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## Resident Participation and Directed Electronic Medical Record Programming Can Decrease Peri-Operative Complications and Improve Surgical Quality, NSQIP Quality Metrics

By Elrod ME, Levy PM, Fridley T, Smith LE & Levy MS

**Abstract-** The National Surgical Quality Improvement Program (NSQIP) is a data collection system used to track hospital and surgical performance and to compare hospital and surgical quality. Improvement in quality metrics, both over time in the same institution and against peer hospitals, is rewarded by financial incentives with improved Medicare payments. As such physicians may be interested in the quality metrics of their specific practice and performance improvement not only because of the possibility of improved care provision but also because reimbursement may become dependent on such data. We hypothesized that involvement of general surgery residents would be a useful modality to improve NSQIP data and possibly improve patient care. The residents were incorporated into our hospital performance committee and directly assisted with the overhaul of surgical quality assurance over an eight-month period. Data from the antecedent eight-month period was compared to data from the eight months after general surgery resident oversight was initiated. Statistically significant improvement in hospital performance was demonstrated in five of the eight measured categories. We believe that this finding could be reproducible in other institutions; additional studies are necessary to determine this.

**Keywords:** NSQIP; quality improvement; reimbursement; medicare.

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# Resident Participation and Directed Electronic Medical Record Programming Can Decrease Peri-Operative Complications and Improve Surgical Quality, NSQIP Quality Metrics

Elrod ME <sup>α</sup>, Levy PM <sup>σ</sup>, Fridley T <sup>ρ</sup>, Smith LE <sup>ω</sup> & Levy MS <sup>¥</sup>

**Abstract-** The National Surgical Quality Improvement Program (NSQIP) is a data collection system used to track hospital and surgical performance and to compare hospital and surgical quality. Improvement in quality metrics, both over time in the same institution and against peer hospitals, is rewarded by financial incentives with improved Medicare payments. As such physicians may be interested in the quality metrics of their specific practice and performance improvement not only because of the possibility of improved care provision but also because reimbursement may become dependent on such data. We hypothesized that involvement of general surgery residents would be a useful modality to improve NSQIP data and possibly improve patient care. The residents were incorporated into our hospital performance committee and directly assisted with the overhaul of surgical quality assurance over an eight-month period. Data from the antecedent eight-month period was compared to data from the eight months after general surgery resident oversight was initiated. Statistically significant improvement in hospital performance was demonstrated in five of the eight measured categories. We believe that this finding could be reproducible in other institutions; additional studies are necessary to determine this.

**Keywords:** NSQIP; quality improvement; reimbursement; medicare.

## I. INTRODUCTION

The National Surgical Quality Improvement Program (NSQIP) is used in many hospitals around the United States to compare quality of surgical care in order to continually strive for quality improvement [1]. Originally started in the early 1990s, NSQIP's predecessor, The National Veterans Administration Surgical Risk Study, was the first large scale surgical quality index by which data points were collected regarding both surgical outcomes as well as risk information [2]. After several years, the data collected by the VA system was very robust and included reliable, valid information on patient pre-surgical risk factors, process of care during surgery, and 30-day morbidity and mortality rates [3].

Today, NSQIP is used by many private and government-based hospital systems and is one of the largest databases of clinical information for surgical care

*Author α σ ρ ω ¥: Grandview Medical Center, Department of Surgery, Dayton, OH. e-mails: melroddo@gmail.com, laur.smithDO@gmail.com*

[1]. NSQIP data can be used to compare hospital performance to peer hospitals as well as audit performance for internal improvement. Improvement in quality metrics, both over time in the same institution and against peer hospitals, is rewarded by financial incentives with improved Medicare payments [4,5]. This "pay for performance" model is rapidly gaining acceptance both with hospital and physician payers and the general public [6]. As a result, physicians are becoming more interested in the quality metrics of their specific practice and performance improvement, not only because of the possibility of improved care provision, but also because reimbursement may become dependent on such data.

Our hospital system participates in the surgical care improvement project (SCIP) and maintains detailed records of important surgical care metrics which we use for internal quality tracking. We are always striving to improve our quality of care; therefore, we decided to include general surgery residents in the performance improvement process to see if this would alter our quality outcomes. It was felt that if the residents were aware of NSQIP / SCIP, and were included in departmental performance improvement projects, they could potentially contribute by identifying problems or shortcomings in surgical patient care. Historically, however, resident participation has been shown to correlate with inferior performance outcomes in trauma, higher complication rates in general surgery patients, and overall no net effect in plastic surgery patients [7,8,9]. Despite these previous findings, we elected to determine if resident involvement in the performance improvement process could improve our institution's NSQIP / SCIP data and overall patient care.

## II. METHODS

The general surgery residents at our institution were placed on the performance improvement committee and attended committee meetings monthly during the study period. The residents were familiarized with the NSQIP / SCIP protocol and subsequently major areas of deficiency were identified. The areas noted were: appropriate time frame of Foley catheter removal,

inappropriate continuation of antibiotic therapy, and lack of beta-blocker continuation on applicable patients. Deep vein thromboembolic (DVT) prophylaxis as well as pre-operative antibiotic therapy were also included.

These SCIP measures were appropriately outlined and a dot phrase template was created within our electronic medical record system. This phrase was included within the notes of each surgical patient at our institution. As a result, to sign the note, the SCIP measures for each patient had to be acknowledged.

After thorough review, IRB approval was not deemed necessary by our institution's IRB committee as no patient identifiers were included nor were any experimental treatments rendered with this study. The research involved improving the process by which standard of care interventions were administered.

The data for eight months prior to the implementation of the new progress notes were compared to corresponding data for the eight months following implementation. All SCIP data collected by the hospital were reviewed for that time frame. All exclusion criteria were applied based on the criteria set forth by the Specifications Manual for National Hospital Inpatient Quality Measures per the Center for Medicare and Medicaid Services (Appendix A).

### III. RESULTS

During the study time frame, a total of 594 eligible cases were performed at our institution that qualified for the study prior to resident involvement and 739 eligible cases were performed after resident involvement was initiated. The data reported were the same as were collected and reviewed by the hospital performance improvement committee and Centers for Medicare and Medicaid Services. In Table 1, the total number of eligible cases were broken into compliant and non-compliant categories for each of eight NSQIP / SCIP parameters. These are further delineated by both pre- and post-resident involvement. The resulting

proportions relative to each subcategory are also displayed.

Statistical analysis was performed using SAS<sup>®</sup> PROC FREQ, v. 9.2. A chi square analysis was used to compare the proportions and the corresponding significance of the range improvement. In instances where the data collected was insufficient to ensure validity of Chi Square testing, a Fisher's Exact test was utilized. Our null hypothesis was that there would be no improvement and the corresponding research hypothesis was that an improvement would be obtained (upper tailed alternative). The reported p-values reflect this convention. The conventional level of  $p < 0.05$  was used to ascribe significance.

The core measures that were investigated and reported below are: antibiotic administration within one hour of incision, appropriate antibiotic selection, antibiotic discontinuation within 24 hours of procedure, appropriate hair removal, urinary catheter removed by post-operative day 1-2, applicable beta-blocker administration in the perioperative period, DVT prophylaxis, and timing of DVT prophylaxis administration.

In these eight categories, statistically significant improvement was noted in: antibiotic administration within one hour of incision ( $p$ -value = 0.0022), appropriate antibiotic selection ( $p$ -value = 0.0118), antibiotic discontinuation within 24 hours of procedure ( $p$ -value = 0.0007), urinary catheter removed by post-operative day 1-2 ( $p$ -value = 0.0229), applicable beta-blocker administration in the perioperative period ( $p$ -value = 0.0033). Appropriate hair removal was determined to have 100% compliance before and after resident involvement with quality measures; therefore, no analysis was necessary. DVT prophylaxis and timing of DVT prophylaxis administration was not deemed to have statistically significant improvement ( $p$ -values = 0.0819 and 0.0582).

**Table 1:** N = Total number of eligible cases, n = Number of compliant cases,  $P_{\text{Before}}$  = Proportion of compliant cases prior to resident involvement,  $P_{\text{After}}$  = Proportion of compliant cases after resident involvement. BEFORE = 8 months prior to resident involvement, AFTER = 8 months after resident involvement. All p-values derived from Chi-Square test except as denoted by \* (utilized Fisher's Exact test).

PARAMETER	BEFORE			AFTER			$\frac{P_{\text{After}}}{P_{\text{Before}}}$	p VALUE
	N	n	$P_{\text{Before}}$	N	n	$P_{\text{After}}$		
Antibiotic Within 1 Hour of Incision	580	563	97.07	503	500	99.40	2.33	0.0022
Antibiotic Selection	579	568	98.10	504	502	99.60	1.50	0.0118
Discontinuation of Antibiotic Within 24 Hours of Procedure	565	537	95.55	490	483	98.57	3.53	0.0007
Hair Removal	761	761	100.00	642	642	100.00	0	N/A
Foley Catheter Removal By POD #1-2	197	176	89.34	178	169	94.94	5.60	0.0229
Peri-Operative Beta-Blocker Use	256	244	95.31	206	205	99.51	4.20	0.0033
DVT Administration	598	593	99.16	387	387	100.00	0.84	0.0819*
DVT Timing	599	592	98.83	503	502	99.8	0.97	0.0582*

## IV. DISCUSSION

Our data demonstrates that statistically significant improvement in SCIP compliance can be achieved with the addition of general surgery resident involvement. We do not know if this is reproducible in other institutions or in other healthcare settings. We have not been able to correlate SCIP data to actual complication rates in our institution at this time. This would be an important focus for a future study. We did not compare this data to hospital and physician reimbursement as a result of improved performance metrics; however, this would be another area of future examination.

## V. CONCLUSION

We conclude that general surgery residents are a useful adjunct that should be considered as an asset and not a hindrance to the provision of quality care in the hospital setting. Residents should be incorporated into other such committees and the long-term results studied to see if these findings are reproducible.

*Conflict of Interest:*

No conflicts of interest.

*Funding:*

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## REFERENCES RÉFÉRENCES REFERENCIAS

1. Rowell, KS, Turrentine FE, Hutter MM, Khuri SF, Henderson WG. Use of National Surgical Quality Improvement Program Data as a Catalyst for Quality Improvement. *J Am Coll Surg.* 2007; 03.
2. Khuri SF, Daley J, Henderson W, Barbour G, Lowry P, Irvin G, Gibbs J, Grover F, Hammermeister K, Stremple JF, et al. The National Veterans Administration Surgical Risk Study: Risk Adjustment for the Comparative Assessment of the Quality of Surgical Care. *J Am Coll Surg.* 1995; 180(5): 519-531.
3. Khuri SF, Daley J, Henderson W. et al. The Department of Veterans Affairs' NSQIP: The First National, Validated, Outcome-Based, Risk-Adjusted, and Peer-Controlled Program for the Measurement and Enhancement of the Quality of Surgical Care. *Ann Surg.* 1999; 228: 491-507.
4. Werner RM, Kolstad JT, Stuart EA, Polsky D. The Effect of Pay-For-Performance in Hospitals: Lessons for Quality Improvement. *Health Aff.* 2011; 30(4): 690-698.
5. Borden WB, Blustein J. Valuing Improvement in Value-Based Purchasing. *Circ Cardiovasc Qual Outcomes.* 2012; 5(2): 163-170.
6. Rosenthal MB, Fernandopulle R, Song HR, Landon B. Paying for Quality: Providers' Incentives for

Quality Improvement. *Health Aff.* 2004; 23(2): 127-141.

7. Bukur M, Singer MB, Chung R, et al. Influence of Resident Involvement on Trauma Care Outcomes. *Arch Surg.* 2012; 147(9): 856-862.
8. Kiran RP, Ahmed Ali U, Coffey JC, Vogel JD, Pokala N, Fazio VW. Impact of Resident Participation in Surgical Operations on Postoperative Outcomes: National Surgical Quality Improvement Program. *Ann Surg.* 2012; 256(3): 469-475.
9. Jordan SW, Mioton LM, Smetona J et al. Resident Involvement Affects Plastic Surgery Outcomes: An Analysis of 10,356 Patients From the NSQIP Database. *Plast Reconstr Surg.* 2012.

## APPENDIX A

Exclusion criteria for initiation of pre-operative antibiotics within one hour of incision time were: documented evidence of pre-existing infection, administration of vancomycin which was allowed a 2-hour window for administration pre-operatively, patients less than 18 years of age, length of stay > 120 days, patients who had a hysterectomy or cesarean section during the same hospitalization, patients enrolled in clinical trials, patients who were on antibiotics more than 24 hours before surgery (except for elective colon resections and patients who had another procedure with 3 days prior to the index procedure).

For hair removal, the exclusion criteria were: less than 18 years of age, length of stay > 120 days, patient performed their own hair removal, patients in clinical trials, or patients whose procedures occurred prior to the hospital admission.

Exclusion criteria for the post-operative Foley catheter removal within 24-48 hours were: patients less than 18 years of age, length of stay > 120 days, patients enrolled in clinical trials, patients who had a urological, gynecological or perineal procedure performed, patients whose principal procedure occurred prior to the date of admission, patients who expired perioperatively, patients whose length of stay was less than two days post-operatively, patients who did not have a catheter in place post-operatively, patients who had physician/ APN/PA documentation of a reason for not removing the urinary catheter post-operatively, patients who had a urinary diversion or a urethral catheter or were being intermittently catheterized prior to hospital arrival.

Exclusion criteria for selection of appropriate antibiotic as well as discontinuation of antibiotics within 24 hours were: patients less than 18 years of age, length of stay > 120 days, patients who had a principal diagnosis suggestive of pre-operative infectious disease, patients enrolled in clinical trials, patients whose principal procedure occurred prior to the date of admission, patients with physician/APN/PA documented

infection prior to surgical procedure of interest, patients who expired perioperatively, patients who had other procedures requiring general or spinal anesthesia that occurred within 3 days (4 days for CABG or other cardiac surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay, patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics), patients who did not receive any antibiotics before or during surgery, or within 24 hours after *Anesthesia End Time* (i.e., patient did not receive prophylactic antibiotics), patients who did not receive any antibiotics during this hospitalization.

Exclusion criteria for patients getting DVT prophylaxes were: patients less than 18 years of age, length of stay < 2 days and > 120 days, patients with *Comfort Measures Only* documented on day of or day after hospital arrival, patients enrolled in clinical trials, patients who are direct admits to intensive care unit (ICU), or transferred to ICU the day of or the day after hospital admission with ICU length of stay > 1 day, patients with principal diagnosis code of mental disorders or stroke, and patients with principal diagnosis code of obstetrics or VTE.







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## Management of Ocular Pellet Injury

By Francis Kwasi Obeng, Vipin Kumar Vig, Preetam Singh, Rajbir Singh  
& Nikhil Sahajpal

**Abstract- Background:** Pellets are destructive when they enter into the eye. They are categorized into lead and non-lead based on substances they are manufactured with. The latter, are usually made of steel, tin or plastic materials. Lead pellets (LP) are the most widely used due to their appropriate weight, targeting accuracy, malleability, density and affordability. According to their head shape, they are classified into wadcutter, pointed, round-nose and hollow-point pellets.

Although there are several articles on ocular trauma, none has focused into detail on ocular pellet gunshots at Northern India. To fill in this gap in knowledge, we evaluated all the negative impacts of pellet to the eye in a cross section of patients from Kashmir, a conflict zone in Northern India.

**Aim:** To assess detrimental effects of ocular pellet injury and their management in a cohort of Indian patients who visited our hospital from Kashmir.

**Keywords:** eye pellet injury, ocular pellet, lead toxicity, intraocular foreign body.

**GJMR-K Classification:** NLMC Code: QW 180



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# Management of Ocular Pellet Injury

Francis Kwasi Obeng <sup>α</sup>, Vipan Kumar Vig <sup>σ</sup>, Preetam Singh <sup>ρ</sup>, Rajbir Singh <sup>ω</sup> & Nikhil Sahajpal <sup>\*</sup>

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Although there are several articles on ocular trauma, none has focused into detail on ocular pellet gunshots at Northern India. To fill in this gap in knowledge, we evaluated all the negative impacts of pellet to the eye in a cross section of patients from Kashmir, a conflict zone in Northern India.

**Aim:** To assess detrimental effects of ocular pellet injury and their management in a cohort of Indian patients who visited our hospital from Kashmir.

**Material and Method:** Records of all patients who had ocular pellet injury (OPI) from 2014 to 2016 were reviewed retrospectively for effects of pellet injury on the eye and their management. Patients' demographic data, indications for surgery, initial and last best corrected visual acuities (BCVA), complications, number of surgeries and length of follow up were collected and analysed.

**Results:** 33 eyes of 32 patients (30 males and 2 females) were identified. Mean age at presentation was 19.9±5 years (range 10-35 years) with a mean follow up period of 6.6±4 months (range 1 to 18 months). 54.55%, 42.42% and 3.03% of eyes had improvement, maintenance and worsening of the final BCVA respectively. Eleven (33.33%) of 33 eyes had postoperative complications with ocular hypertension being the most common.

**Conclusion:** OPI causes serious visual decline due to vitreous hemorrhage, cataract and retinal detachment. Although visual prognosis depends massively on presenting BCVA, location of pellet, exit wound on the retina and type of pellet, it is generally guarded. Patients should know about their visual prognosis before signing of consent forms and policy makers, the crucial role prevention plays.

**Keywords:** eye pellet injury, ocular pellet, lead toxicity, intraocular foreign body.

## I. INTRODUCTION

Pellets are small-hard-ball-hour-glass-shaped projectiles which travel at high velocity and temperature when fired from an air gun. Ocular LP injury can cause not only primary eye anatomical and functional morbidities but also secondary negative impact on almost all the systems and organs in the body.<sup>1</sup> According to United State Centers for Disease Control, the normal blood level of lead above which it

induces secondary unwanted systemic effects is 5 and 10ug/dl in children and adults respectively.<sup>2</sup> It is important to emphasize that lead may demyelinate axons of the nerve fibre layer and consequently bring about severe visual impairment.<sup>3</sup>

A report from the United State Eye Injury Registry Database has recently confirmed that 6% of all ocular injuries are imputable to Ball Bearing and pellet guns and constitutes the most common gun injury in the emergency room.<sup>4, 5</sup> Many have been the extensive publications on gun related trauma to other organs in the body but the literature on ocular and orbital pellet injuries is comparatively inadequate.<sup>6, 7, 8, 9, 10</sup>

Firearm injuries are classified into 3 groups: penetrating, perforating and avulsive.<sup>11</sup> Penetrating injuries are caused by low velocity projectiles and have small entrance and exit wounds although some of them may not have exit wounds at all. Perforating types, however, have small entry and comparatively large exit wounds and are found within the orbit or beyond due to the high velocity with which the projectiles pass through the eye. Avulsive injuries cause tearing of tissues some of which may be lost. The severity of ocular injury depends on several factors: type and shape of pellet, its velocity, distance from which the patient is shot and tissue resistance.<sup>12, 13</sup> Research has shown that perforating injuries with damage to posterior segment structures have more guarded prognosis especially if the attending ophthalmologist is not an experienced retinal specialist.<sup>14, 15, 16</sup> The negative impact which results from OPI may be so detrimental that more emphasis should be laid on prevention and subsequent reduction in its occurrence rate.<sup>17, 18, 19, 20, 21</sup>

The purpose of this study was to assess effects of pellet injury to the eye and its management in a cohort of Indian patients who visited our hospital from Kashmir, a must-visit-beautiful-tourist-attraction area sandwiched between India and Pakistan over which citizens of both countries have been at logger heads for ownership for several decades.

