	41	46.59
	Agree	34	38.64
	Neutral	6	6.82
	Disagree	5	5.68
	Strongly Disagree	2	2.27
Active Support of Male in Women's Decision	Strongly Agree	43	48.86
	Agree	40	45.45
	Neutral	2	2.27
	Disagree	2	2.27
	Strongly Disagree	1	1.14
Natural FP Method More Acceptable than Modern	Strongly Agree	27	30.68
	Agree	29	32.95
	Neutral	14	15.91
	Disagree	17	19.32
	Strongly Disagree	1	1.14
FP Measures are Good for Spacing Children	Strongly Agree	37	42.05
	Agree	36	40.91
	Neutral	10	11.36
	Disagree	5	5.68
	Strongly Disagree	0	0
Modern FP Against the Teaching of Bible and Church	Strongly Agree	18	20.45
	Agree	20	22.73
	Neutral	18	20.45
	Disagree	21	23.86
	Strongly Disagree	10	11.36
Natural FP is Sufficient, No Need for Modern FP	Strongly Agree	24	27.27
	Agree	32	36.36
	Neutral	8	9.09
	Disagree	18	20.45
	Strongly Disagree	6	6.82

Table 4. Attitude toward the decision-making process in reproductive behavior.

Partner Initiating Discussion on	Responses	N= 88 (n)	Percentage (%)
Total Children Couple Should Have	Favorable	69	78.41
	Neutral	14	15.91
	Adverse	4	4.55
When to Have First Child	Favorable	55	62.5
	Neutral	17	19.32
	Adverse	16	18.88
Whether Couple Should Use Contraceptives	Favorable	56	63.64
	Neutral	19	21.59
	Adverse	13	14.77
Which Method to Use	Favorable	59	67.05
	Neutral	17	19.32
	Adverse	12	13.64

Forty-five out of 88 respondents reported using artificial family planning while the rest did not. Most commonly used method was the condom (73.3%). The respondents' reasons for not using any contraceptives or artificial family planning methods are presented in Table 5.

Among 33 respondents who reported using condoms, 15 (45.45%) stated that they used a condom the last time they had intercourse. Only four used condoms every time they had intercourse in the last 12 months. Twenty-one (63.6%) users bought their condoms from a convenience store or supermarket. Twenty-seven (81.8%) reported that it was their personal choice to use a condom. It was the partner's or a joint decision for the rest.

The reasons for choosing male contraceptive methods are shown in Table 6.

Table 5. Reasons for not using contraceptives.

Reason For Not Using Contraceptive	Not Using Artificial Family Planning Methods N=43 n (%)	Not Using Condom N= 12 n (%)	Not Using Vasectomy N=34 n (%)
Not affordable	19 (44.19%)	10(83.33%)	18 (52.94%)
Fear of side effects	17 (39.54%)	3 (25%)	23 (67.65%)
Want more children	15 (34.89%)	11 (91.67%)	12 (35.29%)
Not aware of contraceptive	13 (30.23%)	0	18 (52.94%)
Opposed by religion	11 (25.59%)	11 (91.67%%)	7 (20.59%)
Intercourse is less enjoyable	6 (13.96%)	11 (91.67%)	0
Against personal belief	5 (11.63%)	9 (75%)	3 (8.82%)
Capacity to control urge	3 (6.98%)	0	0
Malfunction	0	9 (75%)	0
Use natural family planning	0	1 (8.33%)	1 (2.94%)

Table 6. Reasons for using male contraceptives.

Reasons For Using Male Contraceptive	Condom N= 33 n (%)	Vasectomy N= 11 n (%)
No side effect	2 (6.06%)	0
Most affordable	8 (24.24%)	0
Only method known	22 (66.67%)	0
Easiest to use	22 (66.67%)	2 (18%)
Prevent having more children	33 (100%)	11 (100%)

Discussion

This study shows that the respondents are aware of the existing and accessible artificial family planning methods in the country, consistent with data that 97% of men were aware of one or more artificial methods of family planning.[6,7] The male condom was the most common method used. The awareness regarding pills is consistent with previous studies that found Filipino men having sufficient awareness about contraception and the attributes of specific methods, even those that are primarily female-controlled, such as pills and tubal ligation.[6] While the study shows that half of the respondents are aware of vasectomy, it is one of the least availed-of family planning methods in the country.[8]

The results suggest a high level of awareness of women's fertility periods in general, but that this knowledge is limited and not comprehensive or detailed. These results are similar to those of past studies, which showed that males scored high on awareness of fertility periods but low in their awareness of time of fertile periods.[9,10]

That majority of respondents obtained their information from television supports the concept that urban dwellers are more likely to get information from television, and that majority of these fathers have access to televisions, radios and newspapers.[9] In addition, interpersonal communication is an influential means for disseminating information about artificial family planning and contraceptives.[11] This was observed in our study, as awareness about vasectomy, pills and condoms were obtained in large part through the respondents' family and friends.

This study reveals that the respondents have a positive attitude towards the use of artificial family planning. Majority regard artificial family planning practices favorably, as most of the respondents (82.96%) believed that these measures are effective for spacing children and thus maintaining a happy family life. These findings support previous research found a large proportion of Filipino husbands (72%) who strongly approved of contraception.[12]

In terms of decision-making, majority of fathers believe that family planning should be discussed by both partners, yet more than half consider themselves the last word. Nevertheless, there is strong agreement among men that it is part of their responsibility to actively support women's decisions to use artificial contraceptive methods, and that their female partners should consult with them regarding family planning matters. Other studies have shown that partner support greatly increases the likelihood that women will personally adopt contraceptive methods[13], and when individual family planning needs are not met, it is largely attributable to the false or negative attitudes of the husband.[12] A husband's perceptions on family planning important considerations in the adoption of artificial family planning measures.

Based on this study, fathers favor discussing family planning with a health worker, and are willing to actively participate in family planning programs. This represents a shift from previous attitudes, where men disapproved of attending family planning clinics and discussing family planning matters publicly.[5]

Several studies have posited that religious constraints negatively affect men's perceptions, beliefs and opinions about reproductive health decision-making.[5,14] The majority of fathers in our study were Roman Catholic (89.77%). Most of the fathers (63.63%) felt that artificial family planning is less ethically acceptable than natural family planning and that the latter is sufficient for meeting reproductive goals and needs. More agreed (43.18%) than disagreed (35.22%) that artificial methods of family planning run counter to the teachings of the Church. These findings suggest that religious beliefs may still have some influence on the development of male perceptions towards family planning.

The choice of family planning method to be used by men is influenced by socio-demographic characteristics, religion, costs and health risks, partner involvement, desire to have more children, and knowledge of contraceptive methods.[14] This study showed that half of the respondents are already using artificial contraceptive methods. This prevalence is greater than that of a previous local study which was 31.8% for poor families and 38.9% for non-poor families in 2011.[15] However, despite the high awareness and prevalence of condom use, only a small proportion (12%) consistently used condoms in the past 12 months. Other studies have shown that low continuation rate of male methods is one major constraint in the involvement of men in family planning practices.[7] The primary decision-making factor for using condoms is an individual's own personal choice. Of the smaller percentage of these fathers who did not use condoms, reasons included perceived decreases in pleasure during sexual intercourse, plans of having additional children, and opposition from religion. The main reasons for using condoms are its effectiveness in preventing pregnancies and it is deemed to be the easiest method to use, the method they are most familiar with and lastly most affordable contraceptive method of artificial family planning. Economic considerations are a major factor for men when it comes to utilizing family planning methods.[7] The apparent popularity of condom usage has great bearing on the development of appropriate reproductive health programs targeting men.

Vasectomy was the second most common artifici. family planning method used. The success of artificial family planning programs relies on multiple factors that include the health-seeking behavior not only of women but of their male partners. However, most of the survey respondents (68%) have not discussed family planning practices with a health worker or health professional, despite willingness to do so. A possible reason for this would be a lack of resources or access to reproductive health services such as counseling on different contraceptive methods.

In summary, the respondents are aware of the artificial family planning methods available to men and some female contraceptive methods, particularly contraceptive pills. Areas of awareness that need improvement are the distinction between natural and artificial family planning, as well as details about a woman's fertility period. The most common means of gaining information about family planning are from television, radios and newspapers, as well as family and friends. This study also reveals that the respondents have a general positive attitude towards artificial family planning practices and programs and are willing to get involved in decision-making regarding family planning. As regards practices, condoms are the most commonly used contraceptive method, for reasons such as affordability, familiarity, ease of use, and its effectiveness in preventing unwanted pregnancies. There is still much to be done in raising Filipino fathers' awareness in family planning practices. The researchers would recommend targeting existing programs that focus on information, education, and communication (IEC) on family planning for improvement.

The researchers would also like to recommend a peer education strategy which involves training fathers/men in family planning through peer counseling. This may encourage male partners to become less reluctant or embarrassed to adopt relatively unfamiliar modern family planning methods, such as vasectomies. Peer support groups can also be created as a support base to provide a venue for information dissemination and discussion of reproductive health issues among fathers.

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A randomized controlled trial on the effectiveness of baking soda - acetic acid solution as an adjunct to benzoyl peroxide in treating acne vulgaris among Filipino teenagers and adults

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Abstract

Introduction Acne vulgaris is common among young adults. Benzoyl peroxide is the current mainstay of treatment. Baking soda and acetic acid are common household agents that can be used in creating a solution for skin conditions, including acne. This study aimed to determine the effectiveness of a baking soda-acetic acid solution as an adjunct to Benzoyl peroxide in treating subjects with facial acne who have at least 10 non-inflammatory lesions, at least 5 inflammatory lesions, or a total lesion count of at least 15 using Evaluators Global Severity Scale.

Methods This study was a double-blind, randomized, controlled trial. Subjects were randomized to a treatment group (Benzoyl peroxide gel-baking soda-acetic acid) or a control group (Benzoyl peroxide gel-distilled water). Improvement was noted by a 1-grade reduction from baseline score at the end of each week for four weeks.

Results There was a more significant improvement (p=0.008) in the control group than the treatment group by EGSS score, with a mean reduction of 1.39 for the baking-soda solution and 2.09 for the distilled water groups. The relative risk (0.820) showed the control was more beneficial than the treatment, although not statistically significant (p=0.109).

Conclusion Data from this study do not conform to results of previous researches, which showed significant improvement of acne severity. A possible explanation for this discrepancy is the addition of aspirin in previous studies, which was not used in this trial. Improvement in EGSS scores in both groups was believed to be secondary to Benzoyl peroxide. Baking soda-acetic acid solution was not effective as an adjunct to Benzoyl peroxide in treating acne vulgaris.

Key words: acetic acid solution, benzoyl peroxide, acne vulgaris

Acne vulgaris is a self-limiting inflammatory disease of the pilosebaceous units of the skin of the face, neck, chest and upper back.[1] It is a condition seen among the teen and young adult age groups with 10-20% manifesting in adults.[2] In the Philippines, 3 out of every 4 young Filipinos aged 11 to 30 years have acne.[3]

The basic treatment of acne includes skin care, topical agents and oral antibiotics. For severe cases that do not respond to typical therapy, administration of estrogen and retinoids may be necessary. If adequately treated, acne vulgaris can be a transient disorder; but it may leave scars that can destroy the integrity of the skin and affect a person's quality of life.

The World Health Organization included Benzoyl peroxide as one of the essential medicines affecting skin proliferation and differentiation.[4] Previous studies have

also shown that Benzoyl peroxide is more effective when used with adjunct treatments (Adapalene, Metronidazole, Clindamycin) rather than when used alone[6]. These studies paved the way for the current practice of using combined drug therapy in acne treatment. Retinoids and antimicrobials are usually used in combination with benzoyl peroxide to enhance its overall efficacy. However, these agents increase costs, especially for long-term treatment. Hence, this study was conceptualized to look for a cheaper and safe agent, which when combined with Benzoyl peroxide would hasten resolution of the lesions.

Sodium bicarbonate is a mild alkaline compound with a pH of 8.4 in a 0.1N aqueous solution at 25°C. It is used in domestic products like detergents and cleaning products, soap and toothpaste.[7] According to U.S. Food and Drug Administration (FDA), sodium bicarbonate is classified as a "Generally Recognized as Safe" (GRAS) ingredient with no other limitation.[8] In the Philippines, it is readily available, cheap and easy to use. Thus, the researchers chose this compound as an adjunct to Benzoyl peroxide.

In Hines' (2011) study, 11.2% baking soda was one of the ingredients used in creating a topical dermatological solution for an array of skin conditions such as acne, pimples, dermatitis, folliculitis and the like.[9] Together with 2.7% Aspirin, 66% white vinegar and 22.1% table salt, this novel solution has been effective in treating such inflammatory conditions. Moreover, Handa noted that sodium bicarbonate is used as a buffering agent and a pH adjuster making it an effective acid neutralizer.[10] This property makes baking soda effective in correcting skin pH imbalances that can contribute to acne vulgaris. However, sodium bicarbonate may also produce adverse reactions hence, monitoring its use is extremely important. Based on the study of Wnorowski, erythema resolved by day 2; sodium bicarbonate was classified as slightly irritating based on the Primary Dermal Irritation Index.[11]

The researchers aimed to first address the safety of baking soda-acetic acid solution before proving its efficacy in treating acne. Baking soda-acetic acid solution was used as an adjunct to the current mainstay of treatment Benzoyl peroxide. If proven effective, this would have given acne patients another treatment option which is readily available and cost-effective. The study also aimed to determine the effectiveness of a baking soda-acetic acid solution as an adjunct to Benzoyl peroxide in treating patients with acne vulgaris. During the study, adverse effects such as erythema, itching, burning and stinging were also monitored.