## II. MATERIAL AND METHOD

Medical records of all 39 consecutive patients who presented to our hospital with OPI to the posterior segment of the eye and operated upon between 2014 and 2016 were collected and retrospectively analysed. Seven patients were excluded from the study because they were followed up for less than 1 month or lost to follow up. All surgeries were performed by 3 experienced vitreoretinal surgeons. Institutional ethical

Author <sup>α</sup>: Sadar Bahadur Dr Sohan Singh Eye Hospital, Amritsar, Punjab State, India. e-mail: fobeng37@yahoo.com

approval was required for this research and in a wider magnitude, the tenets of Declaration of Helsinki, applied in an attempt to respect human rights of patients who participated in the study. Collection of demographics, type of injury, choice of management, complications, requirement for further surgery and final visual outcomes are reported.

The preoperative information obtained in all our patients were age, sex, laterality, time interval between injury and presentation, type of injury, pellet impact sites, BCVA at presentation and last visit, intraocular pressure (IOP), crystalline lens status and extent of posterior segment injury. Patients whose ocular media were not transparent underwent B-scan imaging. However, those who gave history of OPI and B-scan did not reveal any intraocular foreign body automatically became candidates for Computed Tomography (CT) scan of orbit, paranasal sinuses and brain in an attempt to look for extraocular nidus of the pellet.

Surgical information collected included type of anesthesia, period between primary repair and first major procedure, number of surgeries, need for lensectomy, removal of pellet and type of retinopexy applied to the entry and exit wound sites. More data collected focused on use of tamponade, buckle, complications of surgeries, use of antibiotics and steroids.

Keratometry measurement and axial length of the contralateral better eye were utilized to calculate

intraocular lens (IOL) power of the injured eye. The IOL power was decreased by 2 dioptres to get the final value in patients who had circumferential buckling due to approximate same power of myopic shift induced by a 1mm increase in axial length of the globe in those patients with the aim to preventing anisometropia and aniseikonia.<sup>22</sup>

The Snellen BCVA was converted into logarithm of the minimum angle of resolution (logMAR) units for statistical analysis. Patients whose visual acuities were hand motion were assigned the equivalence of 1.7 logMAR units. The  $\chi^2$  test is used for determining relationships between categorical variables, and the paired t test was used for normally distributed variables. All tests were considered to be statistically significant if the p value was 0.05 or less.

### III. RESULTS

33 eyes of 32 patients (30 males and 2 females) were included in the study. Mean age at presentation was  $19.9 \pm 5$  years (range 10-35 years) with a mean postoperative follow up period of  $6.6 \pm 4$  months (range 1 to 18 months). Table 1 shows a summary of preoperative data. The average period between injury and presentation to our hospital was 1.44 days (range 1 to 3 days).

Table 1: Preoperative Data

Number of cases	32 patients, 33 eyes
Gender	30 males, 2 females
Age	Average $19.9 \pm 5$ years (10-35) years
Laterality	16 left, 15 right, 1 bilateral
Days from injury to primary repair	25 patients within 24 hours, 7 patients within 72 hours
Type of injury	5 perforating, 28 penetrating, 0 avulsive
Site of entry	30 corneal, 3 scleral
Perforating exit site	3 macular, 2 between arcades
Penetrating impact site	6 macular, 10 juxtamacular, 7 juxtapapillary, 3 equatorial, 3 scleral wound, 1 optic nerve head
Visual acuity at presentation	<b>12</b> light perception, <b>8</b> hand motion, <b>7</b> counting fingers, <b>2</b> 6/36, <b>1</b> 6/24, <b>3</b> 6/12
Anterior segment	8 hyphema, 15 cataract
IOP at presentation	Average 7 mmHg
Posterior segment	27 no view, 24 vitreous hemorrhage

At presentation BCVA ranged from light perception to 6/12. Entry sites were predominantly corneal (90.91%; n=30) and the rest were scleral (9.09%; n=3). Our most common presenting clinical feature was vitreous haemorrhage (72.73%; n=24), followed by cataract (45.45%; n=15), rhegmatogenous retinal detachment (30.30%; n=10) and hyphaema (24.24%; n=8). Owing to lack of transparency of ocular media, B-scan ultrasonography (BSU) was performed on 27 eyes (81.82%) for appropriate assessment of posterior segment. CT scan of orbit, paranasal sinuses and brain was used to assess extraocular location of

pellet in 5 (15.15%) eyes which sustained perforating injury all of which were caused by pointed-headed pellets. On the other hand, the 28 eyes (84.85%) which had penetrating injury were caused by round-headed pellets. In all, site of impact at the macula occurred in 9 eyes (27.27%) whilst the remaining 24 (72.73%) eyes had extra-macular retinal injuries. The macular-sparing eyes had better visual outcomes.

Primary repair of entry wound together with intravitreal injection of vancomycin, ceftazidime and dexamethasone was done on first day of reporting to our centre after fungal etiology was ruled out in all

patients. Posterior segment surgery was performed within 12 to 24 hours after the initial repair. Mean time from injury to first vitreoretinal surgery was 3.82 days (range 2-5 days).

All the patients had 20 gauge vitrectomy under local anaesthesia. Concurrent lensectomy was performed in 15 eyes (45.45%) all of which had correction of aphakia with posterior chamber scleral fixation of intraocular lenses (PCSF IOL) at least 8 weeks after the lensectomy. This method of aphakia correction was chosen because these eyes had had traumatic capsular rupture and zonular dehiscence from the pellet. Round-headed pellets were removed from the globe in all the 28 penetrating cases and retinopexy, utilized around breaks, entry and exit wound points involving the retina. Anterior retinal cryotherapy (ARC) was applied around anterior breaks whilst endolaser photocoagulation was utilized around posterior tears. Out of the 10 cases of retinal detachment, 7 (70%) had pars plana vitrectomy (PPV) with fluid-air-exchange (FAE), endolaser (EL) and silicone oil (SO) as tamponade owing to associated inferior breaks but the remaining 3 (30%) were treated with belt buckling (BB), PPV, FAE, EL and sulfur hexafluoride (SF<sub>6</sub>) gas due to

multiple superior breaks in different quadrants. The 3 eyes with scleral site of entry had anterior retinal breaks without detachment. They all had PPV, pellet removal and ARC.

At the end of surgery all patients received subconjunctival dexamethasone and subsequently, use of combination of topical steroid and antibiotic. Oral treatment given were ciprofloxacin and non-steroidal anti-inflammatory drugs.

11 eyes had complications from the initial vitreoretinal surgery (VRS) : 5 (45.45%) ocular hypertension from SO, four (36.36%) epiretinal membrane (ERM) formation and 2 (18.18%) recurrence of retinal detachment (RD) with retinal incarceration as shown in table 2. In total 8 secondary VR procedures were performed to manage the complications: two cases of silicone oil tapping, 4 eyes had ERM/internal limiting membrane peeling (ILMP) and 2 other eyes were managed with BB, revitrectomy, retinectomy, endolaser and SO injection. The time range between the first and second VR surgeries was 5 to 60 days with a mean of 41.38 days. All patients who had SO injection had it removed 4 weeks after the initial surgery. Postoperative complications and management are as found in table 2.

Table 2: Post-Operative Complications and Management

COMPLICATION	NUMBER OF EYES (%)	TREATMENT
Ocular Hypertension from silicone oil	5 (45.45)	3 resolved on antiglaucoma medications, 2 had silicone oil tapping
ERM Formation	4 (36.36)	ERM/ILMP
Recurrent RD + Retinal incarceration	2 (18.18)	BB + revitrectomy+retinectomy+laser+SO
Total	11 (100)	

At last follow up, 18 (54.55%), 14 (42.42%) and 1 (3.03%) eyes had had improvement, maintenance and worsening of their BCVA respectively with visual acuity ranging from light perception to 6/12. Out of the 14 eyes which maintained their visual acuities, 12 had final BCVA of light perception and the remaining 2 had counting fingers. The impact site was macular involving in those

who had maintenance or worsening of their presenting visual acuities. The mean difference between final BCVA and presenting visual acuity was 0.07 ± 1.0 logMAR units which was statistically significant. (p=0.0018) This is shown in the graph pad below with its corresponding table.

Graph Pad Table

PRESENTING VISUAL ACUITY	FINAL BEST CORRECTED VISUAL ACUITY	P VALUE
0.12 ± 0.12	0.19 ± 0.21	0.0018

All values are expressed as mean ± standard deviation. \* P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001

Graph pad software version 5.0 was used to analyse data. Numerical data was compared using t test.

#### IV. DISCUSSION

##### a) Characteristics of Pellets

Pellets have 3 main parts: Front, middle and rear.<sup>23</sup> Their shape is such that they have a smaller middle and larger front and rear diameters, a feature which makes them perform their function with perfection and has been termed diablo.<sup>23</sup> They can also be light or heavy

according to their weight. A pellet is heavy when its weight is above the average (58mg).<sup>24</sup> Those made of lead, like all those removed from our patients' eyes, are heavy. Owing to the fact that velocity of pellets are directly proportional to their weight, LP are heavier and therefore have faster speed, a property which is known as high ballistic coefficient.<sup>25</sup> LP can also resist wind and hit its target with accuracy, a phenomenon called



aerodynamic property.<sup>26</sup> Being capable of travelling at a velocity of 1200 feet per second,<sup>27</sup> a pellet causes more injury the closer it is to its target. Pointed pellets have more perforating effects than the other types.<sup>28</sup> In our study all the perforated injuries were caused by pointed-headed whilst the penetrating injuries were caused by round-headed pellets.

#### b) *Acute Clinical Features*

Being difficult to detect sometimes, foreign bodies may cause serious damage to intraocular and periocular structures. In order not to miss the diagnosis, a history of OPI should always be present bearing in mind that they most frequently occur in males between the ages of 11 to 30 years according to Finkelstein *et al.*<sup>29</sup> In our hospital out of 32 patients who were affected, 30 (93.75%) were males and the other 2 (6.25%) were females. The age group mostly affected in our study was between 10 to 35 years with a mean of  $19.9 \pm 5$  years. These findings are similar to what has been detected by Finkelstein and colleagues. Clinical features of ocular lead pellet injuries may be acute or chronic. Acute injuries, undoubtedly, may include but not limited to corneoscleral laceration, hyphaema, cataract, vitreous hemorrhage and retinal detachment.<sup>30</sup> We had similar findings in our study with vitreous hemorrhage being the most common.

OPI is generally a mono-ocular problem but it may be bilateral, as indicated by Assaf *et al.*, depending on direction of spread of the pellets.<sup>20</sup> In our study, out of the 32 patients only 1(3.13%) had bilateral impact making it a rare finding.

#### c) *Chronic Clinical Features*

About 90% of lead in the body is stored in the bones for as long as 30 years, a period during which it can cause systemic and ocular toxicity.<sup>31</sup> In our case series there were 5 eyes (15.15%) which had lead pellets in the orbit, a bony cavity which could easily absorb and store lead to cause toxicity.

Although lead poisoning can affect all the systems and cause a very wide range of morbidities in the body, the most common systemic effect is arterial hypertension.<sup>31</sup>

Ocular manifestations of lead poisoning include optic neuritis,<sup>32</sup> nyctalopia,<sup>33</sup> and cataractogenesis.<sup>34</sup> Optic neuritis is the most common ocular manifestation.<sup>31</sup> A study published by Fox and Kats has shown that lead can increase rod outer segment calcium concentration, decrease rhodopsin content per eye and consequently end up in night blindness confirmed on electroretinogram as reduction in scotopic *a* and *b* waves.<sup>33</sup> Bushnell *et al.*, in an attempt to find out why rods and not cones are predominantly affected, conducted a research the conclusion of which was that lead causes demyelination of the central nervous system and since rods far outnumber cones, the former are more prone to the damage.<sup>35</sup>

In the research published by Schaumberg *et al.*,<sup>36</sup> it was categorically stated that the higher the bone concentration of lead, the more the probability of cataract development. According to Neal *et al.*, lead from bone can enter the lens to disrupt its proteins and glutathione metabolism all of which can hinder calcium homeostasis and form cataract.<sup>37</sup> Albeit we have not yet found any manifestations of lead poisoning in our patients, we are still following our patients up for a period of 30 years with the aim to publishing a prospective study whose aim it is to monitor for effects of lead toxicity.

#### d) *Diagnostic Imaging*

Being an ancillary test without which the presence, location, material, size and number of foreign bodies cannot be determined, diagnostic imaging (DI) has become the sine qua non in current management of ocular and peri-ocular foreign bodies. It is also a useful tool for the surgeon to have a preoperative surgical plan. B-scan ultrasonography (BSU), computed tomography scan (CTS), plain radiography (PR) and magnetic resonance imaging (MRI) are the options available although they have their advantages and disadvantages.<sup>38</sup>

##### i. *B-Scan Ultrasonography*

Albeit there is relative contraindication to its use in ruptured globe due to probability of vitreous content extrusion,<sup>38-40</sup> BSU is the main DI modality we use in our patients majority of whom had penetrating injury (n=28 eyes; 84.85%). We did not get any case of vitreous loss from the procedure. Its merit is exhibited by its high sensitivity in finding vitreous hemorrhage, retinal and choroidal detachments setting the pace for rapid change in the surgical management of the affected eye should the need arise.<sup>41</sup> Its main demerit is that it is associated with inter-examiner image quality and interpretation variations; thus the intraocular pellet could be totally missed.<sup>39</sup>

##### ii. *Computed Tomography Scan*

If the pellets are extraocular, CTS of orbit, paranasal sinuses and brain using thin axial and coronal view slices (0.625-1.25mm) is the best DI.<sup>40</sup> It can detect foreign bodies (FB) which are even less than 0.06mm in size with sensitivity of more than 65%.<sup>39</sup> It helps in diagnosis of bony fractures and intracranial extension of the FB.<sup>39</sup> Having a distinguishing property ascribable to its differences in signal intensity, it can differentiate between various materials with plastic and wood appearing hypodense in direct contrast to hyperdense images of lead pellet, graphite, iron and glass.<sup>38,39</sup>

On not finding any FB on BSU in patients who had sustained pellet injuries to their eyes in our hospital (n=5 eyes; 15.15%), we requested for CTS of orbit, paranasal sinuses and brain using thin axial and coronal view slices (0.625-1.25mm). In all the 5 cases, the pellets were in the orbit with air pockets around them. In

1 eye there was a pellet at the lateral wall of the lateral rectus but extraocular movements were normal.

Safe though it may be, it releases radiation to patients. Its other disadvantages include occasional obscuration by streak artifacts by metals like lead pellets and high cost to poor patients.<sup>38</sup>

### iii. Plain Radiography

Being readily available and cheap, PR is used in poorer patients who cannot afford payment of previously mentioned DI tools. Its sensitivity rate in detection of ocular and peri-ocular FB is as low as 40%.<sup>38,39</sup> Apart from its inability to distinguish between different types of foreign bodies, it easily misses radiolucent objects like wood and plastic.<sup>41</sup> As a policy in our center, we never request for PR due to its low sensitivity. There were 5 patients in this study who could not pay for BSU but we did it at no cost for them just to augment our diagnostic yield.

### iv. Magnetic Resonance Imaging

Owing to the magnetic field it creates with metallic FB (MFB) like lead pellets (LP), MRI may bring about migration of the MFB and destruction of tissues which may end up in premature blindness, a reason which makes this modality of DI a contra-indication in MFB.<sup>39</sup> It is therefore paramount that appropriate history is taken from the patient to avoid requesting for MRI in an attempt to find extraocular locus of LP.<sup>40</sup> In our hospital, we never use it as a DI test in patients with history of MFB.

### e) Intravitreal Injections

Although some researchers never recorded endophthalmitis after OPI due to the characteristic high temperature and speed with which pellets travel,<sup>30</sup> Kara *et al* did establish in their study that shot gun wounds can be infected by micro-organisms.<sup>42</sup> This fact was confirmed when other authorities substantiated the fact that some bacteria can resist high velocity bullets.<sup>43, 44</sup> Organisms frequently found in traumatic globe injuries include *Bacillus cereus*, *Staphylococcus* and polymicrobes according to Fulcher *et al*.<sup>45</sup>

In our hospital, just after primary repair of ocular pellet injury we routinely administer intravitreal vancomycin, ceftazidime and dexamethasone to prevent or combat against Gram positive infections, Gram negative toxins and inflammation respectively when fungal etiology has been ruled out with microscopy. Should the test reveal fungal micro-organisms, we usually treat the eye with intravitreal variconazole or amphotericin B instead of the steroid. The purpose is to prevent endophthalmitis. In this study, none of our patients developed endophthalmitis, a success which we attribute to the prophylactic measures.

### f) Surgical Treatment

A study published in Ireland showed that 71.43% of eyes which were managed with only primary

repair after OPI developed phthisis bulbi whereas 100% of eyes which had primary repair and vitrectomy within 1 week of repair had better visual outcomes.<sup>21</sup> In our centre all the patients had primary repair of the entry wound with intravitreal injections and the first major vitreoretinal surgery performed within 12 to 24 hours after the repair.

In our case series the most common clinical feature was vitreous hemorrhage (VH) and therefore it is logical that all the patients were managed with simple vitrectomy. We applied additional procedures like belt buckling when there were multiple anterior breaks in different quadrants, cryopexy around breaks, removal of foreign body if it was intraocular, retinectomy of incarcerated retina, use of internal tamponade and lensectomy depending on the presentation. Our rationale behind vitrectomy was not only to help in removal of the pellets and salvage the injured eye but also clear VH and scaffolds on which contractile fibroblasts could settle and multiply.