Methods

Patients with a clinical diagnosis of facial acne vulgaris, male or female, aged 14 to 35 years, with an Evaluators Global Severity Scale (EGSS)[13] score of mild to severe (grade of 1 to 5) and not under any treatment for acne, or were willing to discontinue such treatment for four weeks were included. Those with other facial dermatologic conditions, concomitant disease that could affect clinical assessment, were currently taking non-pharmacologic and/or pharmacologic interventions for acne, were planning to get pregnant, currently pregnant or lactating, or were participating in another similar study or enrolled another study were excluded. All subjects included were asked to sign an informed consent and were given the option to withdraw any time. The study was approved by the Ethics Review Committee of UERMMMCI.

A sample size of 45 per group was computed based on an alpha of 0.05 with a Z-value of 1.96, a 1.2 difference, 80% power, and an assumed standard deviation of 2.

A licensed Dermatology resident did the assessment of subjects. The diagnosis of acne vulgaris was based on the presence of at least ten non-inflammatory lesions (open and closed comedones), at least five inflammatory lesions (papules and pustules), or a total lesion count of at least 15, and an Evaluators Global Severity Scale (EGSS) of 1 to 514.

This was a double-blind, randomized controlled trial. Subjects were assigned to a 1) treatment group: Benzoyl peroxide (5%) gel with baking soda-acetic acid solution (11.5% of baking soda), or a 2) control group: Benzoyl peroxide (5%) gel with distilled water solution during a 4-week treatment period. Randomization was done by using a computer-generated table of random numbers.

The baking soda-acetic acid solution was prepared by dissolving two tablespoons of baking soda and two tablespoons of sodium chloride (rock salt) in 125 ml of acetic acid (white vinegar). This formulation was patterned from the topical dermatological solution introduced by Hines.[9] The solution was stored at room temperature.

All subjects received verbal and written instructions on the application of the assigned treatment. They were provided with a kit containing two unlabelled containers, cotton balls and a compliance sheet. The subjects were instructed to wash their face with water and then apply the given study solution on the entire face (depending on their assigned group) using a cotton ball. The solution was left to dry on the face for 5 to 10 minutes before rinsing it. Benzoyl peroxide was then applied thinly onto the affected areas of the face. This was done twice a day

(morning and evening) for four weeks. Subjects were also instructed to check the corresponding days when they applied the treatment on their compliance sheets. Subjects were assessed on acne grading, compliance and adverse effects on a weekly basis (week 1, 2, 3, 4). Grading of the acne was based on the Evaluators Global Severity Scale (EGSS) and was done by a dermatologist. The subjects were asked if they experienced any adverse reactions such as facial scaling, erythema, itching, burning and stinging using an open ended question. Those who developed reactions were given the prerogative to drop out from the study.

The primary endpoints in this study were the standard assessment of inflamed lesions (papules and pustules) and the overall judgment of the efficacy and tolerability of the baking soda-acetic acid solution as an adjunct to Benzoyl peroxide. The inflammatory lesion reduction was the primary efficacy criterion. Subjects were treated for four weeks and were evaluated every week. At each follow-up visit, the grading of effectiveness was assessed by a Dermatology resident using the Evaluators Global Severity Scale (EGSS) of grade 1 to 5 (mild to severe). Subjects were graded according to their level of improvement in the scale or lack thereof.

Results were analyzed using Mann-Whitney U Test at an alpha of 0.05 to evaluate the distribution of the mean difference of scores between the treatment and control groups. The mean differences between week 0 and the subsequent weeks were obtained. Relative risk was also computed, with improvement defined as at least 1-grade reduction from the baseline score at the end of each week for four weeks. Intention-to-treat (ITT) analysis was done to determine the impact of dropouts. The number-needed-to-harm (NNH) analysis was used to analyze the number of adverse effects observed from the subjects per group.

Results

90 subjects were recruited for the study, with 45 subjects per group. Eleven subjects dropped out, one from the treatment group (2%) and 10 from the control group (22%). The mean age and the sex distribution for the treatment and control groups were comparable (Table 1). The mean EGSS scores of the subjects in the treatment group and control groups are shown in Table 2.

The Mann Whitney U Test showed a significant improvement in the control group compared with the treatment group (Table 3). The relative risk analysis confirms that the control is better than the treatment (Table 4). The results did not change after an intention-to-treat analysis (Table 5).

One subject (2.2%) in the treatment group experienced itching after application of the baking soda-acetic acid solution while four (8.9%) in the control group reported adverse reactions to Benzoyl peroxide gel. Two of them developed erythema and the other two complained of itching. The four of them dropped out from the study. The number-needed-to-harm (NNH) was 15, meaning that

Table 1. Demographics of treatment and control groups.

Characteristics	Treatment (n= 44)	Control (n= 35)
Age (years)		
Mean	21.75	21.49
Range	14-35	14-35
Sex(%)		
Male	23	18
Female	21	17

Table 2. Mean EGSS scores for treatment and control groups.

	Treatment	Control
Week 0	3.91	4.17
Week 1	3.64	3.57
Week 2	3.23	3.06
Week 3	2.86	2.69
Week 4	2.52	2.09

Table 3. Mann-Whitney U test analysis comparing the differences between treatment and control groups.

	Treatment	Control	P-value
W0 vs W1	0.27	0.6	0.017
W0 vs W2	0.68	1.11	0.024
W0 vs W3	1.05	1.49	0.044
W0 vs W4	1.39	2.09	0.008
W0	3.91	4.17	0.18

for every 15 patients exposed to the baking soda-acetic acid solution, one would develop an adverse reaction.

Discussion

This study showed that baking soda-acetic acid solution was not beneficial as an adjunct to Benzoyl peroxide in the treatment of acne vulgaris. The results suggest that the significant improvement observed for both groups was due to Benzoyl peroxide.

The difference in the formulation of Hines and that of the present study may have also affected the results. The effectiveness of Hines' solution in reducing inflammation was anchored in its ionic strength. The use of weak acids (e.g., Aspirin and acetic acid) and weak bases (e.g., baking soda) contribute to the formation of a pH-dependent solution with appropriate ionic strength that is compatible with facial skin. The ionic strength drives the osmotic pressure toward equilibrium, causing the number of ions on either side of a membrane to equalize. The salt in the solution allows shifting of the osmotic pressure from a lower concentration (acne portion) to a higher concentration (solution). Inflammation and swelling is reduced due to this process, thus healing is promoted.[9]

The solution that was used in the study did not include Aspirin, which Hines used to achieve an additional anti-inflammatory effect. The lack of Aspirin which is also a weak acid, in the researchers' formulation, could have weakened the strength of the solution. Aspirin was not used for the following reasons: 1) it has an anti-inflammatory effect which can create bias and confound the results; 2) it is a drug that needs guidance of the physician in its usage; 3) it is known to produce hypersensitivity reactions in some patients; and 4) it is not considered a household item, unlike baking soda, vinegar and salt.