Although Weichel *et al* advocate for the use of chorioretinectomy in perforating injuries,<sup>46</sup> we never used it due to the possibility of causing severe damage to the surrounding photoreceptors and their nutrition from the underlying choriocapillaries and retinal pigment epithelium. The removal of pellet from the orbit in perforating ocular injury depends on their location, composition and impairment they cause.<sup>29, 45, 47</sup> In addition, their removal can cause severe damage to the orbital contents.<sup>29, 47</sup> At our centre, since none of the 5 pellets in the orbit had any complications, we only observed them without removal till the last review and they were all well tolerated, a conclusion which was also reached by Ho *et al* in whose publication 43 patients with retained metallic orbital foreign bodies were followed up for 63 years by only observation and at the end of the period, all the MFB were well tolerated.<sup>47</sup> Indications for surgical extraction include complications like compressive optic neuropathy, orbital hemorrhage, pain, infection and motility restriction.<sup>41</sup>

### g) Second Major Operations

Seven eyes had silicone oil removal (SOR) 4 weeks after the initial vitreoretinal surgery, 2 eyes had SO tapping 4 days after the main surgery, 8 eyes had management of surgical complications at different periods and 15 eyes had PCSFIOL 8 weeks after the lensectomy. On the average an eye with OPI in our hospital undergoes  $3.56 \pm 1.93$  number of ocular surgeries to achieve the utmost anatomical and visual outcomes, a conclusion which has also been reached by other authorities in OPI.<sup>30</sup> Having had 31.8% of eyes which previously had intraocular foreign body (IOFB) developing proliferative vitreoretinopathy (PVR) after vitrectomy in the Eye Injury Vitrectomy Study, Feng *et al* concluded that PVR is an indication for secondary major surgery.<sup>48</sup> The weakness of that study was that the

researchers did not specify the chemical composition of the IOFB. In our centre, however, we did not get PVR after the first major vitreoretinal surgery and since all our pellets were lead-rich, it might create a scientific question on whether lead is PVR-protective which can only be answered with another research paper looking into association between types of IOFB and PVR, an academic future discovery which goes beyond the scope of this document.

#### h) Prognostic Factors and Outcomes

Anterior segment limited injuries have better anatomical and visual outcomes than those which extend to the posterior segment.<sup>17,18,19,49</sup> The more the kinetic energy of the pellet, the more damage it causes to the posterior segment structures.<sup>15,27</sup> Several studies have substantiated that a pointed pellet with high ballistic efficiency and aerodynamic property has the potential to travel at a faster speed to cause perforating injury which, if not managed properly by an expert, results in very poor prognosis.<sup>14,15, 16</sup>

In our hospital, however, all the 9 eyes which had macular involvement had presenting and final BCVA of light perception. This finding makes us believe that contrary to what other researchers have revealed, macular involving damages, whether penetrating or perforating, irrespective of head shape of the pellet and expertise of the vitreoretinal surgeon, generally have guarded prognosis.

#### i) Limitations

Retrospective nature, single centre, 3 vitreoretinal surgeons and comparatively less number of participants constitute the major limitations of our study.

#### j) Summary

OPI is not uncommon at conflict zones of the world. Having several patterns of presentation, its management depends on the diagnosis which in turn is arrived at through appropriate history taking, examination and ancillary tests. Should the pellet be lead-made and orbital, it is not enough to treat only the eye. The management should encompass decades of follow up looking for evidence of systemic and intraocular lead toxicity. Several factors though there are in determining the final visual outcomes after OPI, the best is the reporting visual acuity even in the hands of the most experienced vitreoretinal surgeon. Prevention is the way forward.

Conflicts will never end in any part of the world. Government policy makers, however, can help prevent severe visual impairment by using other methods rather than pellets in casual settlement of conflicts.

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#### REFERENCES RÉFÉRENCES REFERENCIAS

1. [https://en.wikipedia.org/wiki/Lead\\_poisoning](https://en.wikipedia.org/wiki/Lead_poisoning)
2. "Advisory Committee On Childhood Lead Poisoning Prevention (ACCLPP)". CDC. May 2012. Retrieved 18 May 2012.
3. Dart, R.C.; Hurlbut, K.M.; Boyer-Hassen, L.V. (2004). "Lead". In Dart, RC. *Medical Toxicology* (3rd ed.). Lippincott Williams & Wilkins. ISBN 0-7817-2845-2.
4. Coskunseven E, Onder M, Kymionis GD, Diakonis VF, Arslan E, Tsiklis N, et al. Combined Intacs and posterior chamber toric implantable Collamer lens implantation for keratoconic patients with extreme myopia. *Am J Ophthalmol.* 2007;144 (3):387–389. [PubMed] [Ref list]
5. Chen AY, Stewart MG, Raup G. Penetrating injuries of the face. *Otolaryngol Head Neck Surg.* 1996; 115 (5):464–470. [PubMed] [Ref list]
6. Shuttleworth GN, Galloway P, Sparrow JM, Lane C. Ocular air gun injuries: a one-year surveillance study in the UK and Eire (BOSU). 2001-2002. *Eye (Lond)* 2009;23 (6):1370–1376. [PubMed] [Ref list]
7. Ramstead C, Ng M, Rudnisky CJ. Ocular injuries associated with Airsoft guns: a case series. *Can J Ophthalmol.* 2008;43 (5):584–587. [PubMed] [Ref list]
8. Kratz A, Levy J, Cheles D, Ashkenazy Z, Tsumi E, Lifshitz T. Airsoft gun-related ocular injuries: novel findings, ballistics investigation, and histopathologic study. *Am J Ophthalmol.* 2010; 149 (1):37–44. [PubMed][Ref list]
9. Pulido JS, Gupta S, Folk JC, Ossoiny KC. Perforating BB gun injuries of the globe. *Ophthalmic Surg Lasers.* 1997;28 (8):625–632.[PubMed][Ref list]
10. Bowen DI, Magauran DM. Ocular injuries caused by airgun pellets: an analysis of 105 cases. *Br Med J.* 1973;1 (5849):333–337. [PMC free article] [PubMed] [Ref list]
11. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2633155/>
12. Hollier L, Grantcharova EP, Kattash M. Facial gunshot wounds: a 4-year experience. *J Oral Maxillofac Surg.* 2001;59: 277–282. [PubMed] [Ref list]
13. Lee D, Nash M, Turk J, Har-El G. Low-velocity gunshot wounds to the paranasal sinuses. *Otolaryngol Head Neck Surg.* 1997; 116: 372–378. [PubMed] [Ref list]
14. Michels RG. Vitreous Surgery *Am Acad Ophthalmol* 1982:126p. [Ref list]
15. Cleary PE, Ryan SJ. Method of production and natural history of experimental posterior penetrating

- eye injury in the rhesus monkey. *Am J Ophthalmol.* 1979;88 (2):212–220. [PubMed] [Ref list]
16. Cleary PE, Ryan SJ. Histology of wound, vitreous, and retina in experimental posterior penetrating eye injury in the rhesus monkey. *Am J Ophthalmol.* 1979;88 (2):221–231. [PubMed] [Ref list]
  17. Colyer MH, Chun DW, Bower KS, Dick JSB, Weichel ED. Perforating globe injuries during operation Iraqi Freedom. *Ophthalmology.* 2008;115 (11):2087–2093. [PubMed] [Ref list]
  18. Fournier D, Cherifi M, Salvanet-Bouccara A, Forestier F, Feys J. [Eye injuries due to pellet guns. Apropos of 7 cases] *Ophtalmologie.* 1989; 3(4):303–305. [PubMed] [Ref list]
  19. Finkelstein M, Legmann A, Rubin PA. Projectile metallic foreign bodies in the orbit: a retrospective study of epidemiologic factors, management, and outcomes. *Ophthalmology.* 1997;104 (1):96–103. [PubMed] [Ref list]
  20. Assaf E, Emadisson H, Bendeddouche K, Forestier F, Salvanet-Bouccara A. [Pellet guns: a persistent threat to eyes] *J Fr Ophtalmol.* 2003;26 (9):960–966. [PubMed] [Ref list]
  21. Roden D, Cleary P, Eustace P. A five-year survey of ocular shotgun injuries in Ireland. *Br J Ophthalmol.* 1987;71 (6):449–453. [PMC free article] [PubMed] [Ref list]
  22. Smiddy WE, Loupe DN, Michels RG, Enger C, Glaser BM, deBustros S. Refractive changes after scleral buckling surgery. *Arch Ophthalmol.* 1989; 107 (10):1469–1471. [PubMed] [Ref list]
  23. <https://www.crosman.com/discover/airguns/airgun-ammunition>
  24. Woodcock MGL, Scott RAH, Huntbach J, Kirkby GR. Mass and shape as factors in intraocular foreign body injuries. *Ophthalmology.* 2006; 113 (12):2262–2269. [PubMed] [Ref list]
  25. <http://www.exteriorballistics.com/ebexplained/5th/221.cfm>
  26. <http://www.straightshooters.com/pellet-head-shapes.html>
  27. [http://www.pyramydair.com/article/Velocity\\_and\\_Pellets\\_April\\_2003/2](http://www.pyramydair.com/article/Velocity_and_Pellets_April_2003/2)
  28. <http://www.pyramydair.com/blog/2006/10/pellet-types/>
  29. Finkelstein M et al. *Ophthalmology.* 1997; 104(1): 96-103.
  30. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4506334/>
  31. <https://www.reviewofophthalmology.com/article/wills-eye-resident-case-series-24966>
  32. Gilfillan SC. Rome's ruin by lead poison. 1st ed. Long Beach: Wenzel Press; 1990.
  33. Fox WA, Katz, LM. Developmental lead exposure selectively alters the scotopic ERG component of dark and light adaptation and increases rod calcium content. *Vision Res.* 1992; 32(3): 249-255. Available from: [www.ncbi.nlm.nih.gov/pubmed/1574840](http://www.ncbi.nlm.nih.gov/pubmed/1574840)
  34. Schaumberg DA, Mendes F, Balaram M, Dana MR, Sparrow D, Hu H. Accumulated lead exposure and risk of age-related cataract in men. *JAMA.* 2004; 292(22): 2750-2754. Available from: [www.rima.org/web/medline\\_pdf/Jama\\_2750.pdf](http://www.rima.org/web/medline_pdf/Jama_2750.pdf)
  35. Bushnell PJ, Bowman RE, Allen JR, Marlar RJ. Scotopic vision deficits in young monkeys exposed to lead. *Science.* 1977; 196: 333-335. Available from: [www.sciencemag.org/cgi/content/abstract/sci;196/4287/333](http://www.sciencemag.org/cgi/content/abstract/sci;196/4287/333)
  36. Schaumberg DA, Mendes F, Balaram M, Dana MR, Sparrow D, Hu H. Accumulated lead exposure and risk of age-related cataract in men. *JAMA.* 2004; 292(22): 2750-2754. Available from: [www.rima.org/web/medline\\_pdf/Jama\\_2750.pdf](http://www.rima.org/web/medline_pdf/Jama_2750.pdf)
  37. Neal R, Cooper K, Gurer H, Ercal N. Effects of N-acetylcysteine and 2,3-dimercaptosuccinic acid on lead induced oxidative stress in rat lenses. *Toxicology.* 1998; 130: 167-174. Available from: <http://web.mst.edu/~nercal/documents/publications/30.pdf>
  38. Lagalla R et al. *Eur Radiol.* 2000; 10(8): 1338-1341.
  39. Pinto A et al. *Semin Ultrasound CT MR.* 2012; 33(5): 392-395.
  40. Kubal WS. *Radiographics.* 2008;28(6):1729-1739.
  41. <https://www.aao.org/eyenet/article/management-of-intraorbital-foreign-bodies>
  42. Kara MI, Polat HB, Ay S. Penetrated shotgun pellets: a case report. *Eur J Dent.* 2008;2:59–62. [PMC free article] [PubMed]
  43. Mastrapa RME, Glanzberg H, Head JN, Melosh HJ, Nicholson WL. Survival of bacteria exposed to extreme acceleration: implications for panspermia. *Earth Planet Sci Lett.* 2001;189 (1):1–8.
  44. Wolf AW, Benson DR, Shoji H, Hoepflich P, Gilmore A. Autosterilization in low-velocity bullets. *J Trauma.* 1978;18 (1):63. [PubMed]
  45. Fulcher TP et al. *Ophthalmology.* 2002;109(3):494-500.
  46. Weichel ED, Bower KS, Colyer MH. Chorioretinectomy for perforating or severe intraocular foreign body injuries. *Graefes Arch Clin Exp Ophthalmol.* 2010;248 (3):319–330. [PubMed]
  47. Ho VJ et al. *Ophthal Plast Reconstr Surg.* 2004; 20(3): 232-236
  48. Feng K, Hu Y, Wang C, Shen L, Pang X, Jiang Y, et al. Risk factors, anatomical, and visual outcomes of injured eyes with proliferative vitreoretinopathy: eye injury vitrectomy study. *Retina.* 2013;33 (8):1512–1518. [PubMed]
  49. Noye JF, Bernhard F, Berrod JP, Lesure P. [Penetrating eye injuries caused by firearms. Apropos of 17 cases] *Bull Soc Ophtalmol Fr.* 1989; 89 (4):629–632. [PubMed]



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# The Impact of Occupational Health and Safety Measures on Employee Performance at the South Tongu District Hospital

By Patrick Gbadago, Sedem N. Amedome & Ben Q. Honyenuga

*Ho Technical University*

**Abstract-** The study is about the impact of OHS measures on employee performance at the South Tongu District Hospital. The aim is to find out the level of employee awareness of the OHS Policy of the Ghana Health Service, determine whether the OHS Policy has been implemented in the organisational setup, identify the kinds of hazards that employees face due to the nature of their work, identify the challenges face in the implementation of OHS measures by management and finally to examine the impact of the OHS measures on employee performance. The study used both stratified and simple random sampling methods to sample 116 employees of the Hospital including 5 management members. Questionnaires were administered and observation was carried out. However, only 88 questionnaires were retrieved and analysed using the SPSS software and results were displayed on tables. The study found out that the level of employee awareness of OHS Policy was 79.5 percent. The measures were seen to have been implemented adequately. Workers faced numerous hazards such as safety hazards, mechanical hazards, biological hazards, ergonomic, physical hazards and psychological hazards. Management was found to be constrained financially in the implementation and maintenance of OHS measures.

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THE IMPACT OF OCCUPATIONAL HEALTH AND SAFETY MEASURES ON EMPLOYEE PERFORMANCE AT THE SOUTH TONGU DISTRICT HOSPITAL

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# The Impact of Occupational Health and Safety Measures on Employee Performance at the South Tongu District Hospital

Patrick Gbadago <sup>α</sup>, Sedem N. Amedome <sup>σ</sup> & Ben Q. Honyenuga <sup>ρ</sup>

**Abstract-** The study is about the impact of OHS measures on employee performance at the South Tongu District Hospital. The aim is to find out the level of employee awareness of the OHS Policy of the Ghana Health Service, determine whether the OHS Policy has been implemented in the organisational setup, identify the kinds of hazards that employees face due to the nature of their work, identify the challenges face in the implementation of OHS measures by management and finally to examine the impact of the OHS measures on employee performance. The study used both stratified and simple random sampling methods to sample 116 employees of the Hospital including 5 management members. Questionnaires were administered and observation was carried out. However, only 88 questionnaires were retrieved and analysed using the SPSS software and results were displayed on tables. The study found out that the level of employee awareness of OHS Policy was 79.5 percent. The measures were seen to have been implemented adequately. Workers faced numerous hazards such as safety hazards, mechanical hazards, biological hazards, ergonomic, physical hazards and psychological hazards. Management was found to be constrained financially in the implementation and maintenance of OHS measures. The OHS measures of the hospital were also found out to impact the performance of staff. Based on the findings of the study, it is recommended that management should look for alternative sources of funds to implement the OHS Policy thoroughly.

## I. INTRODUCTION

The International Labour Organization (ILO) and the World Health Organization (WHO) have been at the front line to improve the wellbeing and security of workers around the world. The World Bank and the WHO characterize around 3 percent of lost life years to the element "work" (Kreis & Bodeker, 2004). The ILO additionally considers that business related infections and casualties represent financial misfortunes as high as 4 percent of overall Gross Domestic Product (GDP) (ILO, 2003). Moreover, social protection consumption on OHS for instance, obligatory sickness salary, allowances for disability, and insufficiency rewards represent more or less, 2-3 percent of GDP in most exceptional Western economies (Adema & Ladaique, 2009).

*Author α: Tutor, Sogakope Senior High School, Ghana.  
e-mail: patadm20@yahoo.com*

*Author σ: Lecturer, Ho Technical University, Ghana.  
e-mail: samedome@htu.edu.gh*

*Author ρ: Senior Lecturer, Ho Technical University, Ghana.*

Ghana has several laws and legislations to deal separately with the protection of workers. Unfortunately, all laws and regulations put in place to ensure this protection are in most cases ineffective and lack effective implementation strategies to ensure compliance. These laws need to be harmonised to enhance efficiency and effectiveness in implementation. The Factories, Offices and Shops Act 1970 (FOSA), which is the earliest enactment to give protection to the wellbeing and security of employees in the nation, does not cover all sectors.

Since Ghana as a country does not have a single comprehensive policy on OHS, the Ministry of Health/Ghana Health Service in its desire to guarantee that all their employees work under secure, palatable and sound conditions has developed its OHS policy to protect its personnel from the enormous risks that they face in the course of duty.

## II. OBJECTIVES OF THE STUDY

The general objective of the study is to assess the extent to which occupational health and safety measures impact on the job performance of employees of South Tongu District Hospital. The specific objectives are to:

- Find out the level of employees awareness of the OHS policy of the GHS.
- Determine whether the occupational health and safety (OHS) policy has been implemented in the organizational setup of the Hospital.
- Identify the kind of hazards that employees are exposed to due to the nature of their work.
- To identify the challenges management faces in the implementation of OHS measures.
- Examine the impact that OHS measures have on employee performance at the Hospital.

## III. RESEARCH QUESTIONS

- What is the level of employee awareness of the OHS policy of the GHS?
- Has the health and safety policy been implemented in the organisational setup of the Hospital?
- What kinds of hazards are employees exposed to due to the nature of their work?

- d. What challenges does management face in the implementation of OHS measures?
- e. Do the health and safety measures impact on employee performance?

According to the Ghana Health Service, studies conducted by its Occupational Health Programme Unit have revealed that workers not only work under unhealthy conditions that are hazardous to their health but also that staff members are not educated on OHS issues (MOH/GHS, 2010).

A study conducted by the Ghana Health Service to determine the occurrence of musculoskeletal diseases among female nurses at the Korle-Bu Teaching Hospital and Mamprobi Polyclinic indicated that the nurses considered the spine as most affected by the nature of their work.

About 65 percent of the nurses suffered an injury to the lower back, 63 percent injuries to the neck and 37 percent injuries to the upper back (MOH/GHS, 2010). The study further revealed the causes of these injuries as lifting of patients (79%), poor working positions (77.2%), stress (68.5%), slips and falls (48%) and haulage and transport (45.7%).

#### IV. THE IMPORTANCE OF OCCUPATIONAL HEALTH AND SAFETY CULTURE IN AN ORGANIZATION

Safety customs can enhance proactive injury avoidance, and studies conducted has demonstrated that organizations do perceive health and safety as an essential segment of making and keeping up a healthy workforce. In altering an association's way of life, it is imperative that top management involvement in health and security issues is paramount and that a vibrant and positive attitude is needed to institute safety culture in the organisation. The implementation and review of any safety programme becomes successful with the involvement of top level or strategic level management (Fitzgerald, 2005).

Muchemedzi and Charamba (2006) characterized occupational safety and health "as a science concerned with wellbeing in connection with job setting".

As indicated by Oxenburgh et al. (2004), the wellbeing and security of all workers in a working environments is firmly connected to profitability.

##### a) Occupational Health and Safety Hazards

According to EUROFOUND (2007), a great percentage of workers in current jobs are exposed to work-related health risks. They contended that the effect of occupational wellbeing and security of workers depended on the types of hazards faced.

These include physical hazards such as radiation, noise, chemical hazards such as asbestos, disinfectants, ergonomic hazards such as raising of

bulky equipment, poor work postures, irregular work situations such night work, shifts/rotations, irregular work days and finally workplace violence such as harassment.

The Bureau of Labour Statistics in the US reported that in 2011, 58,860 job-place injuries and illnesses that made workers to absent from work occurred in Hospitals.

##### b) Evolution of Occupational Health and Safety in Ghana

Even though Ghana as a country does not have any single and comprehensive Policy on OHS, it has numerous health and safety laws relating to various sectors. The first laws enacted were the Factories, Offices and Shop Act 1970, Act 328 and the Mining Regulations 1970 LI 665.

These laws regulated only the labour sectors and mining sectors only. In 1987, the law on Workmen's Compensation was passed. This law provides compensation for personal injuries sustained by accidents at the workplace.

Furthermore, in 1999, the Ghana Health Service and Teaching Hospital Act 526, followed by the National Road Safety Act 567 were enacted.

Finally, in 2003, Parliament passed the Labour Act 2003 (651) with sections 118 to 120 specifically directing employers and workers of their obligations in dealing with OHS issues but failed to specify the reporting structure in case of accidents.

##### c) Impact of OHS on Organization

The Health and Safety Executive (HSE) (2006) clarifies that real efficiency heightening can be recognized by those organizations that put resources into a vibrant wellbeing and security programmes.

However, the Health and Safety Executive (2006) also appreciates that there ought to be a proactive approach by numerous businesses to proceed from only complying to statutory regulations on health and safety but also ensuring it follows best practice on health and safety issues.

Gabriel *et al.* (2013) concluded in their research that there is an inverse relationship between workplace injuries or accidents and employee performance. They affirmed that accidents and injuries are reduced in organizations through massive investment in occupational health and safety practices.

Direct benefits included reduced absenteeism, reduced mental and physical trauma resulting from fear of unsafe working environment which have positive effects on the performance of employees which results in an increase in productivity.

Ward *et al.* (2008), in their research also supported the many writers who view organizations enjoying direct benefit in promoting occupational health and safety.



According to them, when employees feel that their management cares for them, it represents an indication of a positive management of OHS system which results in a safer working conditions with benefits such improved staff morale, stress reduction, improved health, reduced absenteeism, increased job satisfaction, reduced injuries and illnesses and reduced medical expenses. Ward *et al.* (2008), concluded that effective and efficient OHS management impact positively on the performance of institution, affects workers behaviour towards work and gives a more positive impression towards employee health and security.

## V. METHODS

### a) Research Design

The study was descriptive in nature. Descriptive research is a study designed to depict the participants in an accurate way. The study used questionnaires and observation as qualitative tools to gather data for the study. These approaches were used because they were satisfactory tools for collecting data from sample population. The questionnaire was adapted from the U.S Department of Labour on 'assessment tool for hospital safety and health management system' and modified to match the objectives of the study.

### b) Study Population

The target population for the study is the staff members of the District Hospital. The sample was drawn from the District hospital.

Currently the staff strength of the hospital is one hundred and ninety four (194) comprising of four (4) Medical Doctors, one hundred and eight (108) Nurses and eighty two (82) other workers as at April, 2015. However, during the period of the research, only one hundred and sixty six (166) staff members were at post. The rest were either on maternity leave or annual leave.

### c) Sampling technique and sample size

The target population was the employees of the District Hospital. Three sampling methods were used. These are Purposive/Judgmental, Stratified and Simple Random Sampling Method. The Stratified Sampling method was used to divide the population into three sub-groups based on their unique characteristics. The three Strata are Management, Doctors and Nurses, and other workers.

The Purposive Sampling was used to select all five (5) Management Members because they are the key individuals who make decisions on OHS in the Hospital. The Simple Random Sampling Method was then to select members from the remaining two Strata. The Simple Random Sampling Method was used to give members of each Strata a known and equal chance of being selected.

The sample size for the study is one hundred and ten (110) staff members, chosen from a total

population of one hundred and ninety four (164), comprising five (5) management members, forty nine (59) nurses/ doctors and thirty six (46) other workers. The population is homogenous in their various strata.

### d) Sampling Technique and Sample Size

The sample was drawn from the District Hospital. Two sampling methods were used. These are the Stratified and Simple Random Sampling Methods. The Stratified Sampling method was used to divide the population into two sub-groups based on their unique characteristics. The two Strata are Management and Subordinates.

The sample size for the study is one hundred and sixteen (116) staff members, chosen from a total population of one hundred and ninety-four (194), comprising five (5) management members and one hundred and eleven (111) subordinates. The sample size of 116 was calculated using the population size of 194 at a confidence level of 95% and a margin of error of 5%.

### e) Data Collection Tools

Both primary and secondary data were employed. The Primary data assisted in addressing the specific objectives set out in the study. The data was collected with the help of questionnaires and observation. The questionnaire comprised both open-ended as well as close ended questions. The questionnaire was pretested to ensure their precision and reliability. The secondary data collection involved the study of existing literature. The secondary data was collected from the Occupational Health and Safety and Guidelines of the Ghana Health Service / Ministry of Health, the Strategic Plan of the hospital and publications of the South Tongu District Hospital.

The observation was carried out co-currently.

### f) Data Analysis

The Statistical Package for Social Sciences (SPSS) software version 19.0 was used to analyse the data collected. Tables were equally used where appropriate to present the analysed data.

## VI. RESULTS

This study investigates the impact of occupational health and safety measures on employee performance at the South Tongu District Hospital at Sogakope in the Volta Region. The objectives of the study were first to find out whether Occupational Health and Safety (OHS) measures exist in the hospital, to determine the level of employee awareness of the OHS policy and measures if it exist and to identify the kind of safety hazards that employees are exposed to in the hospital. Lastly, the study seek to identify challenges management of the hospital face in implementing the OHS policy and to determine the impact of the OHS

measures on performance of non – management staff members.

a) *Sample Characteristics*

i. *Non – Management Staff*

The sample characteristics of the non – management staff examined are sex, age, employment type, educational level, and number of years working with the hospital. The results indicated that, there are more (53.0%) females than males (47.0%). The age distribution of data showed that majority (49.4%) are between the ages of 39 years to 48 years, 21 representing 25.3 percent were between the ages of 18 – 28 years while 22.9 percent are aged between 39 – 48 years with less than 3 percent being between 49 – 58 years. The next variable – employment type showed that majority (88.3%) of the staff are full – time employees

while the rest (21.7%) are on Part – time. Examination of the educational level of the staff showed that the least number of employees held Basic (7.2%) and Second cycle (7.2) level certificates and a greater number hold Diploma (48.2%) in various subject areas. A few however, have tertiary level education. The results showed that 10.8 percent of the respondents hold First Degree while 26.5 percent had Certificates. Lastly, the number of years that the respondents have been with the hospital was also examined. The results showed that majority (43.4%) of the respondents had been with the hospital for periods ranging from 1 – 5 years. Twenty – four respondents representing 28.9 percent spent 6 – 10 years while 14.4 percent have spent over 11 years working at the hospital. Table 1a presents the results.

Table 1a: Junior Staff Sample Characteristics

	Number	Percent
<b>Sex</b>		
Male	39	47.0
Female	44	53.0
<b>Age</b>		
18-28years	21	25.3
29-38years	41	49.4
39-48years	19	22.9
49-58years	2	2.4
<b>Employment type</b>		
Full – time	65	88.3
Part – time	18	21.7
<b>Highest Education level</b>		
BECE	6	7.2
SSSCE / WASSCE	6	7.2
Certificate	22	26.5
Diploma	29	34.9
HND	11	13.3
Degree	9	10.8
<b>Working Experience</b>		
Less than 1 year	11	13.3
1 – 5 years	36	43.4
6 – 10 years	24	28.9
11 years plus	12	14.5
Total	83	100.0

Source: Field Data, May, 2015.

b) *Management Staff*

The views of all 5 Management members were also sought in seeking evidence to answer the research questions. Out of the number majority (80%) were males while (20%) are females. Regarding their age distribution, 40 percent are between the ages of 41 – 50 years, 20% between 51 – 60 years, 20% 61 years plus and the rest (20%) are between the ages of 31 – 40 years. Majority (80%) are full – time employees of the hospital while 20 percent are contract staff. The examination of the data on highest level educational and

number of years working with the hospital, the results showed that the highest educational level was Postgraduate (40%), First Degree (20%), and Diploma (40%). Eighty percent had been working with the hospital for periods between 1 – 5 years while 20 percent has been working for over 11 years in the hospital.

Table 1b: Management Staff Sample Characteristics

	Number	Percent
<b>Sex</b>		
Male	4	80.0
Female	1	20.0
<b>Age</b>		
31-40years	1	20.0
41-50years	2	40.0
51-60years	1	20.0
61years plus	1	20.0
<b>Employment type</b>		
Full – time	4	80.0
Contract	1	20.0
<b>Educational level</b>		
HND	2	40.0
Degree	1	20.0
Postgraduate	2	40.0
<b>Working experience</b>		
1-5years	4	80.0
11 years plus	1	20.0
Total	5	100.0

Source: Field Data, May, 2015.

## VII. DISCUSSION

### a) Availability of Occupational Health and Safety Policy at the Hospital

The first objective of the study sought to determine whether there is OHS policy of the Ghana Health service at the hospital. The respondents were thus requested to indicate their level of agreement or disagreement with statement ‘does the Hospital have in place a health and safety policy’ using a 4 – point Likert scale from strongly disagree to strongly agree. The results presented in Table 2 showed that a greater percent (79.5%) of the respondents agreed to the statement that there is an OHS policy in the Hospital while the rest 14.4 percent disagreed with 7.2 percent indifferent. This result means that there is OHS policy at the Hospital and lends credence to the study by Munroe (2010) that the Hospital is concerned and interested in protecting the health, safety and welfare of persons engaged to provide service. See Table 2.

Table 2: Does the Hospital have in place a health and safety policy?

	Number	Percent
Strongly Disagree	3	3.5
Disagree	9	10.8
No Action	6	7.2
Agree	44	53.0
Strongly Agree	22	26.5
Total	83	100.0

Source: Field Data, May, 2015.

### b) Level of Awareness of Employees on OHS implementation

Next, the researcher sought to find out the level of awareness of employees on occupational health and safety issues at the Hospital. In measuring the level of awareness, a 17 – item scale measured on a 5 – point Likert scale from ‘strongly disagree to strongly agree’ was used. High scores on the scale represented high level of awareness while low scores on the scale indicate low level of awareness. Some of the items on the scale include ‘Has the health and safety policy been implemented in the organisational setup of the Hospital’, ‘does the hospital have a health and safety committee’, ‘does the hospital conducts a review of its health and safety programmes’ and ‘does the hospital involve employees in the OHS programme implementation’ etc. The result presented in Table 3 showed that most employees are aware of OHS measures in the hospital. Specifically, the result revealed that employees who scored high on the scale represented 73.5 percent and 25.3 percent scored averagely on the scale while less than 2 percent indicated no knowledge of the policy.

Table 3: Awareness Level of Employees of OHS Policy implementation

	Number	Percent
Low Awareness Level	1	1.2
Average Awareness Level	21	25.3
High Awareness Level	61	73.5
Total	83	100.0

Source: Field Data, May, 2015.

### c) Satisfaction and Impact of OHS on Employees

The satisfaction of employee with the OHS measures being practiced at the Hospital and its impact on employees was next examined. In the first place, the respondents were requested to indicate how happy they were to be working in the Hospital. The result showed that majority (74.7 %) indicated they are happy while 25.3 percent of the respondents were not happy working with the hospital. The result is presented in Table 4.

Table 4: Are you happy working in the Hospital?

	Number	Percent
Yes	62	74.7
No	21	25.3
Total	83	100.0

Source: Field Data, May, 2015.

In assessing the impact of OHS on employee performance, all the respondents agreed that the practice of OHS impact on performance (see appendix for result). Describing the nature of impact, majority (96.4%) indicated the OHS measures have positive impact on employee performance while less than 4 percent described the level of impact as negative. This result is in line with the results obtained by Health and

Safety Executive (2006) that genuine productivity increases only when organizations invest in high performance health and safety practices.

d) *Benefits of implementing OHS Policy*

Further, the researcher sought to identify the benefits that employees enjoy as a result of the implementation of the OHS policy. The results presented in Table 5 showed that there is improvement in staff morale, reduction in stress level of employees, improved health and increased in job satisfaction. The rest of the benefits outlined were reduced medical bills, reduced injuries and accidents and reduced absenteeism. Table 5 presents the result indicating the benefits and the number of respondents who identified with the benefit.

**Table 5:** What are the benefits that you are likely to enjoy as a result of the OHS measures?

	Number	Percent
Improved staff morale	27	32.5
stress reduction	30	36.1
Improved health	32	38.6
Increased productivity	42	50.6
Increased job satisfaction	25	30.1
Reduced medical bills	15	18.1
Reduced injuries and illness	38	45.8
Reduced absenteeism	27	32.5

Source: Field Data, May, 2015.

e) *Hazards of Employees*

The next objective is to identify the kind of safety hazard that employees are exposed to due to the nature of their work. The analysis revealed the following hazards: safety hazards, mechanical hazards, biological hazards, ergonomic, physical hazards and psychological hazards. See Table 6 for detail result. It gives credence to Krause et al., (2001) that the most common health problems arising out of work included psychosocial and musculoskeletal disorders.

This is also consistent with studies carried out by the occupational and environmental health unit of the GHS which showed that workers of the GHS worked under conditions that are hazardous to their health. Furthermore, the findings that needle stick injuries is prevalent can also attest to the WHO's estimation that sharp injuries contribute 30% of new cases of Hepatitis B virus and 2.5% of annual infections of HIV among health care workers in Sub-Saharan Africa.

When workers were probed further to state the likely causes of this hazards, the results showed that poor working postures due to the sedentary nature of their work, slips and falls, transport and lifting of patients, stress, poor lighting, chemicals like reagents and detergents, and computer monitors without screen protectors. This is indicated in Table 6a.

Furthermore, employees were asked whether measures were put in place to control these

occupational hazards, the results in Table 6b indicated that majority 74.7% of respondents stated that there were no measures in place and 25.3% of respondents were aware of measures.

**Table 6:** What are the hazards that you face due to the nature of your job?

	Number	Percent
Safety hazards	28	33.7
Mechanical	21	25.3
Biological	47	56.6
Ergonomic	29	34.9
Physical	24	28.9
Chemical	26	31.3
Psychological	31	37.3

Source: Field Data, May, 2015.

**Table 6a:** What are the likely causes of these hazards?

	Number	Percent
Lifting and transport of patients	65	78.3
Poor working postures	30	36.1
Slips and falls	15	18.1
Computer monitors without screen filters	38	45.8
Stress	27	32.5
Needle stick injuries	65	78.3
Poor lighting	30	36.1
Chemicals like reagents and cleaning detergents	45	54.2

Source: Field Data, May, 2015.

**Table 6b:** Are there measures in place to control the occupational hazards?

	Number	Percent
Yes	62	74.7
No	21	25.3
Total	83	100.0

Source: Field Data, May, 2015.

Further, the absence of OHS measures in workplace was investigated. The respondents were asked to indicate some effects they might suffer should the OHS measures be unavailable in the workplace. The analysis revealed the following effects: increased injuries and illness, increased absenteeism from work, increase stress level and reduction in job satisfaction and productivity. The results presented in Table 7 showed that majority (51.8%) mentioned increased in injuries and illness, 37.3 percent mentioned increased in the rate of absenteeism and 36.1 percent mentioned increase in stress level and 28.9 percent reduction in job satisfaction and productivity as effects likely to suffer in the absence of OHS measures.



**Table 7:** What are some of the effects of the absence of OHS measures?

	Number	Percent
Increased injuries and illness	43	51.8
Increased absenteeism	31	37.3
Increased stress	30	36.1
Reduction in job satisfaction	24	28.9
Decreased productivity	24	28.9
	Out of 83	Out of 100.0

Source: Field Data, May, 2015.

**f) Challenges**

Lastly, the challenges associated with the implementation of the OHS policy in the Hospital were examined. Though all the Management staff who responded to the items indicated there has been positive impact of the OHS on the performance of staff which is reflected in the safe environment (20%) in which staff perform their duties, reduction in medical expenses (40%) and reduced accidents (20%) (see Table 8) there was some challenges associated with the implementation of the Policy.

**Table 8:** The nature of the impact of OHS measures

	Number	Percent
Safe environment promotes productivity	1	20.0
Reduces medical expenses	2	40.0
Reduces accidents / injury	2	40.0
Total	5	100.0

Source: Field Data, May, 2015.