Patient compliance (i.e. frequency and duration of application) was also vital in assessing the effectiveness of the treatment regimens. Majority of the subjects completed the 4-week treatment with good compliance. Therefore, compliance as a confounding factor can be ruled out in this study. Weekly assessment and grading of the lesions were also done by the same physician all throughout the study, thus eliminating bias.

Table 4. Relative Risk (RR) analysis between treatment and control groups.

	Treatment		Control		RR	P-value
	(+) EGSS Score Improvement	(-) EGSS Score Improvement	(+) EGSS Score Improvement	(-) ECGSS Score Improvement		
W0 - W1	11	33	21	14	0.4167	0.056
W0 - W2	25	19	27	8	0.7365	0.098
W0 - W3	31	13	29	6	0.8503	0.309
W0 - W4	33	11	32	3	0.8203	0.109

Table 5. Intention to treat analysis.

	Treatment		Control		RR	P-value
	(+) EGSS Score Improvement	(-) EGSS Score Improvement	(+) EGSS Score Improvement	(-) ECGSS Score Improvement		
W0 - W1	11	34	31	14	0.3548	<0.001
W0 - W2	25	20	37	8	0.6757	0.012
W0 - W3	31	14	39	6	0.7949	0.076
W0 - W4	33	12	42	3	0.7857	0.024

Adverse effects were documented in both groups in this study. Based on Wnorowski's findings, the skin irritation potential of baking soda is generally low. A study by Liao[12] compared different concentrations of Benzoyl peroxide gel (2.5% vs. 5% and 2.5% vs. 10%) and showed no difference in efficacy, nor was there a dose-response effect. Thus, the researchers surmise that the 5% concentration used in the study may still be within the safety threshold of Benzoyl peroxide. Liao suggested that erythema and scaling had more or less identical frequency with the 2.5% and 5% concentrations, but occurred more often with the 10% concentration. Therefore, 5% appears to be the ceiling concentration of the drug when balance of risk and benefits is considered.

The focus of this study was to determine whether or not significant improvements could be observed in acne patients treated with a baking soda-acetic acid solution, and to determine its safety. Confounding variables were assumed to have been controlled through randomization. The study was done for four weeks; this may not have been enough to detect significant changes in the evolution of the lesions. Moreover, the study's formulation was only based on a patent that has proven to work in various inflammatory conditions, and not on published literature on baking soda. Lastly, the clinical endpoint of this study was not the resolution of acne but improvement from a baseline.

This study concludes that baking soda-acetic acid solution is generally safe for facial use but may not be effective as an adjunct to Benzoyl peroxide in the management of acne vulgaris. The authors recommend a study, whose outcome is cure, rather than improvement; this may prove to be more informative. The following modifications are suggested for future studies: varying the proportions of baking soda and acetic acid, leaving the solution on the face for a longer time, and limiting the subjects to those with mild acne (requiring topical treatment alone).

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The effectiveness of music therapy in the reduction of low back pain due to musculoskeletal disorders

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Abstract

Introduction This study aimed to compare the effectiveness of classical music therapy as an adjunct in treating patients with low back pain secondary to musculoskeletal disorders.

Methods This randomized controlled trial utilized 30 participants randomly assigned to either experimental group who listened to classical music by Mozart or control group. Both groups underwent the same exercises for 14 days. The pain scores were determined using a Visual Analogue Scale at the start of the study and before and after each session. Levene's test for equality of variances and an independent sample t-test were used to analyze the difference between the means of the music and control groups.

Results The difference of the means of the music and control groups at baseline and during the treatment sessions were not significantly different based on the Levene's test and t-test. The experimental group reported that they felt calm and relaxed, and that the pain seemed more bearable and even lesser in intensity when they listened to music.

Conclusion Classical music therapy may not be an effective adjunct in the treatment of low back pain. This may be due to differences in music taste. The authors recommend exploring or type of music in future studies.

Key words: music therapy, musculoskeletal disorders

Low back pain is one of the most common complaints among patients seeking therapy for musculoskeletal pain. It affects both young adults and older individuals, and may interfere with their quality of life and work performance.[1] Nyland and Grimmer[2] showed that physical therapy students in Australia have a high prevalence of low back pain and the risk increased significantly once they completed first year. Factors associated with low back pain include lack of exercise, health status, type of work, heavy lifting, faulty posture, long hours of sitting, and direct handling of patients. These conditions are present among physical therapists and physical therapy students.

The National Institute for Health and Clinical Excellence (NICE), recommends the following for the treatment and management of low back pain: 1) providing information and education and assessing patient preferences, 2) physical activity and exercise, 3) manual therapy (spinal manipulation, spinal mobilization and massage), 4) acupuncture, 5) combined physical and psychological treatment, 6) pharmacological therapy (Paracetamol, opioids, non-steriodal anti-inflammatory drugs, tricyclic antidepressants), and 7) surgery. Other modalities were considered but not recommended: injection of therapeutic substances into the back, interferential therapy, laser therapy, therapeutic ultrasound, transcutaneous electrical stimulation (TENS), lumbar supports, traction and selective serotonin reuptake inhibitors.

Music is another modality that may be useful in the management of pain. The mechanism is explained by the gate control theory developed by Melzack and Wall in 1965. They postulated that the transmission of noxious stimuli along the pain pathway may be altered

by stimulating non-pain pathways. Thus, by increasing non-pain sensory input, especially in the auditory, visual and tactile domains, the pain perception can be greatly modified.

McCaffarey and Freeman[3] conducted the first study which used classical music by Mozart as an adjunct to treatment in elderly patients with pain due to with chronic osteoarthritis. The experimental group, which listened to music for 20 minutes daily for two weeks, had a decrease in pain. Guetin, et al.[4] used music as an adjunct to standard physical therapy in treating hospitalized patients with chronic low back pain and was successful in reducing pain. Patients with leg fractures who were provided with music therapy 30-60 minutes daily for three days had less pain and a lower degree of discomfort than patients in the control group in the study of Kwon, Kim and Park.[5]

This study aimed to determine whether the application of classical music as an adjunct during therapy would effectively decrease low back pain due to musculoskeletal disorders. Specifically, the study sought to compare the degree of pain reduction and the mean pain reduction between the music and control groups, and to determine the qualitative effects of classical music in pain relief.