The challenges identified include lack of funds to implement and maintain the OHS measures and also purchase OHS tools and equipments. Management contended that the central government through the Ministry of Health and the Ghana Health Service have failed to provide funding and also attach a trained Occupational Health Specialist to the hospital which are requirements in the OHS policy of the GHS/MOH., Management also contended the lack of cooperation and adherence by Junior Staff to rules, regulations and precautions in their place of work. It is not surprising to see employees reluctant to use safety equipments. There is also no clear administrative structure responsible for implementation of OHS policies in the hospital. Table 9 displays the results with the percentages associated with each challenge.

**Table 9:** Challenges of Management in implementing OHS Policy

	Number	Percent
Lack of funds to implement and maintain OHS measures	2	40.0
Lack of cooperation from junior staff	2	40.0
No Administrative structure in place	1	20.0
Total	5	100.0

Source: Field Data, May, 2015.

**VIII. CONCLUSION**

From the findings, it can be concluded that occupational health and safety measures exist in the organisational setup of the South Tongu District Hospital. This is because all workers attested to this and the observation carried out in the hospital environment supports what the respondents attested to. However, all the processes and provisions of the Policy are not duly followed and implemented.

Employee awareness of the existence of the health and safety policy formulated by the Ghana Health Service and the Ministry of Health was high. The researcher was shown a copy of this policy.

The benefits associated with the OHS measures of the hospital was found to include improved staff morale, stress reduction, reduced injuries and illnesses, improved health, increased job satisfaction, reduced medical expenses and increased productivity.

Management faced a lack of funding from central government to implement the OHS policy of the GHS and MOH fully. The government represented by the Ministry of Health also failed to train and assign occupational health specialists to the hospital. Management also failed to carry out induction and in-service training on OHS issues due to lack of funds.

Furthermore, employees faced various levels or kinds of hazards due to the nature of their work and results indicated that management was not putting enough control systems in place to reduce the risks associated with them.

Management contrasted this result by emphasizing that employees were reluctant in using safety equipment and fail to adhere to rules, regulations and precautions that are meant to reduce or alleviate the risk of exposure to hazards.

Finally, the results proved that there is a positive relationship between the OHS measures of the hospital and employee performance.



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## Risk Factors of Road Traffic Accidents (RTAs) among Commercial Inter-State Drivers in Lagos State, Nigeria

By Ogunnaike Adewale Adeyemi & Adewole D.A

*University of Ibadan*

**Abstract- Background:** Road Traffic Accidents (RTAs) constitute a major public health problem globally with its effects felt more in low and middle income countries (LMICs). Millions of lives, globally, are lost annually and several others are disabled following RTAs with human, vehicular and road environment being identified by literatures as the common risk factors of RTAs. The Federal Road Safety Commission (FRSC) of Nigeria reported in 2014 that an estimated 1,991 lives were lost to RTAs in Lagos, Nigeria alone in the preceding four years. The majority of the populations affected in RTAs are within active working age group.

**Aim:** This study was therefore designed to identify and discuss these risk factors as well as assess respondents' knowledge about road traffic signs.

**Methods:** A descriptive cross-sectional survey was carried out among 422 consenting commercial drivers in Lagos state with a pretested, semi-structured interviewer-administered questionnaire.

**Statistical Analysis:** Data were analysed using descriptive statistics, chi-square test and logistic regression with significance determined at  $p \leq 0.05$ .

**Keywords:** road traffic accidents (RTAs), risk factors, road traffic signs, perception.

**GJMR-K Classification:** NLMC Code: WA 250



R I S K F A C T O R S O F R O A D T R A F F I C A C C I D E N T S R T A S A M O N G C O M M E R C I A L I N T E R S T A T E D R I V E R S I N L A G O S S T A T E N I G E R I A

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# Risk Factors of Road Traffic Accidents (RTAs) among Commercial Inter-State Drivers in Lagos State, Nigeria

Ogunnaike Adewale Adeyemi <sup>α</sup> & Adewole D.A <sup>σ</sup>

**Abstract- Background:** Road Traffic Accidents (RTAs) constitute a major public health problem globally with its effects felt more in low and middle income countries (LMICs). Millions of lives, globally, are lost annually and several others are disabled following RTAs with human, vehicular and road environment being identified by literatures as the common risk factors of RTAs. The Federal Road Safety Commission (FRSC) of Nigeria reported in 2014 that an estimated 1,991 lives were lost to RTAs in Lagos, Nigeria alone in the preceding four years. The majority of the populations affected in RTAs are within active working age group.

**Aim:** This study was therefore designed to identify and discuss these risk factors as well as assess respondents' knowledge about road traffic signs.

**Methods:** A descriptive cross-sectional survey was carried out among 422 consenting commercial drivers in Lagos state with a pretested, semi-structured interviewer-administered questionnaire.

**Statistical Analysis:** Data were analysed using descriptive statistics, chi-square test and logistic regression with significance determined at  $p=0.05$ .

**Results:** Age of the respondents was  $44.0 \pm 10.3$  years. Majority were married with only 8.1% with tertiary education. The reported case of RTAs among the respondents' was 40%. Other road users' faults and brake failure were reported as the main human and vehicular contributors to RTAs occurrence. Majority of the RTAs occurred on tarred, two-carriage roads. Generally, respondents had good knowledge of regulatory road traffic signs than the warning road traffic signs. History of arrest for traffic offences (OR = 1.8, 95% C.I = 1.1-2.9,  $p = 0.021$ ) and use of alcohol (OR = 1.8, 95% C.I = 1.0-3.0,  $p = 0.036$ ) were identified as predictors of involvement in RTAs in this survey.

**Conclusion and Recommendation:** Considering the various health, social, economic and psychosocial impacts of RTAs on individuals, families, nation and global community; targeted awareness to improve the knowledge of drivers on road safety measures and enforcement of traffic regulations by road regulatory agencies are needed to curb RTAs occurrence.

**Keywords:** road traffic accidents (RTAs), risk factors, road traffic signs, perception.

## I. INTRODUCTION

### a) Background

#### i. RTAs

Road Traffic Accidents (RTAs), classified as a non-communicable disease, as for a long time received less attention to other diseases in its categories despite the fact that a WHO data in 2002 reported that nearly 1.2 million deaths occurred globally from RTAs with low and middle income countries (LMICs) suffering 85% of the impact. This, in part, may be due to the assumption that RTAs are spontaneous and unavoidable occurrences; an assertion that has been voided by literatures through identification of the risk factors of RTAs- Human, Vehicular and Road environment sources. More than half of those killed in RTAs are in the productive age group, 15-44 years, especially males who are the economic backbone of most families which point to the impact this neglected public health issue has on the economy of LMICs and especially the low-income groups whose earning capacity is mostly dependent on their physical activity (Global disease burden, 2002) (WHO, 1996).

Having considered the extent of the impact of RTAs especially on the LMICs and a possibility of combating the menace provided by the Declaration of the UN through the Goal of the Decade of Action for Road Safety 2011-2020 that identifying and addressing the risk factors of road traffic accidents and provision of adequate post-crash care will reduce the rate of occurrence of RTAs, this survey was carried out to identify these risk factors as opposed to other studies that have studied these risk factors in part. The knowledge of the respondents about road traffic signs was also surveyed. In view of these, this survey aimed at providing raw evidence for policy-makers willing to make informed decisions in ensuring the safety of our traffic systems and saving as much as 5 million lives as targeted by the Decade of Action for Road Safety 2011-2020.

## II. MATERIALS AND METHODS

This survey was a descriptive cross-sectional survey carried out among 422 (sample size of 425 was derived after using a prevalence of 21% reported by

Author <sup>α</sup> <sup>σ</sup>: Department of Health Policy & Management, College of Medicine, University of Ibadan, Nigeria.  
e-mail: adewalecaxton@gmail.com



Adekoya et al., (2011) and adjusting for clustering effect and non-response rate) commercial inter-state drivers across ten randomly selected LGAs in Lagos State, Nigeria. Ethical approval was obtained from the UI/UCH ERC before commencement of this study. Permission was obtained from Lagos State Ministry of Transport and the NURTW, Lagos branch. Participation of the drivers was entirely voluntary and those who decided to withdraw during the study were permitted to do so.

The questionnaire used for this survey was developed following review of related literatures on the subject matter which was followed by a pretest among 45 commercial inter-state drivers in Ibadan. The questionnaire was translated to Yoruba language (being the major language of the study area) and back-translated to English language to ensure construct validity of the questionnaire. Valid informed consent was sought from eligible respondents (registered with the park under study and having commercial driving experience of three or more years). To gain respondents maximum attention, it was ensured that the respondents weren't the next to load passengers.

The data were analysed using SPSS v16, Chi-square test was used to measure association between selected categorical variables while logistic regression was used to control for confounding variables by bringing factors significant at  $p \leq 0.20$  at bivariate level into the logistic regression model. A  $P < 0.05$  was regarded as statistically significant.

### III. RESULT

#### a) Socio-demographic information about respondents

422 commercial inter-state drivers representing 99% response rate were recruited for this survey with mean age of respondents being  $44.0 \pm 10.3$  years with majority, 82.7%, being married and only 50.0% or more of the respondents having secondary and/or post-secondary school education. More than 50% of the respondents have spent 15 years or more on the job with mean job years being  $15.5 \pm 8.2$  years while 90% of the respondents have no formal driving school experience.

Table 3.1: Socio-demographic characteristics of respondents (N=422)

Variable	Percentage (%)
<b>Age (years)(n=417)</b>	
≤30	10.3
31-50	67.9
51-60	14.6
≥61	7.2
<b>Mean ± SD</b>	<b>44.0 ± 10.3</b>
<b>Marital status</b>	
Single	9.5
Married	82.7
Other	7.8
<b>Religion</b>	
Christian	40.3
Islam	52.8
Traditionalist	5.2
Other	1.7
<b>Educational status</b>	
None	19.0
Primary	31.0
Secondary	41.9
Post-secondary	8.1
<b>Ethnicity</b>	
Yoruba	76.1
Igbo	2.4
Hausa	0.7
Others	20.9

#### b) History of RTAs and associated risk factors

40% of the respondents reported ever been involved in RTA. The type of RTA reported by the respondents included head-on collision 28(19.7%), rear-end collision 47(33.1%), rollovers 13(9.2%), side collision 26(18.3%) and single vehicle/lone accident 28(19.7%) with almost half, 49.3%, of the RTAs occurring in the afternoon. About two-third (65.5%) of

these RTAs involved no body injury. One-quarter of these RTAs were blamed on other road users, this was followed closely by faulty vehicle in 23.2% of the cases. Brake failure, 45.5%, was the most reported vehicular defect that resulted in the RTAs. Half of the reported RTA occurred on two-carriage ways while most of the RTAs, 60.6%, occurred on tarred two-carriage roads with 54.9% occurring when the weather was clear.

Table 3.2: History of RTAs and associated risk factors

Variable	Percentage (%)
<b>Involvement in RTA</b>	
Yes	40.0
No	60.0
<b>Type of RTA in the last 3 years (n=142)</b>	
Head-on collision	19.7
Rear-end collision	33.1
Rollovers	9.2
Side collision	18.3
Single vehicle/lone accident	19.7
<b>Time of the day RTA occurred (n=142)</b>	
Morning	19.7
Afternoon	49.3
Evening	31.0
<b>Cause of most recent RTA (n=142)</b>	
Poor vision of driver	11.3
Over-speeding	11.3
Distraction/phone call	4.2
Improper/wrong overtaking	6.3
Fatigue/Sleepiness	5.6
Faulty vehicle	23.2
Wrong use of trafficator	4.2
Pedestrian fault	2.1
Other drivers fault	26.1
Others	5.6
<b>Vehicular defect that caused RTA (n=33)</b>	
Brake failure	45.5
Steering lock	12.1
Tyre burst	27.3
Others	15.2
<b>Type of road RTA occurred (n=142)</b>	
One-carriageway	41.5
Two-carriageway	50.7
One-way (improper route)	7.7
<b>Type of road surface RTA occurred (n=142)</b>	
Tarred good road	60.6
Tarred with potholes	37.3
Earth/Not tarred/Muddy	2.1
<b>Weather when RTA occurred (n=142)</b>	
Clear	54.9
Dusty	7.7
Rainy	28.2
Others	9.2

About 16% of the respondents sometimes or never use the seat-belt when driving while 61.4% of the respondents have history of been arrested by road regulatory authorities (police, Vehicle Inspection Officers, FRSC) with only 23.2% been arrested in the last three months because of over-speeding (15.7%), non-use of seat belt (12.6%), overload of passengers/loads (25.3%) among other reasons.

c) *Knowledge about road traffic signs and perception about risk factors of RTAs*

The knowledge of road traffic signs was high among the respondents. Furthermore, respondents have better knowledge of regulatory signs compared to the warning signs. More than one-quarter of the respondents had no idea about road traffic signs

“Roadway narrows”.Overall, the respondents’ had a favourable perception about the risk factors for RTA. However, 53.5%, 43.9%, 49.2%, 49.4% and 48.6% disagreed that “incompleteness of vehicle registration papers, not using seat-belt, not owning the vehicle being driven, no valid drivers’ license and age of driver” respectively were possible risk factors for RTAs.



Table 3.3: Knowledge about Road traffic signs

Variable	Cut-off score	Score	Mean ± SD	Percentage	Remark
Knowledge	10	<10	12.7±3.9	17.8	Poor
		≥10		82.2	Good

d) Factors associated with involvement in RTA among respondents

Statistically significant association exist between age ( $X^2 = 11.56$ ,  $p = 0.009$ ), years spent on the job

( $X^2 = 10.94$ ,  $p = 0.004$ ), seat belt use ( $X^2 = 23.86$ ,  $p = <0.0001$ ), being arrested regularly by road regulatory authority ( $X^2 = 22.56$ ,  $p = <0.0001$ ) and involvement in RTA.

Table 3.4: Factors associated with involvement in RTA among respondents

Variable	Ever been involved in RTA?			$X^2$	p-value
	Yes (%)	No (%)	Total		
<b>Age (years)</b>					
≤30	9(20.9)	34(79.1)	43	11.56	0.009*
31-50	120(42.4)	163(57.6)	283		
51-60	30(49.2)	31(50.8)	61		
≥61	8(26.7)	22(73.3)	30		
<b>Highest educational status</b>				5.74	0.125
None	25(31.2)	55(68.8)	80		
Primary	50(38.2)	81(61.8)	131		
Secondary	76(42.9)	101(57.1)	177		
Post-secondary	18(52.9)	16(47.1)	34		
<b>Years spent on the job</b>				10.94	0.004*
≤5	9(25.7)	26(74.3)	35		
6-14	53(33.1)	107(66.9)	160		
≥15	107(47.1)	120(52.9)	227		
<b>Visual/eye check</b>				8.76	0.003*
Regularly	73(51.0)	70(49.0)	143		
Rarely	96(36.0)	171(64.0)	267		
<b>Use of seat-belt</b>				23.86	<0.0001*
Everytime	124(35.3)	227(64.7)	351		
Seldom	44(67.7)	21(32.3)	65		
<b>Arrest by road regulatory authority</b>				22.56	<0.0001*
Regularly	127(49.0)	132(51.0)	259		
Rarely	42(25.8)	121(74.2)	163		
<b>Knowledge score</b>				0.50	0.479
Poor knowledge	27(36.5)	47(63.5)	74		
Good knowledge	140(40.9)	202(59.1)	342		

e) Predictors of RTAs among respondents

Following logistic regression; Respondents that report consistent use of seat belt are 5 times less likely to be involved in RTAs than seldom users while respondents that report regular arrest and alcohol use

are 1.8 times and 1.7 times more likely respectively to be involved in RTAs than those not being arrested regularly or are not alcohol users. The analysis also showed that smokers of cigarette/cannabis are 2 times less likely to be involved in RTA than non-smokers.

Table 3.5: Predictors of RTAs among respondents

Variable	aOR*	95% C.I.**	p value
<b>Marital status</b>			
Single	0.491	0.13-1.84	0.292
Married	0.385	0.15-1.02	0.054*
Others***	REF		
<b>Educational status</b>			
None	REF		
Primary	1.071	0.52-2.21	0.853
Secondary	1.429	0.70-2.91	0.326
Post-secondary	2.394	0.86-6.63	0.093
<b>Years on occupation</b>			
≤5	0.539	0.20-1.46	0.225
6-14	0.544	0.32-0.91	0.021*
≥15	REF		
<b>Seat belt use</b>			
Everytime	0.213	0.11-0.41	<0.0001*
Seldom	REF		
<b>History of arrest</b>			
Yes	1.779	1.09-2.90	0.021*
No	REF		

#### IV. DISCUSSION

The rate of occurrence of RTAs among the study participants was high, similar to Pepple and Adio (2014) findings though relatively higher when compared to Adekoya et al., (2011) report though this might be because Adekoya et al., (2011) covered a period of 10 years whereas this study captured the involvement in RTA all through the driving years of the respondents.

The type of RTA reported majorly by the respondents was rear-end collision with almost half of the RTA occurring in the afternoon with human error being the reported primary cause of most of the RTAs. This was in agreement with most literatures on RTAs which identifies human related factors as the major cause of RTA. This study however disagrees with Bekibele et al., (2007) findings that reported mechanical fault as the main cause of RTAs. Brake failure was the most reported vehicular defect that resulted in the RTA. It should be noted that about half of the reported RTA occurred on two-carriage ways which disagrees with Arthur, (2015) findings that more RTAs occurred on single carriage ways and surprisingly most of the RTA occurred on tarred roads with many occurring when the weather was clear. This agrees with Amo, (2014) and Arthur, (2015) both of whom identified that a higher number of crashes were recorded on roads classified as good for transportation. This is probably due to the fact that most drivers tend to over-speed on smooth and wider roads. The high percentage of RTAs that occur when weather was clear contradicts Margie and Scurfield (2004) findings that road crashes among road users in LMICs are mostly influenced by poor visibility.

This study found that respondents had good knowledge about road traffic signs used in the survey which agreed with Hulbert et al., (1979) that reported a similar finding. However, it contradicts Makinde et al., (2012) findings that reported poor knowledge and Okafor et al., (2013) that reported that many of the respondents surveyed had poor knowledge of road traffic signs. The reason of this might be because of the methods of assessment that differs between these studies. Makinde et al., (2012) and Okafor et al., (2013) used multiple choice answers for their assessment while this study allows the respondents to describe what the signs means to them and "right knowledge, wrong knowledge or no idea" was recorded depending on the explanation. Also, Lagos State Government is issuing a State's drivers' permit for inter-state drivers based in Lagos state and were assessed and trained on road traffic signs and other driving skills before been given the permit. This may partly be responsible for the better knowledge among these present study participants.