Methods

A randomized controlled single blind trial was conducted on students from the UERMMMCI College of Allied Rehabilitation Sciences to determine the effectiveness music therapy as an adjunct in the treatment of low back pain (LBP) due to musculoskeletal disorders. The study was approved by the Ethics Review Committee.

Participants with low back pain due to musculoskeletal disorders were selected by random sampling from regular BS Physical Therapy students in Level I to Level IV to complete the computed sample size of 15 subjects per group. Those who met the following criteria were considered for inclusion:

1. Diagnosed by a physiatrist with LBP secondary to hamstring tightness, lumbar strain or muscle sprain and scoliosis
2. Pain score of at least 5/10
3. No hearing impairment
4. (+) 90 -90 straight leg raise test or (+) Tripod sign
5. Not currently taking any pain medications

Students with other conditions that may mimic low back pain such as metabolic, autoimmune and infectious diseases were excluded.

The following definitions were adopted for this study: Low Back Pain (LBP) is a pain felt in the lower back that limits a person from doing his tasks or activities. The cause of LBP may be musculoskeletal disorders, trauma or other pathologic conditions. Musculoskeletal Disorders (MSDs) result from bodily reactions to bending, climbing, crawling, reaching, or twisting, overexertion and repetitive movements. Common MSDs are scoliosis, hamstring tightness, osteoarthritis and sciatica. A Visual Analog Scale (VAS) is usually presented as a 100-mm horizontal line on which the patient's pain intensity is represented by a point between the extremes of "no pain at all" and "worst pain imaginable." Classical Music is produced or rooted in the traditions of Western liturgical and secular music. One of the prominent classical musicians is Wolgang Amadeus Mozart, whose selections have 60 to 70 beats per minute. Music with a tempo between 60 and 80 beats per minute is considered relaxing and aids in pain relief.

Two hundred eight potential participants were evaluated by a licensed physiatrist. Those who met the inclusion criteria and were willing to participate were gathered in one room, provided a copy of subject information sheet, and asked to sign an informed consent. They were then asked to rate their baseline pain for using VAS administered by a licensed physical therapist. The participants were randomly assigned into two groups.

The experimental group was made to listen an MP3 music file with a tempo of 60- 80 beats per minute consisting of 1) Andantino from Concerto for Flute, Harp, and Orchestra in C, K.299; 2) Overture A Le nozze di Figaro, @K492; and 3) Sonata Symphonie No. 40, first movement, through earphones via Bluetooth, with a volume of 8, for 20 minutes while performing their therapeutic exercises. The control group performed the therapeutic exercises without listening to music. The management given by the physiatrist for both groups was self-stretching of the hamstring muscle of each leg for 15 seconds, consisting of 5 repetitions with 6 seconds rest in between. The participants were asked to rate their pain before and after each session using the VAS administered by the same physiatrist. The sessions ran for 14 days.

The pain scores were encoded into a computerized database and analyzed using SPSS version 17. An independent t-test was used to determine the mean difference of the VAS scores of the experimental and control groups.

Results

The 30 subjects consisted of 6 male and 26 female students 16-17 years old. All of them had hamstring

tightness and three subjects also had scoliosis. Figure 1 shows that the mean pain scores of the music group were slightly higher than those of the control group starting from the baseline up to the third determination (PS3), but the difference of the means between the two groups was not significant. Levene's test for equality of variances showed no significant difference between the variances of the music and control groups. An independent samples t-test showed no significant difference in the mean pain scores of the music and control groups.

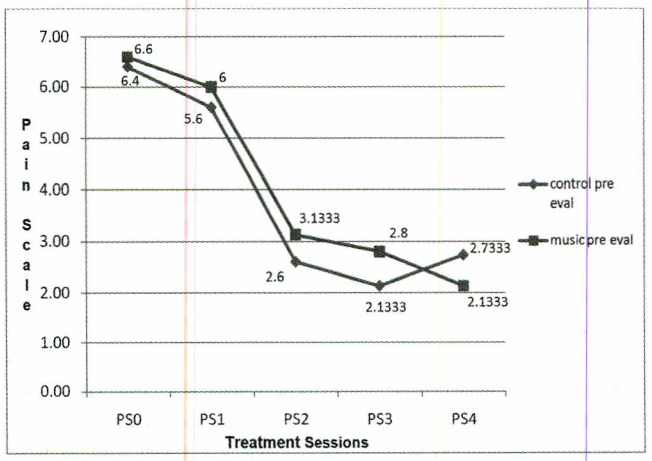

Figure 1. Mean pre-evaluation VAS scores of music and control groups.

Although there is no significant statistical difference in the pain reduction of the control group and the experimental group, the researchers received feedback from the experimental group that when they listened to music they felt calm and relaxed, and that the pain seemed more bearable and even lesser in intensity. However, other participants of the same group reported that the music was not their preferred type.

Discussion

Findings of this are consistent with the study of Smith and Jawed which concluded that the use of classical music in an injection clinic setting did not produce a significant reduction in perceived pain nor improve patient global satisfaction. According to CYRC, Filipino youth are not fond of classical music; this may be a possible explanation for the apparent lack of effect of music in relieving LBP.

The study was hampered by a small sample size for various reasons: lack of interest, poor compliance and conflicts in schedule. The researchers recommend expanding the source population and exploring other types of music, especially those that are suited to the Filipino's current interest and taste, in future studies.

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Association of pre-natal exposure to alcohol or maternal obesity with orofacial clefts in children 5 years old and below: A case-control study

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Abstract

Introduction Orofacial clefts (OFCs) are among the common congenital disorders in the Philippines. This study sought to determine if there is an association between prenatal exposure to alcohol and pre-pregnancy maternal obesity and the development of OFCs.

Methods A case-control study design was employed. Cases were recruited from a nongovernmental organization and controls, from the Pediatric Outpatient Department. Interviews were done and alcohol consumption was categorized as drank or did not drink alcohol. BMI was computed from mother's prenatal height and weight. Obesity was defined as BMI≥30 as classified by WHO. Data were analyzed using SPSS. Odds ratio with 95% CI was calculated to assess the association between orofacial clefts and maternal obesity and with maternal exposure to alcohol. Fisher's exact test was used to determine statistical significance.

Results The odds ratios for first trimester alcohol intake and obesity were 2.08 (p = 0.340, Fisher's exact) and 0.59 (p =0.435, Fisher's exact), respectively.

Conclusion There may be an association between alcohol ingestion by mothers and development of OFCs in their offspring. There may be no association between pre-pregnant obesity and development of OFCs.

Key words: Orofacial cleft, cleft lip and/or palate, maternal obesity, alcohol

Orofacial clefts (OFCs) are a group of congenital birth defects comprised of cleft lip, cleft palate or both. Cleft lip is a separation of the left and right sides of the lip attributed to the agenesis of the mesenchymal layer, resulting in a failure of the medial nasal and maxillary processes to join. Cleft palate is a division of the palate on the midline because of the failure of the palatal shelves to fuse, and may involve the uvula, soft and hard palates up until the incisive foramen. Orofacial clefts are readily observable and diagnosed by physical examination at birth; undetected cases are rare. Furthermore, irreversible developmental consequences, including speech defects and facial abnormalities suggest the need for urgent management and surgery.[1]

Moreover, it is known that both cleft lip and cleft palate are complex and heterogeneous congenital malformations; their occurrence is associated with several environmental and genetic factors. Many epidemiological investigations and animal experiments have confirmed that exposure to environmental factors during early pregnancy, such as smoking, drinking, lack of vitamins, viral infection, and maternal illness and medications during the first trimester can increase the risk of OFCs.[1]

According to a report of the World Health Organization in 2001, the six top congenital anomalies included cleft lip and/or palate with the clefts occurring more often among the Asian populations.[2] The main orocranial types, cleft palate and cleft lip and palate

have a high prevalence in Japan[3] and the Philippines.[4] National Statistics Office data indicate that there are 3 babies born per minute and the prevalence of those with orofacial clefts is estimated to be 2 in every 500-1000 live births.[4] Despite the significant number of infants born with OFCs, researches about OFCs are inadequate. The last study was done in 1997 by Murray, et al.[4] and since then no further studies about specific factors have been done.

Alcohol has always been implicated in the development of congenital malformations. The severity of malformations may vary with the amount of alcohol consumption. Principal manifestations include prenatal and postnatal growth deficiency, short stature, developmental delay, microcephaly, fine-motor dysfunction, facial dysmorphismas well as cleft palate, joint and cardiac anomalies, and altered palmar creases.[1]

An increase in the prevalence of overweight and obese women of childbearing age has become a public health concern due to their increased risk for pregnancy complications and adverse pregnancy outcomes such as the occurrence of birth defects. It has been demonstrated that there is a strong association between a woman's pre-pregnancy BMI and risk for offspring with certain birth defects. Some birth defects, such as spina bifida and anencephaly, have stronger associations with pre-pregnancy obesity than others.[3] A cohort study showed an association of pre-pregnant weight with the development of orofacial clefts[5] and a similar study has shown a positive correlation between maternal obesity and orofacial clefts.[6] A study of Cedergren and Kallen in 2005 showed a weak association of drug use to the development of orofacial clefts.[5] There are other non-genetic or environmental factors which interplayed with genetics that predispose babies into developing orofacial clefts. Further studies about obesity and maternal intake of alcohol were chosen as variables due to scarcity of information regarding these two that might be significantly associated with the development of congenital anomalies, particularly orofacial clefts.

This study sought to establish an association between prenatal exposure to alcohol and pre-pregnancy obesity with the development of orofacial clefts. Due to the scarcity of studies that associate orofacial clefts with maternal risk factors in the Philippines, the use of the data acquired from this study may give rise to more detailed information about orofacial clefts, their distribution, and possible association with maternal alcohol intake and obesity. It can also aid in the education of the general population, and therefore prevent the condition by limiting the causes of maternal risk among people who do not have ready access to services such as speech therapy and psychological therapy. Lastly, the study can provide relevant facts and statistics for the generation of future studies.

Methods

The study employed a case-control design. Cases were selected from patients with clinically diagnosed orofacial clefts who consulted a non-governmental organization (NGO). Control subjects were recruited from the Pediatric Outpatient Department. Both cases and controls had to be residents of Metro Manila and born between January 2007 and June 2012. Convenience sampling was done to achieve the computed sample size of 114 subjects.

Informed consent was obtained from the mothers of the patients prior to the conduct of a questionnaire-guided interview. Questions about maternal exposure to alcohol within the first three months of pregnancy and pre-pregnancy weight were asked, including volume of intake. Alcohol was defined as beverages with an ethanol content of 5% or higher such as beer, wine and hard liquor (vodka, brandy and gin). Respondents were categorized as having or not having drunk alcohol. Body mass index (BMI) was computed from the mothers' pre-natal height in meters and weight in kilograms. Obesity was defined as a BMI≥30 (WHO Standard BMI Classification, 2004).

Data were analyzed using the Statistical Package for Social Sciences (SPSS) Version 20 program. Odds ratios and 95% confidence limits were calculated to assess the association between orofacial clefts and the two risk factors being studied. Fisher's exact test was used to determine statistical significance of any association between alcohol intake and orofacial cleft, and between maternal obesity and orofacial cleft.

Results

One hundred potential cases were identified from the NGO. Thirty-one were excluded because they did not reside in Metro Manila, and seven, because they were not born within January 2007-June 2012, leaving 62 cases for inclusion in the study. Sixty-seven mothers of possible control patients seen at the Outpatient Department agreed to join the study. Two were excluded for not satisfying the residency and birthdate requirements, respectively, leaving 65 controls for inclusion in the study. Fifty-seven subjects each in the case and control groups were included in the analysis after 10 subjects with incomplete data were excluded. (Table 1)

Table 1. Characteristics of mothers of cases and controls.

Characteristics	With Orofacial Cleft (n=57)		Without Orofacial Cleft (n=57)	
	Mean	Range	Mean	Range
Age of children (months)	18.16	2-60	8.72	1-60
Age of mothers (years)	29.21	27	28.8	19-45
Weight of mothers (kilograms)	49.8	25-80	55.1	30-90
Height of mothers (meters)	1.55	1.45-1.77	1.57	1.45-1.68
BMI (kg/m^2)	20.72	11.1-31.1	22.33	12.1-36.6

Table 2. Odds ratio of first trimester alcohol intake and pre-pregnancy obesity in relation to orofacial cleft.

	Case	Control	OR	Adjusted OR*	95% CI*	Fisher's Exact
Alcohol Intake						
Yes	4	2	2.075	2.075**	-1.009-2.469	0.3395
No	53	55	1.00	1.000	Referent	
Missing values	0	0				
Obese						
Yes	2	4	0.45**	0.589**	-2.273-1.214	0.4350
No	45	53	1.00	1.000	Referent	

* 2cells (50.0%) have expected count less than 5.
** Significant at p-value=0.05

Table 2 shows the odds ratios for the association between alcohol intake and OFC, and obesity and OFC. Fisher's exact test shows that both odds ratios are not significant.