This study also shows that majority of the respondents had right knowledge for regulatory signs when compared to the warning signs. For the warning signs, Makinde et al., (2012) reported "Narrow bridge

ahead and Dangerous double bend" as the traffic signs with best and poor knowledge respectively, this study identified "Slippery road and Double dangerous bend" as the most wrongly identified and "T-junction" as the traffic sign with the most right knowledge respectively. In addition, this study identified road traffic sign "Roadway narrows" as the sign cited mainly as the one which respondents could not recognise.

For the regulatory signs, Makinde et al., (2012) reported road traffic signs "No U-turn and No parking" for best knowledge and "No overtaking" for poor knowledge, findings which are similar to this study. There was no significant association between road traffic sign knowledge score and involvement in RTAs which agreed with Al-Madani, (2000) and Al-Madani et al., (2002) that also reported no significant association between knowledge of road traffic signs and involvement in RTAs.

This study's respondents identified over-speeding as the major human factor for RTA occurrence which was similar to Arthur (2015) findings that of the behavioural factors studied, speeding had the highest on record for perceived cause of RTAs. Svenson et al., (2012) also agreed that speeding decreases the probability of preventing RTAs for which Aaarts et al., (2006) and Elvik et al., (2004) corroborated. However, it contradicted what Amo (2014) reported by ranking over-speeding as the third contributor to RTAs of the driver/ rider error.

In this study, reported cases of RTAs was higher among respondents that are seldom users of seat belt than those that are regular users. This is in consonance with several other studies; Evans and Bloomfield (2004), Cummings et al., (2003), Evans (1986), Huelke and Sherman (1987), Marburger and Friedel (1987), Rivara et al., (1999) that reported the effectiveness of seat belts in reducing the severity of injuries, thus affirming its protective function.

Large number of the respondents in this study who have had history of RTA also reported being arrested by regulatory authorities in the last three months prior to this study. The arrests were as a result of violation of traffic rules which may be responsible for the reported RTAs amongst them.

#### V. CONCLUSIONS

This study showed that respondents had a good knowledge of the ten road traffic signs sampled in this survey though respondents have better knowledge of regulatory road traffic signs than warning road traffic signs.

This study shows that RTA occurrence was high among inter-state commercial drivers in Lagos State with rear-end collision occurring the most especially in the afternoon though most are without bodily injuries. Brake failure was identified as the most reported



vehicular defect that resulted in RTAs among the respondents with most occurring on tarred two-carriage roads occurring when the weather was clear. Human factor, however, was the major contributory factor identified as the cause of RTAs by this survey. Conclusively, history of arrest by road regulatory agencies (VIO, FRSC, and Police) was identified as a risk factor for RTAs and non-use of seat belts as associated risk factors of RTAs among the respondents of this survey.

## VI. RECOMMENDATIONS

1. The knowledge of the drivers on the causes of RTAs should be made better. This can be done by targeted awareness campaign, training and re-training of this category of people.
2. Educating the drivers on the importance of road traffic signs, as cautionary measures, will go a long way in minimising the occurrence of RTAs. The importance of seat-belt use should also be emphasised through these enlightenment medium.
3. Well-funded and methodologically designed researches on risk factors of RTAs and intervention patterns should be carried out on a larger scale.

## REFERENCES RÉFÉRENCES REFERENCIAS

1. Aaarts, L. and Van Schagen, I. 2006. Driving speed and the risk of road crashes; A review. *Accident Analysis & Prevention* 38: 215-24.
2. Adekoya, B. J., Adekoya, A. O., Adepoju, F. G., and Owoeye, J. F. A. 2011. Driving under influence among long distance commercial drivers in Ilorin, Nigeria. *International Journal of Biological & Medical Research* 2(4): 870-873.
3. Al-Madani, H. 2000. Influence of Driver's Comprehension of Posted Signs on Their Safety Related Characteristics, *Accident Analysis & Prevention* 32: 575-581.
4. Al-Madani, H. and Al-Janahi, A. R. 2002. Assessment of Drivers' Comprehension of Traffic signs Based on Their Traffic, Personal and Social Characteristics, *Transportation Research Part F*, 5: 63-76.
5. Amo, T. 2014. The influences of drivers/riders in road traffic crashes in Ghana between 2001 and 2011. *Global Journal of Health Science*, 6(4): 49-56. doi:10.5539/gjhs.v6n4p49
6. Arthur, N. 2015. A survey of commercial drivers' perception on the causes of road traffic accidents in Nigeria. *Journal of Medicine in the Tropics* 17(1): 15-18. doi:10.4103/2276-7096.148563
7. Bekibele, C. O., Fawole, O. I., Bamgboye, A. E., Adekunle, L. V, Ajav, R., and Baiyerolu, A. M. 2007. Risk factors for road traffic accidents among drivers of public institutions in Ibadan, Nigeria. *African Journal of Health Sciences* 14(3): 137-142.
8. Cummings, P., Wells, J.D., Rivara, F.P. 2003. Estimating seat belt effectiveness using matched-pair cohort methods. *Accident Analysis & Prevention* 35: 143-9.
9. Elvik, R., Christensen, P., and Amundsen, A. 2004. Speed and road accidents. An evaluation of the Power Model. TOI report 740
10. Evans, L. 1986. The effectiveness of safety belts in preventing fatalities. *Accident Analysis and Prevention* 18: 229-41.
11. Evans, L. and Bloomfield, M.I. 2004. Science Serving Society for Traffic Safety.
12. Huelke, D.F. and Sherman, H.W. 1987. Seat belt effectiveness. Case examples from real-world crash investigations. *Journal of Trauma and Acute Care Surgery* 27: 750-3.
13. Hulbert, S., Beers, J. and Flower, P. 1979. Motorist's Understanding Of Traffic Control Devices, American Automobile Association (AAA), Foundation for Traffic Safety, Falls church, VA
14. Makinde, O., and Opeyemi, D. A. 2012. Understanding of Traffic Signs by Drivers- A Case of Akure City, Ondo State, Nigeria. *ARNP Journal of Science and Technology*, 2(7), 608-612. Retrieved from <http://trid.trb.org/view.aspx?id=803865>
15. Marburger, E.A. and Friedel, B. 1987. Seat belt legislation and seat belt effectiveness in the Federal Republic of Germany. *Journal of Trauma and Acute Care Surgery*. 27: 703-5.
16. Margie, P. and Scurfield, R. 2004. World report on road traffic injury prevention. *World Health Organization*, 244.
17. Okafor, I.P., Odeyemi, K.A. and Dolapo, D.C. 2013. Knowledge of commercial bus drivers about road safety measures in Lagos, Nigeria. *Annals of African Medicine*. doi:10.4103/1596-3519.108248
18. Pepple, G. and Adio, A. 2014a. Visual function of drivers and its relationship to road traffic accidents in Urban Africa. *Springer Plus*, 3, 47. doi:10.1186/2193-1801-3-47
19. Pepple, G. and Adio, A. 2014b. Visual function of drivers and its relationship to road traffic accidents in Urban Africa. *SpringerPlus*, 3, 47. doi:10.1186/2193-1801-3-47
20. Rivara, F.P., Thompson, D.C. and Cummings, P. 1999. Effectiveness of primary and secondary enforced seat belt laws. *American Journal of Preventive Medicine* 16: 30-9.
21. Svenson, O., Eriksson, G., Slovic, P., Mertz, C.K. and Fuglestad, T. 2012. Effects of main actor, outcome and effect on biased braking speed judgments. *Judgment & Decision Making Journal* 7: 235-43.
22. W.H.O. 1996. Ad hoc Committee on Health Research Relating to Future Intervention Options. Investing in health research and development. Geneva, (TDR/Gen/96.2).



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## Magnitude and Factors Associated with Low Birth Weight among New Born in Selected Public Hospitals of Addis Ababa, Ethiopia, 2016

By Hirut Mulatu, Kebebush Zepre, Mulugeta Betre & Gebremariam Hailemichael  
*Addis Ababa University*

**Abstract- Back ground:** Low birth weight (LBW) is a worldwide public health problem. Ethiopia is one of the countries greatly affected. LBW is not only the major cause of negative health outcome in infancy and childhood, but it also affects the health outcome in later life. The nutritional status of mother may have a great influence on birth weight of the newborn and its early development. LBW imposes a considerable burden to health sector and on society as a whole.

**Objective:** This study aims to assess the magnitude of LBW and associated factors among new born in public hospitals of Addis Ababa Ethiopia.

**Methods:** Hospital based cross-sectional study was undertaken from April to May 2015. A total of 457 mothers were proportionally elected from the three hospitals and interviewed using Pre tested structured interviewer administered questionnaire. The collected data were analyzed and interpreted to respond to the objective.

**Keywords:** low birth weight, maternal risk factors, public health problem.

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# Magnitude and Factors Associated with Low Birth Weight among New Born in Selected Public Hospitals of Addis Ababa, Ethiopia, 2016

Hirut Mulatu <sup>α</sup>, Kebebush zepre <sup>σ</sup>, Mulugeta Betre <sup>ρ</sup> & Gebremariam Hailemichael <sup>ω</sup>

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**Result:** The magnitude of low birth weight was 8.8%. Low birth weight was more likely associated with timing of ANC visit (adjusted odds ratio [AOR] = 7.41, 95% confidence interval [CI] :1.15, 47.79), taking extra meal during pregnancy (AOR=0.25, 95% CI: 0.06, 0.96), type of pregnancy (AOR=0.30, 95% CI:0.09, 0.97) and iron/folic acid supplementation (AOR=0.30, 95% CI: 0.09, 0.99).

**Conclusion and Recommendation:** Low birth weight was substantial and strengthening the public health intervention that put into consideration the factors identified here are essential.

**Keywords:** low birth weight, maternal risk factors, public health problem.

## I. INTRODUCTION

Low birth weight (LBW) has been, and continues to be, very important public health problem. LBW is not only the major cause of negative health outcome in infancy and childhood, but it also affects the health outcome in later life. The nutritional status of mother may have a great influence on birth weight of the newborn and its early development. LBW imposes a considerable burden to health sector and on society as a whole. Although, the global prevalence of LBW is sluggishly reducing, yet, it remains high in many

developing countries of Asian and African. Hence, birth weight is an essential element in the success of national and global efforts to improve child health, and a major target for public health intervention [1,2]. Studies have indicated that the mean birth weight of African babies is significantly lower than those of developed countries. Analyzed data from east Africa showed that about 52% of neonatal death happened due to Preterm and small for gestations births [3,4].

World health organization defines LBW as weight less than 2,500gram (5.5pounds) in the first hour of delivery. Various epidemiological observations show that LBW contributes to a range of poor health outcomes which is more common in developing than developed countries, LBW infants are about 20 times more likely to die than normal weight, those who survive likely to remain under nourished, have impaired immune function and increased risk of morbidity, and may suffer a higher incidence of chronic diseases in later life and lower intellectual ability that in turn affect their future school performance and job opportunities [3]. These can be overcome by applying preventive measures on the risk factors through lifespan approach (before, during, and after child birth) to the health of women that takes full account of socioeconomic and environmental as well as medical issues and by applying important Preventive interventions on maternal nutrition, antenatal care (ANC), Provision of all the necessary services during ANC based on the working guide line and educating mother about reproductive health [5].

The global magnitude of LBW is 15.5 %. In Ethiopia, the prevalence of under-five mortality ranges from 53 to 169 per 1000 live births out of this neonatal mortality which is mainly attributed by LBW accounts the largest portion [6]. Extent of LBW is one of the key vital statistics used as an indicator of the quality of ANC, medical service, and general health service to the mother. However, recent evidence regards to the magnitude and factors associated with LBW are insufficient in the country, in addition. Some of the determining factor for LBW in the literature are inconclusive and questionable [2,3]. Answering such question and taking positive action on the results is often more important than knowing the precise magnitude of neonatal mortality.

**Author <sup>α</sup> <sup>σ</sup> <sup>ρ</sup>:** School of public health, Addis Ababa University, Addis Ababa, Ethiopia. e-mails: hirut5454@gmail.com, zeprekebebush@gmail.com, mulugeta.betre@aau.edu.et

**Author <sup>ω</sup>:** Wolkite University department of public health, health services management. e-mail: ghaile81@yahoo.com

The empirical literature provides mixed results on the relationship between many of these factors and LBW. Some of the variables that are found to be predictor of LBW in one study may not necessarily be factor in another study. Supporting the argument on possible determinants of LBW vary across the geographical location. Besides, the DHS findings based on the mother's subjective assessment of the baby's weight rather than active weighting. In addition, DHS use the five years data preceding the survey. In most cases recalling such information is difficult. Therefore, it is helpful to conduct such study in urban settings like Addis Ababa where around 83% of births delivered in the health facilities and have their babies weighted at birth as it presumed to obtain more reliable information than we get on the average [6]. Thus, this study was designed to assess the magnitude of low birth weight and associated factors among newborns in selected public hospitals of Addis Ababa Ethiopia. The finding expected to provide working base for all concerned stakeholders in such fields for planning programs and interventions to effectively address the problems, thereby, decreasing neonatal mortality.

## II. METHODS

### a) Study area and period

The study was conducted in Addis Ababa, the capital city of Ethiopia from April to May 2015. The city has 10 sub city administration and 116 Woreda administrations. According to population projection value for 2014 the city has an estimated population of 3,195,000. The proportion of male counts 1,515,000 and female counts 1,680,000. The city has 11 public hospitals of which 5 are owned by Addis Ababa health bureau (AAHB), 4 by federal ministry of health, one (Tikur Anbesa referral hospital) which is under the ministry of Education (AAU) [28].

### b) Study design and study population

Institution based cross sectional study was conducted in selected public hospitals of Addis Ababa Ethiopia. Source populations for this study were all newborns in three public hospitals of Addis Ababa. All consecutively selected alive newborns with a clearly defined gestational age were considered as study participants. Yet, multiple births, Preterm and post term newborn and newborn with congenital anomalies were excluded.

### c) Sample size determination

The sample size was determined using a formula for estimating sample size for single population proportion assuming a confidence level of 95%, margin of error 3%, magnitude of LBW 17.1 % [8] and 10 % non-response rate. Accordingly 457 new born were included as study participants.

### d) Sampling procedure

Health institutions that provide delivery services were stratified into Federal Ministry of health and Addis Ababa City Administration Health Bureau. One hospital from the Federal Ministry of Health and two from Addis Ababa City Administration were selected using lottery method. The allocation of the study subjects to each hospital was based on the number of deliveries the same period last year (from hospital records) in each health facilities. Consecutive sampling was employed to select the study participants in each health facility. Participants were recruited immediately after delivery, and recruitment was continued until the sample size allocated fulfilled/met.

### e) Operational definitions

A new born with weight less than 2500 grams is considered as low birth weight. A birth weight < 1500 grams irrespective of gestational age is stated as Very low birth weight (VLBW). An infant is considered as premature if it born before 37 weeks of gestation. While, an infant born between 37 and 42 weeks of gestation is considered as term. Intrauterine growth restriction (IUGR) refer to a fetus that has not reached its growth potential due to various reasons, while Small for gestational age (SGA) refers to an infant whose birth weight is below the 10<sup>th</sup> percentile for the appropriate gestational age. A baby born dead after 28 completed week of pregnancy is Stillbirth. While, A fetus born before 28 week of gestation considered as abortion.

### f) Data collection tools and procedure

A pretested structured questionnaire was used to gather data. The questionnaire was taken from different literatures and modified. Before the data gathering the questionnaire was translated to Amharic and then back translated to English to confirm consistency. The questionnaire was designed to measure Socio-demographic characteristic, obstetric history, dietary counseling, extra diet and iron supplementation, burden of low birth weight, and various factors affecting it.

The data gathering was undertaken by three midwives who were hired from other health facilities and supervised by one health professional in each selected health facility (not from the same hospital) after giving a 2- day training to discuss the purpose of the study, data gathering method and procedure, moral issue, technique of approaching the participants during interview, and about the inclusion and exclusion criteria. This was complemented with practical role plays. After securing an oral consent, interview was carried out on the first postnatal day. A standard baby weighing scale graded in grams was used to take babies nude weight within one hour after delivery by data collectors. Weighing scales were checked daily by the principal investigator and between measurements checked by the data collectors and adjusted at zero level.



g) *Data analysis procedures*

The data were first checked manually for completeness and coded using a template prepared for this purpose. Data were entered in to Epi-info version 3.5.4 statistical software, cleaned and exported to SPSS version 21 for analysis. Descriptive analysis was done and presented using frequency tables and percentage. Bivariate analysis was made to determine the association between LBW and such variables as socio demographic, types of pregnancy, timing of ANC booking, taking extra meal during pregnancy and iron /folic acid supplementation using odds ratio. These factors with significant associations were further tested using multivariate logistic regression analysis at  $p \leq 0.05$  and 95% confidence interval (CI).

To ensure quality of the data different steps were followed. Data collectors and supervisors were equipped with all relevant information regarding the data collection method and procedure, and complimented with role play on how to do interviews and record. The study tools were pretested on 5% of the total sample size in one of the hospitals out of the selected to assess for its completeness, clarity, length and skip patterns. Then, appropriate amendments were done on the questionnaire based on the comments from the pretest. These comments were further discussed with data collectors and supervisor for better understanding. During data collection principal investigator and supervisors checked the daily data collection processes proceed as intended and took timely action for any gap identified. At data entry, Epi-info statistical software was used to enter and clean data before exported to SPSS for analysis.

h) *Ethical approval*

Ethical clearance was obtained from the Research Ethical Clearance Committee (REC) of the School of Public Health Addis Ababa University and permission was obtained from the head of study

facilities. Before enrolling, the purpose of the study was described and discussed and verbal consent was obtained from each respondent.

III. RESULTS

a) *Socio demographic characteristics of the participants*

A total of 457 mothers who gave birth in the selected hospitals, participated, with a response rate of 100%. About two hundred eighty eight (63.0%) were between 20-29 years with mean age of 28 years  $\pm 10$ . Majority (97.4%) of the respondent's height was above 150 centimeter. Three hundred twenty seven (71.6%) were married and close to half (42.0%) had attained secondary level education. About one-third (30.4%) were house wives while 132 (28.9%) of the respondent's husbands were government employee. Out of the total respondents, 322 (70.5%) had family size of less than four and more than half (57.2%) of the babies were female sex (Table 1).

b) *Obstetric characteristics of the respondents*

Three hundred forty three (75.1%) of the respondent's recent pregnancies were planned. Two-hundred sixty five (58%) of participants were multiparous, of which 42 (15.8%) of them had history of small baby in their previous birth. Two hundred eighteen (47.7%) of participants had greater than four ANC visit and only 158 (42.9%) of participant started ANC during the first trimester. More than three fourth (81.8%) of participants reported to have Tetanus toxoid (TT) vaccination during or before the recent pregnancy. More than half (55.4%) of respondents reported that they were provided with dietary counseling during the current pregnancy and 216 (47.3%) reported to have extra meal during the recent pregnancy. Two hundred seventy five (60.2%) were supplemented with iron/folic acid during their recent pregnancy.