Discussion

Results of this study indicate that pre-natal exposure to alcohol during early pregnancy may be associated with the development of orofacial clefts, consistent with the findings of studies done by Romitti, et al.[7] and by de Roo, et al.[8] Romitti and colleagues showed a strong association between maternal periconceptional alcohol drinking, particularly binge drinking, and OFCs, but not with any particular phenotype of orofacial cleft: cleft lip, cleft palate, or both cleft lip and palate.[7] They also found out that the association differed by the type of alcohol consumed, particularly for cleft palate The association was strongest for distilled spirits, followed by wine then beer.

According to a study done by De Roo et al., women who reported binge-level drinking (>5 drinks per sitting) during the 1st trimester, especially those who binged on three or more occasions, were more likely to have an infant with orofacial clefts compared to non-drinking women.[8] The risk for women who reported habitual binge-level drinking before their pregnancies but who reduced or stopped during their pregnancies was similar to those of women who abstained from alcohol before and during pregnancy. The association when measuring alcohol consumption as total drinks or number of drinking days was weak. The dose of alcohol consumed per episode, rather than the frequency or total amount over time, is the most relevant alcohol measure for assessing potential adverse fetal outcomes, as de Roo and colleagues had noted.[10] They stated that maternal binge drinking may be harmful because of the higher peak blood alcohol concentrations and prolonged fetal alcohol exposure.

If exposure occurs very early in the pregnancy, women who are unaware of their pregnancy status and who chronically ingest large quantities of alcohol or engage in binge drinking may inadvertently expose the fetus to an insult which may affect its normal development.

Among our samples, there were more cases of OFCs seen among women with a pre-pregnancy BMI of <30 kg/m^2 (n=98 are non-obese). These results suggest that a BMI of ≥30 kg/m^2 has lower probability of OFCs. However, this can also imply that the assessment of maternal nutrition-and its subsequent effects on fetal development-cannot be solely based on pre-pregnancy weight and subsequent weight gain during the course of pregnancy.

This study's findings are similar to that of a cohort study by Rankin, et al. with regards to their results among mothers who were underweight.[9] Other studies reported a higher prevalence of OFCs in obese mothers. One factor that may explain this study's results is most mothers did not remember their pre-pregnancy weight. The BMI used for other studies are based on values determined by the WHO. The BMI for this study should be specific for Asian/Filipino women.

Results of this study suggest alcohol ingestion by pregnant mothers may be associated with the formation of orofacial cleft defects on their offspring; therefore pregnant women should be advised not to drink alcoholic beverages.

Among Filipino women before their pregnancy, this study's findings propose that those who are obese may be less likely to give birth to children with OFCs, which can also be interpreted as: non-obese mothers including the underweight may be more likely to give birth to children with OFCs.

This research has several limitations. Inherent in a case control study is recall bias. Other maternal factors such as age, education, socioeconomic status, smoking, genetic predisposition, prenatal care and other comorbidities were not taken into account. Future research can be done to assess maternal periconceptional / pre-pregnancy alcohol consumption, weight gain or weight loss during early pregnancy, quality of pre-natal care, and more accurate alcohol intake assessment.

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Sexual activity and QoL in the elderly: A cross-sectional study of the association of sexual activity with the quality of life and performance of activities of daily living in elderly persons in Barangay Ugong, Pasig City

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Abstract

Introduction Sexual activity has been known to improve several aspects of health of individuals such as in increasing the quality of life and the ability to perform everyday task. However, data about the sexual activity of the elderly is scant. This study sought to determine the association of sexual activity with quality of life (QoL) and activities of daily living (ADL) performance among elderly individuals.

Methods Facilitated interview of subjects living in Barangay Ugong, Pasig City selected through convenience sampling was done using a structured 4-part questionnaire. The QoL was scored using World Health Organization Quality of Life BREF, while ADL performance was scored using The Katz Index of Independence in Activities of Daily Living.

Results Majority of respondents were not sexually active; those who were sexually active tended to be young-old married males. Prevalence odds ratio showed that sexual activity was associated with quality of life but not with activities of daily living.

Conclusion Sexual activity is associated with a good quality of life but not with the performance of activities of daily living. There was apparent absence of an association with activities of daily.

Key words: sexual activity, quality of life, activities of daily living, elderly

The global population has increased over the last 50 years, accompanied by a demographic shift characterized by an increase in number and proportion of the elderly persons. In the Philippines, the population of persons 60 years old and above in 2011 was 6.8 million (out of 90 million population) and was seen to double in 16 years.[1]

The increasing number of this population carries with it issues that should be addressed. One of their concerns is health and quality of life. Several studies have shown that a good quality of life in the elderly is related to their sexual activity. In the Philippines, information about the sexuality and sexual activity of the elderly, as well as its effects on their health has not been established. Sexuality, as a part of life of geriatric patients is an elusive topic due to several factors, including cultural and social issues. The sexual aspect of the life of the elderly is seen to be a sensitive issue[2], and as something not of utmost concern of this age group, thus is not discussed and neglected. In relation to this, even primary care physicians often refuse to give time to assess this part of their life.

This study may debunk the common notion that this age group is not sexually active due to physical

changes. The researchers hypothesized that sexual activity is associated with the QoL, as well as with the ADL performance of the elderly. This study aimed to determine association of sexual activity to the quality of life (QoL) and to activities of daily living (ADL) performance.

Methods

An analytic cross-sectional study design was used to determine the association of sexual activity in the elderly with Quality of Life (QoL) and performance of Activities of Daily Living (ADL) among residents of Barangay Ugong, Pasig City.

Included in the study were residents of the barangay aged 60-84 years, whether male or female, who were available during the home visit, and able to answer the questionnaire personally. Those with any of the following conditions were excluded: mental or psychological incapacity, bedridden, communication problems, or impaired consciousness. A subject was considered sexually active (SA) if he reported any sexual act such as masturbation, intercourse/coitus, oral or anal sex in the past three months. The ADL performance of a participant was considered poor if his score was 0 to 3 and good if it was 4 to 6.

The computed sample size was 102 subjects, based on a Z-value corresponding to a confidence level of 1.96 and an absolute precision (d) of 0.05; both alpha and beta errors were considered. Quota sampling was utilized to obtain the number of respondents required. A list containing the identifying data of elderly residents was obtained from the Office of Senior Citizens Affairs at the Barangay Hall. The list was divided among six groups of two researchers each based on the location of the potential participants. Each pair recruited at least 17 subjects to complete the required sample size. An informed consent was obtained from those who agreed to participate.

Each subject underwent a one-on-one, questionnaire-guided facilitated interview and anthropometric measurement, respectively, conducted by the assigned member of the pair of researchers. For the anthropometric parameters, the researcher assigned measured arm span using a meter stick, and weight using a bathroom scale. These data were used to compute for the participants' body mass index (BMI). Data on demographics, sexual activity, QoL and ADL performance were obtained using a 4-part structured questionnaire. The sexual activity portion asked the respondent if he engaged in any one or more of the previous enumerated sexual acts. The ADL part contained six items which were each scored 0 (some or total dependence) or 1 (independence). The QoL part included 24 items covering four domains: physical health, psychological health, social relationships, and environment. Each item was scored 1 to 5, with the latter connoting a good quality of life.

Prior to actual data collection, the interviewers underwent training in order to uniformly conduct the facilitated interviews and obtain the anthropometric measurements. The questionnaire consisted of the Katz Index of Independence in Activities of Daily Living[2] and the Abbreviated World Health Organization-Quality of Life tool (WHOQoL-BREF)[3] with some modifications. The questionnaire was pretested on 10 subjects from another locality.

After data gathering, the questionnaires were reviewed and only those questionnaires with complete answers were included. Data were encoded in Microsoft Excel. The ADL performance score was computed by adding the individual scores for each of the six items. The prevalence odds ratio of the variables was computed, wherein sexual activity was treated as the exposure, and the ADL performance as the outcome. The significance of the established relationship was tested using the Fisher's exact test and a P-value of <0.05 was considered significant. The QoL score was computed according to prescribed methods. The mean scores of the SA and non-SA respondents were calculated for each domain. The analysis of inverse variance on a random effects model at 95% confidence interval was utilized to test for the effect of SA on each QoL domain and on overall QoL. A p-value of <0.05 was considered significant.

Results

Table 1 shows that majority of respondents were not sexually active. The sexually active respondent was a young-old married male while the non-sexually active respondent was a young-old widow. The former tended to have a higher educational attainment than the latter.

The most commonly performed sexual activity was intercourse (76%) followed by masturbation (8%) and oral sex; a combination of these activities was done 12% of the time. Table 2 shows that both groups had good ADL performance.

Table 3 shows that the sexually active had higher mean scores in all four domains compared with the other group. The test for the over-all effect of sexual activity on QoL using inverse variance shows a significant association ($P = 0.01$).

Discussion

The results of our study are consistent with others that found that sexually active elderly are male[3], relatively younger[4], and married.[4,5] The greater prevalence of sexual inactivity, on the other hand, may be attributed

Table 1. Demographic characteristics of sexually active and non-sexually active subjects.

Characteristic	Sexually Active n = 25	Non-Sexually Active n = 79
Sex		
Male	18 (72%)	23 (29%)
Female	7 (28%)	56 (71%)
Age (mean = 68 yrs)		
Young old (60-74)	25 (100%)	58 (73%)
Middle old (75-84)	0	21 (27%)
Civil Status		
Single	1 (4%)	9 (11%)
Married	21 (84%)	24 (30%)
Separated	0	1 (1%)
Widowed	3 (12%)	45 (57%)
Educational Attainment		
No formal education	0	1 (1%)
Elementary	7 (28%)	39 (38%)
Secondary	6 (24%)	31 (29%)
Tertiary	12 (48%)	33 (32%)
Postgraduate	0	0
Body Mass Index		
Underweight (£ 18.5)	3 (12%)	4 (5%)
Normal (18.5-24.9)	10 (40%)	49 (62%)
Overweight (25.0-29.0)	12 (48%)	20 (25%)
Obese (³30.0)	0	6 (8%)

Table 2. ADL perfromance among sexually active and non-sexually active respondents.

	Sexually Active	Non-Sexually Active	Total
Good (4-6)	24	79	103
Poor (0-3)	1	0	1
Total	25	79	104

to the overall old age of the respondents. A study by Taylor and Gosney in Sweden suggests that increasing age is associated with a decreased interest in sex.[6] In their survey, Swedish men aged 50-80 years had less interest in sex, while 70-80 year old men stated that sex had "some importance" in their life. Lindau, et al. using face-to-face interviews, showed that although interest in sex was lower in older age groups, 59% of 75-85 year olds still attributed some importance to sex.[3]

The prevalence odds ratio (0.96) suggests that sexual activity has no association with ADL performance. Almost all respondents had good ADL performance. The high performance level of the study population in general may be attributed to the respondents' relatively young age. This was also reported by Zuccolo, et al.[7] who found that difficulties in Instrumental Activities of Daily Living (IADL) were seen only in those 80 years or older.

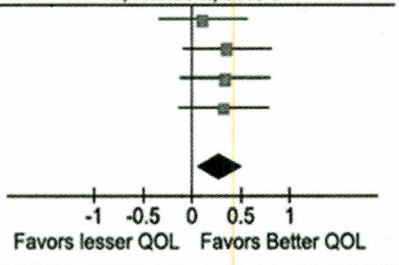
Results for the Quality of Life (QoL) show that the mean scores of SA respondents are higher than the mean scores of non-SA in all four domains, though these differences are not statistically significant. However, overall test for the association of sexual activity with QoL using inverse variance shows that SA is significantly positively associated with QoL ($Z=2.49$; $p=0.01$), meaning that sexual activity significantly affects the respondents' overall quality. This finding is consistent with studies from other countries.

Scores in all four domains in the QoL questionnaire were higher in the sexually active group. The higher physical health scores may be due to "younger" subjects. Yee reported that aging produces changes that affect the endocrine, vascular and neurological systems, all of which produce direct and indirect effects on sexual arousal and sexual performance.[8] Mazo reported that more sexually active individuals evaluated themselves as having a better quality of life, as having more meaning in their lives and as having more satisfaction with life in general[9], accounting for the higher scores in the psychological domain.

Table 3. Quality of life among sexually active and non-sexually active respondents.

Study or Subgroup	Sexually Active Mean	SD	Total	Not Sexually Active Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
environment	74.12	10.8	25	72.58	14.4	79	25.2%	0.11 [-0.34, 0.56]
physical health	73.28	15.3	25	67.9	14.8	79	24.9%	0.36 [-0.09, 0.81]
psychological health	76.16	15.47	25	70.35	17.5	79	24.9%	0.34 [-0.11, 0.79]
social relationships	75	15.6	25	68.99	19.38	79	25.0%	0.32 [-0.13, 0.77]
Total (95% CI)			100			316	100.0%	0.28 [0.06, 0.51]

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.74$, $df = 3$ ($P = 0.86$); $I^2 = 0\%$
Test for overall effect: $Z = 2.45$ ($P = 0.01$)



Conclusion

Sexual activity is associated with a good quality of life but not with activities of daily living. The researchers thus propose that sexual health be part of the holistic care of geriatric patients, implying that health care professionals should be able to include the sexual aspect of health in their assessment and management. For example, physcians should be mindful of the effects of the medicines they prescribe on the capability of elderly persons to engage in sexual activities.

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This should be a concise structured summary consisting of the Introduction, Methods, Results and Discussion. It should be no more than 250 words and include the purpose, basic procedures, main findings and principal conclusions of the investigation. New and important information should be emphasized.

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