Table 1: Selected Socio demographic characteristics of mother who gave birth at the selected public hospitals of Addis Ababa, Ethiopia, May 2015(n=457)

Variables	Frequencies(no)	Percentage (%)
<b>Age(in years)</b>		
<19	11	2.4
20-29	288	63.0
30-34	67	14.7
5+	61	13.3
Unknown	30	6.6
<b>Height</b>		
<150 cm	12	2.6
$\geq 150$ cm	445	97.4
<b>Marital status</b>		
Married	327	71.6
Cohabitation	106	23.2
Separated	19	4.2
Others	5	1.1
<b>Level of education</b>		
Illiterate	26	5.7



Primary school	71	15.5
Secondary school	192	42.0
Collage and above	168	36.8
<b>Occupation of the mother</b>		
Government employee	112	24.5
Private employee	95	20.8
Merchant	73	16.0
House wife	139	30.4
Others	38	8.3
<b>Occupation of the husband</b>		
Government employee	132	28.9
Private employee	103	22.5
Merchant	111	24.3
Daily laborer	88	19.3
No husband	23	5.0
<b>Family size</b>		
1-3	322	70.5
4-5	132	28.9
>5	3	0.7
<b>Sex of the baby</b>		
Female	262	57.3
Male	195	42.7

Out of the total respondents, 80 (17.5%) had history of abortion, while 46 (10.1%) and 56 (12.6%) had history of still birth and APH respectively. Ninety seven (21.5%) of respondents were used alcohol like, tella, beer, wine, areke during the recent pregnancy. Of the

total 25 (5.5%) of the respondents were used substances like, chat, cigarette and shisha and 21(4.6%) of the respondents had chronic diseases like, Diabetic mellitus, hypertension (Table 2).

*Table 2a:* Obstetric and baby characteristics of mothers who gave birth at the selected public Hospitals of Addis Ababa, Ethiopia May 2015 (n=457)

Variables	Frequencies(no)	Percentages (%)
<b>History of previous small baby</b>		
Yes	42	15.8
No	223	84.2
<b>Current pregnancy type</b>		
Planned	343	75.1
Unplanned	114	24.9
<b>No of parity</b>		
1	192	42.0
2-4	210	46.0
≥5	55	12.0
<b>No of ANC visit for the last pregnancy</b>		
No ANC	38	8.3
1-3	199	43.5
≥4	218	47.7
<b>Trimester at 1st visit for the last pregnancy</b>		
1 <sup>st</sup>	158	42.9
2 <sup>nd</sup>	126	34.2
3 <sup>rd</sup>	84	22.8
<b>TT vaccine before or during pregnancy</b>		
Yes	374	81.8
No	83	18.2
<b>Iron supplementation for current pregnancy</b>		
Yes	275	60.2
No	182	39.8
<b>dietary counseling during the current pregnancy</b>		
Yes	254	55.6

No	203	44.4
<b>Extra meal during current pregnancy</b>		
Yes	216	47.3
No	241	52.7
<b>History of abortion</b>		
Yes	80	17.5
No	377	82.5
<b>History of still birth</b>		
Yes	46	10.1
No	419	89.9

*Table 2b:* Obstetric and baby characteristics of mother who gave birth at the selected public Hospitals of Addis Ababa, May 2015 (n=457)

Variables	Frequencies(no)	Percentages (%)
<b>APH during the current pregnancy</b>		
Yes	56	12.3
No	401	87.7
<b>Substance use during the current pregnancy</b>		
Yes	25	5.5
No	432	94.5
<b>Alcohol use during the current pregnancy</b>		
Yes	97	21.5
No	360	78.5
<b>Chronic medical illness</b>		
Yes	21	4.6
No	436	95.4

*c) Magnitude of low birth weight*

In this study birth Weight ranged from 1200 to 4500 gram with mean of  $3041 \pm 479.9$  gram. It was found that 8.8 % of the new born were low birth weight.

*d) Factors associated with low birth weight*

Bivariate analysis shows that sex of the new born, type of pregnancy, parity, trimester at which ANC started, number of ANC visit, iron/folic acid supplementation, TT vaccination, extra meal during pregnancy, history of small baby and anti-partum hemorrhage (APH) during the current pregnancy were significantly associated with low birth weight. The finding shows that mothers with; history of previous small baby, parity  $\geq 5$ , who started first ANC at third trimester and mothers with history of APH during current pregnancy were more likely to give birth to low birth weight infant. It was also found that mothers with; planned pregnancy, pregnant of male baby,  $\geq 4$  ANC visit, history of tetanus toxoid vaccination, mothers who supplemented with iron/folic acid and mothers who took additional diet during the current pregnancy were less probable to give birth to low birth weight infant (Table 3). Despite such evidences in bivariate analysis, multiple logistic regressions have shown that only type of pregnancy, trimester at which ANC started, iron/folic acid supplementation and extra meal during pregnancy were significantly associated with LBW.

Accordingly, Mothers who booked first ANC at third trimester were seven times more probable to give birth to LBW infant than those mother who booked first ANC at first trimester (adjusted odds ratio [AOR]= 7.41, 95% confidence interval [CI] :1.15, 47.79). Mothers with planned pregnancy were three times less probable to give birth to LBW infants (AOR=0.30, 95% CI: 0.09, 0.97). Similarly those mothers who took additional diet during the current pregnancy two times (AOR=0.25, 95% CI: 0.06, 0.96) and respondents who supplemented with iron/folic acid three times (AOR=0.30, 95% CI: 0.09, 0.99) less probable to give birth to LBW infant than who did not take additional diet during the current pregnancy and respondents who were not supplemented with iron/folic acid respectively (Table 3).

**Table 3:** Multiple logistic regressions of selected variables in relation to low birth weight among public Hospitals of Addis Ababa, Ethiopia, May 2015(n=457)

Variables		LBW	COR(95% CI)	AOR (95% CI%)
Yes(%)	No(%)			
<b>History of previous small baby</b>				
Yes	33(80.4%)	9(19.6%)	3.36(1.36, 8.32)	3.57(0.75, 17.02)
No	205(91.9%)	18(8.1%)	1	1
<b>Current pregnancy type</b>				
Planned	336(94.6%)	19(5.4%)	0.22(0.11, 0.42)	0.30(0.09, 0.97)*
UnPlanned	81(79.4%)	21(20.6%)	1	1
<b>No of parity</b>				
1	179(93.2%)	13(6.8%)	1	1
2-4	192(96%)	18(4% )	1.27(0.62, 2.71)	1.39(0.09, 22.12)
>5	46(83.6%)	9(16.4%)	2.69(1.08, 6.69)	1.31(0.06, 28.83)
<b>No of ANC visit for the last pregnancy</b>				
No ANC	38(82.6%)	8(17.4%)	1	1
1-3	178(89.4%)	21(10.6%)	0.65(0.24, 1.72)	0.00
>4	202(94.8%)	11(5.2%)	0.27(0.09, 0.79)	0.00
<b>Trimester at 1st visit for the current pregnancy</b>				
1st	151(95.6%)	7(4.4%)	1	1
2nd	114(98.3%)	12(1.7%)	2.27(0.867, 5.95)	5.85(0.96, 35.61)
3rd	73 (86.9%)	11(13.1%)	3.25(1.21, 8.73)	7.41(1.15, 47.79)*
<b>TT vaccine before or during pregnancy</b>				
Yes	345(92.7%)	27(7.3%)	0.43(0.21,0.88)	1.15(0.26, 5.10)
No	72(84.7%)	13(5.3%)	1	1
<b>Iron supplementation for current pregnancy</b>				
Yes	258(93.8%)	17(6.2%)	0.46(0.24, 0.88)	0.30(0.09,0.99)*
No	159(87.4%)	23(12.6%)	1	1
<b>Extra meal during current pregnancy</b>				
Yes	206(95.4%)	10(4.65%)	0.34(0.16,0.72)	0.25(0.06,0.96)*
No	211(87.5%)	30(22.5%)	1	1
<b>APH during the current pregnancy</b>				
Yes	46(82.1%)	10(17.9%)	2.69(1.23, 5.86)	3.11(0.98, 14.8)
<b>Sex of the baby</b>				
Female	230(87.8%)	32(12.2%)	3.252(1.46,7.23)	2.53(0.73,8.85)
Male	187(95.9%)	8(4.1%)	1	1

Note: \* statistically significant

Abbreviations: AOR, adjusted odds ratio; COR, crude odds ratio; CI, confidence interval.

#### IV. DISCUSSION

In the present study the prevalence of LBW is 8.8 %. This is consistent with Ethiopian demographic and health survey 2011(9.1%)[6]. and Axum and Laelay Maichew district (9.9%)[23]. But it is a little bit higher than the study conducted in Addis Ababa Ethiopia (5.6%) [17], Jakarta Indonesia (4. 5%) [9]. This inconsistency may be due to difference in the skills of data collectors, study area and methodology. And it is lower than study finding in Gambia (22.5%) [13], Gonder referral hospital north Ethiopia (17.1%) [18] and Jimma west Ethiopia (11.2%) [20]. This discrepancy between

these findings may be due to various intervention undertaken between these study time.

Likewise this finding is not in line with the finding in Nepal, Abha city Saudi Arabia, Northeast Nigeria and Olkalou District Hospital, Kenya (11.7%, 18.8%, 16.9%, 12.3%) respectively[7,10,26,27]. This discrepancy might be explained by different study area and time gap b/n these studies. The finding from present study is far lower from a community based survey of Kersa, West Ethiopia (28.3 %)[25]. This might be permissible due to urban rural difference.

Timing for first ANC booking was found to have significant association with LBW. Mothers who booked

first ANC in the first three months of gestation have lower risk of LBW as compared to those mothers registered for ANC visit during second and third trimester. This finding suggested that early ANC visit might help to ensure early interventions, thus those mothers at risk of LBW can be identified early enough if quality prenatal care is made available to them. This may have valuable impact on intrauterine fetal development and early identification and management of pregnancy related problems, eliminating or decreasing modifiable risk factors and is time to intervene activities like nutritional education, pregnancy related complications and other adverse outcome of pregnancy. This finding was consistent with various other studies done in different areas[11,20,23].

Similarly, a type of pregnancy was significantly associated with LBW. Mothers who did not plan the current pregnancy were more probable to give birth to LBW baby compare to those mothers who have plan. This might be attributed to the beneficial impact of early ANC booking on pregnancy outcome, either through the treatment of complications or by contributing to the reduction of modifiable maternal risk factors as mother with planned pregnancy envisioned to reduce the risk of LBW and other negative pregnancy outcomes. This finding was in line with the finding from other study[23]. Iron supplementation during pregnancy was also significantly associated with LBW. Women who supplemented with iron were less probable to deliver LBW baby. It is due to the fact that, the growing fetus shares not only iron but also other nutrient from mother for its intrauterine development. This finding was in line with a study done in west Bengal[11].

The current study also showed a significant association between taking additional diet during pregnancy and low birth weight. Respondents who didn't take additional diet during pregnancy were more probable to give birth to LBW baby. It is due to the fact that, healthy and optimal intra uterine fetal growths rely heavily on maternal nutrient status. This finding was consistent with the study on the same theme from Gondar Ethiopia[18].

#### *Strength*

Direct measurement of newborn's weight was done in contrast to history based estimation as it eliminates recall bias.

#### *Limitations*

Since this study is cross-sectional, it may not provide strong evidence on the direct cause and effect relationship between dependent and independent variables. As this study was done at public hospitals found in Addis Ababa those receives referred pregnant mother from periphery health facility, the result may not be generalizable to mothers in Addis Ababa.

## V. CONCLUSION AND RECOMMENDATIONS

The magnitude of low birth weight in this study is substantial (8.8 %). Trimester at first ANC visit, unplanned pregnancy, iron/folic acid supplementation and taking extra meal during pregnancy were supposed to have played imperative role. In a country like Ethiopia where neonatal mortality is foremost issue, investing on strengthening strategies like awareness creation on benefit of early pregnancy identification and ANC booking, birth planning, additional diet for pregnant mother and iron/folic acid supplementation is vital. All stake holders should apply their effort in strengthening the already established strategy on maternal and neonatal health care services.

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#### *Author's contributions*

All authors were responsible for data analysis, interpretation, preparing the manuscript and approved for submission and reach agreement to be responsible in all aspects of the work.

#### *Competing interests*

Authors declare that no financial and non-financial conflicts of interest regard to this work.

## REFERENCES RÉFÉRENCES REFERENCIAS

1. Leonardo R MR long term consequence of low birth weight. 2005 Contract no: 97.
2. United nations children's Fund WHO. Low birth weight: Country regional and global estimate. Newyork: 2004.
3. WHO. International statistical classification of available information. World health disease and related health problems.1992; 10th revision.
4. Marchant T, Willey, B, Clarke S, Kariuki S, et al. Neonatal Mortality Risk Associated with Preterm Birth in East Africa, Adjusted by Weight for Gestational Age: Individual Participant Level Meta-Analysis. *Journalpm*1001292. 2012; 9(8): 1-12.
5. WHO guide line on optimal feeding of lowbirth weight in low and middle income countries. Geneva, World Health Organization 2011.
6. CSA and ICF International the 2011 Ethiopia Health and Demographic Survey, Central Statistical Agency and ICF International, Addis Ababa, Ethiopia & Calverton, Maryland, USA (2012).
7. Singh S. D. 1 SS, S. B. Marahatt. Incidence and risk factors of low birth weight babies born in Dhulikhel Hospital, Nepal. *Journal of institute of Medicine*. 2010; 32(3): 39-42.

8. Louangpradith V, Yoshitoku Y, Harun-OR-R,Junichi S. Factors affecting low birth weightat four central hospitals in Vientiane, Lao Nagoya J Med Sc. 2010; 72(51): 51-57.
9. Yanita P. The relation ship between demographic factors and low birth weight infant.International Jornal of Research in Nursing. 2010; (1) 25-8.
10. Nirmalya M. Jhuma S. Dr. Baijayanti B. Gandhari B. Lina B. Faten M. R. Ismaeil HAM. Prevalence and Determinants of Low Birth Weight in Abha City. KSA Life Sci 2012; 9(4): 2490-5.
11. Baur N, Bandyopadhyay G. Socio-Biological Determinants of Low Birth Weight: A Community based study from rural field practice area of Medical College, Kolkata, West Bengal (India) Journal of Dental and Medical Sciences. 2013; 4(4): 33-9.
12. Michael F. Iddrisu A, Riskatu Y. Maternal Risk Factors for Low Birth Weight in a District Hospital in Ashanti Region of Ghana Research in Obstetrics and Gynecology. 2013; 2(4): 48-34.
13. Abdou J, Johanne S, Siri V. Maternal and obstatrics risk factors for low birth weight and praterm in rular Gambia: hospital based study of1579 deliveries. Open Jornal of Obstetrics and Gynacology, 2011; 1, 94-103.
14. Ramesh. C Prevalence and Determinants of Low Birth Weight in Sirte City of Libya. JK Science. 2013; 15(1): 11-14.
15. E EC OH, O IO, A JC. Singleton Low Birth Weight Babies At A Tertiary Hospital In Enugu, South East Nigeria. The Internet Journal of Gynecology and Obstetrics. 2009; 14(1): 1-4.
16. Fikre E, Aklilu M. Change in birth weight of hospital deliverd neonate in Addis Ababa. Ethiopia Journal of Health Develop 2000:14(2)169-176.
17. Berhanu A, Fikre E, Lakman Y. Birth to pregnancy interval and its effect on perinatal out comes in Addis Ababa Ethiopia. Jornal of health Develop 2000: 14(2): 169-176.
18. Birhan.M, Meseret Z. Nuru M. Incident and correlates of low birth weight at a referral hospital in North West Ethiopia. Pan Africa Medical Journal. 2012; 12(4): 1-4.
19. Kahsay Z, Tadesse A, Nigusie B. Low birth weighand associated factors among new born in Gonder town North West Ethiopia: Institutional based cross-sectional study. Indo Global Journal of Pharmaceutical Sciences. 2014; 4(2): 74-80.
20. Gebremariam A. Factors predisposing to low birth weight in Jimma Hospital, South Western Ethiopia. East African Medical Journal. 2005; 82(11): 554-55.
21. 21.Tema T. Prevalence and determinants of LBW in Jimma zone, Southwest Ethiopia. East African Medical Journal. 2006; 83(7): 366-71.
22. MS K. Determinants of low birth weight: weight neonates. Essence of pediatrics. 3rd edition. Methodological assessment and meta-analysis. Bull World Health Organ. 1987; 65: 663-73.
23. Negassi T, Tesfaye H, Huruy A. Prevalence and factors associated with low birth weight in Axum and LaelayMicheDistricts,NorthEthiopia:A Comparative crosssectional study. International Journal of Nutrition and Food Sciences. 2014; 3(6) 566-566.
24. Wado YD, Afework MF, Hindin MJ Effects of Maternal Pregnancy Intention, Depressive Symptoms and Social Support on Risk of Low Birth Weight: A Prospective Study from Southwestern Ethiopia. 2014 9(5).
25. Assefa N, Berhane Y, Worku. A Wealth Status, Mid Upper Arm Circumference (MUAC) and Antenatal Care (ANC) Are Determinants for Low Birth Weight in Kersa, Ethiopia. 2012 7(6).
26. Idris U, Mohammed B, Bala M. A prospective study of maternal risk factors for low birth weight babies in Maiduguri, North-Eastern Nigeria Nigerian Journal of Basic and Clinical Sciences 2014 11(2).
27. Onesmus M, Elizabeth E, Anselimo M. Factors associated with low birth weight among neonates born at Olkalou District Hospital, Central Region, Kenya Pan African Medical Journal 2015; 20: 108 doi:10.11604/pamj.2015.20.108.4831.
28. Federal Democratic Republic of Ethiopia Central Statistical Agency. Population Projection of Ethiopia for All Regions At Wereda Level from 2014 – 2017: Addis Ababa August, 2013.





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## The Indicators of Quality of Life in Athletes Enrolled in the College of Olympic Reserve

By Ismailov S.I., Usmanhodjaeva A.A., Bazarbaev M.I. & Tulabaev A.K.

*Tashkent Medical Academy*

**Abstract-** This article is devoted to the study of the quality of life of athletes in the conditions of College of Olympic Reserve and their comparative characteristics in some sports. Analysis of life quality in various sports disciplines indicates the prevalence of high values in the most popular sports in the country. Accordingly, the level of physical functioning in relation to others is high, it should be noted that values of emotional and school functioning are to decrease. However, emotional and social functioning is one of the most important integral characteristics in terms of athlete's formation and its effectiveness. A comprehensive study of the status of athletes through quality of life indicators can serve as one of the criteria for assessing the realization of their potential in the process of its ability to lead a healthy, full, creative and active life.

**Keywords:** *quality of life, young athletes, sports medicine, turon.*

**GJMR-K Classification:** NLMC Code: QT 260



*Strictly as per the compliance and regulations of:*



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# The Indicators of Quality of Life in Athletes Enrolled in the College of Olympic Reserve

Ismailov S.I. <sup>α</sup>, Usmankhodjaeva A.A. <sup>σ</sup>, Bazarbaev M.I. <sup>ρ</sup> & Tulabaev A.K. <sup>ω</sup>

**Abstract-** This article is devoted to the study of the quality of life of athletes in the conditions of College of Olympic Reserve and their comparative characteristics in some sports. Analysis of life quality in various sports disciplines indicates the prevalence of high values in the most popular sports in the country. Accordingly, the level of physical functioning in relation to others is high, it should be noted that values of emotional and school functioning are to decrease. However, emotional and social functioning is one of the most important integral characteristics in terms of athlete's formation and its effectiveness. A comprehensive study of the status of athletes through quality of life indicators can serve as one of the criteria for assessing the realization of their potential in the process of its ability to lead a healthy, full, creative and active life.

**Keywords:** *quality of life, young athletes, sports medicine, turon.*

## I. INTRODUCTION

The quality of life (QoL), like the concept of health, is an integral characteristic of the person's physical, psychological, emotional and psychosocial functioning, based on his subjective perception of the external world [6, 10]. The study of QoL in medicine is aimed directly to identify state and degree of patient's satisfaction with conditions and their characteristics. For this purpose, many questionnaires are used. QoL depends on the state of health, communication in the society, psychological and social status, freedom of activity and choice, stress and excessive concern, organized leisure, educational level, access to cultural heritage, social, psychological and professional self-affirmation, psycho type and communication adequacy and relationships [8, 9]. The interest in studying QoL of children and adolescents involved in sports in context of specialized educational institutions, due to the need to assess their potential in the process of implementing a healthy, productive, creative and active life that can serve as a criterion for assessing the degree of their satisfaction. Among the published studies, we found some important studies, which is explored QoL in children, who involved in sports, and it was performed at the children and youth sports schools in Yakutia, among 7 to 13 years old children. There are publications of foreign specialists, where QoL amongst junior athletes and their peers, not engaged to sport professionally, was assessed. In addition, there is a meta-analysis of

publications assessing QoL in athletes, who suffered injuries. In this regard, we have paid attention with high interest in assessing the integral QoL indicators for athletes who attends colleges of Olympic Reserve of the Republic of Uzbekistan [5, 6].

*The purpose* is to study and compare athletes' QoL indicators depending on sport and age in terms of College of Olympic Reserve.

## II. MATERIALS AND METHODS

The definition of QoL was conducted by using Pediatric Quality of Life Inventory - PedsQL 4.0 Generic Core Scale, among 738 athletes aged 13-20 years who lives and studies at the College of Olympic Reserve. The study involved athletes in the sports of Turon (national wrestling), swimming, cycling, weightlifting, judo, boxing, freestyle wrestling. Athletes were divided into two age groups, but there was no gender distribution because of the small number of female students among the students. In addition, athletes who suffered trauma in the near future, who are on treatment and during rehabilitation, and who have chronic diseases those were not included. The athletes filled the questionnaire by themselves under supervision of researcher. Obligatory condition was to separate filling of questionnaires by respondents in order to avoid mutual influence on each other's answers. The Peds QL 4.0 Generic Core Scale questionnaire is an adapted general questionnaire applicable to determine QoL of children and adolescents and, correspondingly, of this contingent of people involved in sports. The following indicators are mainly estimated:

1. Physical functioning (PF) – 8 questions (graded mobility, walking, running, pain syndrome);
2. Emotional functioning (EF) – 5 questions (assessed sleep, anxiety, mood, fear, sadness);
3. Social functioning (SF) – 5 questions (estimated interactions with other children);
4. School life (SL) – 5 questions (assessed functioning in a school team, frequency of absences in connection with illness or the need to visit a doctor).

The number of points varies from 0 to 4 (0 – never, 1 – almost never, 2 – sometimes, 3 – often, 4 – almost always). If more than 50% of questions on the scale are omitted, the total score on this scale is not calculated. In the process of rating scales can be obtained: the total score of the physical component of

*Author α: Farobiy Street, Tashkent Medical Academy, Tashkent, Uzbekistan 100109. e-mail: author.uzb@mail.ru*

the QoL (includes physical functioning), the total score of psychosocial functioning (PsF) (includes emotional scales, social and role functioning) and the total score for all scales of the questionnaire is general (includes physical and emotional scales, social and role functioning). The total number of points after transcoding (translation of raw data into scores of QoL) is calculated on 100-point scale, the higher value of child. The protocol for validating Peds QL Generic Core Scale questionnaire included an assessment of reliability, validity, and sensitivity. Statistical processing of the data was carried out using the ABM SPS Statistics program.

### III. RESULTS

In the process of analysis of the obtained data it should be noted that physical functioning among

adolescents from 13 to 16 years old are mostly high in heavy athletes, the second place swimming, and boxing, then judo, cycling and Turon, the lowest rate recorded in athletes was in free-style wrestling. However, athletes from 17 to 20 years old have equally high values in the sports of boxing and judo, gradually decrease is observed from wrestling, cycling, weightlifting to the Turon. The differences in performance, according to age, total PF is statistically insignificant, probably connected with the experience classes in the same sport, and adaptive capacity in young athletes. Indicators of emotional functioning have relatively low values in the age group of 13-16 years in all sports, the lowest figure in wrestling, with a tendency to increase from Turon, cycling, boxing and swimming to weightlifting.

Table 1

Age	PF		EF		SF		SL		PsF	
	13-16	17-20	13-16	17-20	13-16	17-20	13-16	17-20	13-16	17-20
Freestylewrestling	83,78±11,48	91,67±7,11	68,75±2,1,1	81,11±1,0,92	84,06±1,3,81	93,89±8,32	79,37±1,7,88	84,16±1,1,01	77,4±14,4	86,8±6,67
Boxing	92,46±4,16	96,66±3,23	84,12±9,74	88,33±6,99	92,35±5,18	92±6,49	89,41±5,66	86±12,42	88,63±5,95	88,77±5,99
Judo	91,94±6,44	96,88±4,01	86,97±1,0,36	90,38±6,7	91,45±7,94	95,0±5,94	84,47±1,1,63	93,61±7,63	87,63±8,37	93,15±4,27
Heavy Atl	95,72±4,99	85,21±6,02	89,47±7,59	81,36±1,0,6	91,05±1,4,1	83,81±1,1,21	89,21±1,1,84	78,29±1,1,77	89,91±7,96	81,00±9,36
Velocity	87,98±7,44	86,67±1,0,46	75,77±1,2,53	83,67±1,3,43	88,46±1,4,73	96,00±6,32	81,15±1,2,11	81,83±1,1,87	81,79±1,0,83	87,00±8,6
Swimming	92,19±4,51	80,64±1,0,48	86,25±1,2,77	71,47±1,7,32	87,08±1,2,82	81,49±6,82	88,33±1,1,15	75,88±1,3,61	87,22±9,49	76,15±9,39
Turon	88,87±4,96	83,51±1,1,88	74,53±1,3,57	70,97±2,0,78	78,39±1,0,99	79,03±1,5,93	84,79±1,1,01	73,89±1,5,10	79,24±1,0,11	74,63±1,4,59

PF - physical functioning, SF - social functioning

SL - school life, PsF - psychosocial functioning, EF - emotional functioning

Note: \* - differences with respect to the control group are significant (\*-P <0.05, \*\*\*-P <0.001)

Social functioning reflects the attitude within society, adolescents from 13 to 16 years boxers have the highest, judoists and weight lifters take the same value, with a gradual decrease from the cycling to freestylers. In turn, among older students cycling, judo and wrestling show high values with a gradual decrease in performance of swimmers. The value of school functioning in age from 13 to 16 years have a variation from 79 to 89 points, while freestyle wrestlers are the lowest, in turn, weightlifters and boxers are high. At the age of 17 to 20 years of distinguished wrestlers and boxers, poorly rated athletes in the sport of Turon. Psychosocial functioning is a set of social, emotional and role functioning, in the minor age category has a value from 77 to 89 points, mostly high scores in boxing, judo and weightlifting with a decrease in the value of

free-style wrestling. In turn, the high school students there is a tendency to increase the judoists, boxers and cyclists, then wrestling, weightlifters, swimmers and wrestlers Turon. As mentioned above, the evaluation of QoL in athletes has different meanings depending on the age, even in the same sport. The most significant is difference in the assessment of emotional functioning in freestyle wrestlers, cyclists and swimmers. Reduced emotional background for athletes 13-16 years of age is probably due to changes in their lifestyle, stay in the new conditions, peculiarities of training and competitive process, and a change mentor. With the development of adaptive reactions expressed tendency to increase accordingly. A statistically significant difference in the indicators of school functioning in athletes studied groups in all sports except for cyclists. Psychosocial

functioning tends to difference between swimmers and freestyle wrestlers, while the high school athletes weightlifters, swimmers and athletes of the national kind of wrestling Turon values lower than adolescents, which is also evident in the indicators of physical functioning.

*Table 2:* Total score of indicators depending on the sport

	PF	EF	SF	SL	PsF
Turon	85,8±9,4	72,72±17,2	81,14±15,1	76,36±14,5	76,74±12,6
Swimming	88,75±8,7	80,4±16,3	86,6±10,3	84,2±12,9	83,73±10,0
Cycling	87,28±9,3	80±13,6	92,5±11,8	81,25±12,0	84,58±10,1
Weightlifting	92,7±6,7	85,14±15,4	89,86±12,7	85,83±12,2	86,94±10,2
Judo	93,8±6,2	88,58±9,6	92,75±7,7	87,58±11,1	89,64±7,7
Boxing	94,43±4,3	86,09±8,9	92,18±5,8	87,81±9,5	88,7±6,0
Freestylewrestling	87,95±10,1	75,29±17,4	89,26±12,1	81,91±14,6	82,16±11,7

*Note:* \* - differences with respect to the control group are significant (\*- $P < 0.05$ , \*\*\*- $P < 0.001$ )

According to the data in the table to draw conclusions primarily about the high rates of all types functioning in athletes of such sports as Boxing and judo. It should be assumed that probably has a value of priority of Boxing and judo in the country, the existing experience of employment in the sport before enrolling in College, technical - tactical preparation of athletes and also developed the emotional stability of the athletes of martial artists. Respectively physical functioning have a high score in boxers, on the second place judoists, then weightlifting, swimming, wrestling, Cycling and completes the Turon. The lowest value in the total count observed in athletes is the new direction of martial arts as the Turon. The analysis of the data indicates the need for a more detailed review of all the characteristics of integral indicators full functioning of athletes and the development of further programs to enhance the quality of life.

#### IV. FINDINGS

This study related to cross-sectional transitional epidemiological studies of descriptive nature. The main purpose was expressed in study of the QoL in young athletes who attend to the College of Olympic Reserve by applying standard Pedsq<sup>TM</sup> 4.0 questionnaire for the age group of children and adolescents under 20 years old. In this case, characteristics of six groups of questions that can define the physical, emotional, social, life in school, psychosocial and general functioning of child are characterized. Interest in assessing the quality of life of this contingent among people is related to the conditions of stay in a specialized educational institution, as well as the impact of physical and emotional stress. The obtained results were compared depending on sport and age; gender distribution was not carried out, and any comparison was not performed with such contingent of person who does not engaged in sports professionally. Comparative analysis of results reveals the highest performance indicators for sportsmen in priority sports, such as boxing and judo,

To assess the indicators as a whole, we summarized the values of the QoL by sport. Data are given in Table 2.

linked to other sports. In this study, it is necessary to identify implementation of their lead a healthy, full, creative and active life, which can serve as a criterion for assessing the degree of satisfaction. Indicators of social, emotional and psychosocial functioning are the most significant for athletes in the process of individualization of their preparatory-training process. A comprehensive assessment of the QoL of athletes will allow development of criteria that can serve as a kind of professional standard for QoL parameters among young athletes. In subsequent studies, a more detailed study and comparative analysis of indicators, depending on age, gender and sporting achievements, should be carried out.

#### V. CONCLUSIONS

1. According to the results of this study, indicators of QoL in total values on 100-point scale and the highest was the judoists and boxers. Weightlifters have also advantage compared to freestyle wrestlers, cyclists and swimmers.
2. Lower values are observed in athletes engaged in the national type of struggle Turon.
3. Comparative analysis of indicators in the two age groups tended to vary in sports that may be associated with peculiarities of the stay in a specialized institution, experience of training, change of tutors, influence of physical and emotional stress, as well as its adaptive reserve of a young athlete.
4. Knowledge of optimal values of QoL is necessary to establish pattern between the change in performance when it decrease and identify among them those with low levels in order to develop special measures to improve the quality of life and eliminate conditions of physical and psychological discomfort.

#### *Conflict of Interest*

Authors declare that there is no any comments for conflict of interest

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## REFERENCES RÉFÉRENCES REFERENCIAS

1. Field T, Diego M, Sanders C. Exercise is positively related to adolescents' relationships and academics. *Adolescence*. 2001;36(141):105–110.
2. Hallal PC, Victora CG, Azevedo MR, Wells JC. Adolescent physical activity and health: a systematic review. *Sport Med*. 2006;36(12):1019–1030.
3. Piko BF, Keresztes N. Physical activity, psychosocial health, and life goals among youth. *J Community Health*. 2006;31(2):136–145.
4. Sanders C, Field T, Diego M, Kaplan M. Moderate involvement in sports is related to lower depression levels among adolescents. 2000;35(140):793–797.
5. Steptoe A, Butler N. Sports participation and emotional wellbeing in adolescents. *Lancet*. 1996;347(9018):1789–1792.
6. U. S. Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion; 1996.
7. Fayers P.M., Machin D. Quality of life: assessment, analysis, and interpretation. — New York: Wiley, 2000.
8. Matza L., Swensen A., Flood E. et al. Assessment of health-related quality of life in children: A review of conceptual, methodological, and regulatory issue // *Value in Health*. — 2004. — V. 7. — P. 79-92.
9. Baranov A.A., Albitsky V.Y., Vinyarskaya I.V. Studying the quality of life in pediatrics. M.: Union of Pediatricians of Russia, 2010. 272 p.
10. Novik A.A., Ionova T.I., Kind P. The concept of quality of life research in medicine. - St. Petersburg: Elby, 1999. - P. 140.
11. Kenneth C. Lam, Alison R. Snyder Valier, R. Curtis Bay, Tamara C. Valovich. A Unique Patient Population? Health-Related Quality of Life in Adolescent Athletes Versus General, Healthy Adolescent Individuals // *Journal of Athletic Training* 2013;48(2): p-233–241.



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2. Ethical Guidelines,
3. Submission of Manuscripts,
4. Manuscript's Category,
5. Structure and Format of Manuscript,
6. After Acceptance.

### 1. GENERAL

Before submitting your research paper, one is advised to go through the details as mentioned in following heads. It will be beneficial, while peer reviewer justify your paper for publication.

### Scope

The Global Journals Inc. (US) welcome the submission of original paper, review paper, survey article relevant to the all the streams of Philosophy and knowledge. The Global Journals Inc. (US) is parental platform for Global Journal of Computer Science and Technology, Researches in Engineering, Medical Research, Science Frontier Research, Human Social Science, Management, and Business organization. The choice of specific field can be done otherwise as following in Abstracting and Indexing Page on this Website. As the all Global



Journals Inc. (US) are being abstracted and indexed (in process) by most of the reputed organizations. Topics of only narrow interest will not be accepted unless they have wider potential or consequences.

## 2. ETHICAL GUIDELINES

Authors should follow the ethical guidelines as mentioned below for publication of research paper and research activities.

Papers are accepted on strict understanding that the material in whole or in part has not been, nor is being, considered for publication elsewhere. If the paper once accepted by Global Journals Inc. (US) and Editorial Board, will become the copyright of the Global Journals Inc. (US).

**Authorship: The authors and coauthors should have active contribution to conception design, analysis and interpretation of findings. They should critically review the contents and drafting of the paper. All should approve the final version of the paper before submission**

The Global Journals Inc. (US) follows the definition of authorship set up by the Global Academy of Research and Development. According to the Global Academy of R&D authorship, criteria must be based on:

- 1) Substantial contributions to conception and acquisition of data, analysis and interpretation of the findings.
- 2) Drafting the paper and revising it critically regarding important academic content.
- 3) Final approval of the version of the paper to be published.

All authors should have been credited according to their appropriate contribution in research activity and preparing paper. Contributors who do not match the criteria as authors may be mentioned under Acknowledgement.

Acknowledgements: Contributors to the research other than authors credited should be mentioned under acknowledgement. The specifications of the source of funding for the research if appropriate can be included. Suppliers of resources may be mentioned along with address.

**Appeal of Decision: The Editorial Board's decision on publication of the paper is final and cannot be appealed elsewhere.**

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## 3. SUBMISSION OF MANUSCRIPTS

Manuscripts should be uploaded via this online submission page. The online submission is most efficient method for submission of papers, as it enables rapid distribution of manuscripts and consequently speeds up the review procedure. It also enables authors to know the status of their own manuscripts by emailing us. Complete instructions for submitting a paper is available below.

Manuscript submission is a systematic procedure and little preparation is required beyond having all parts of your manuscript in a given format and a computer with an Internet connection and a Web browser. Full help and instructions are provided on-screen. As an author, you will be prompted for login and manuscript details as Field of Paper and then to upload your manuscript file(s) according to the instructions.



To avoid postal delays, all transaction is preferred by e-mail. A finished manuscript submission is confirmed by e-mail immediately and your paper enters the editorial process with no postal delays. When a conclusion is made about the publication of your paper by our Editorial Board, revisions can be submitted online with the same procedure, with an occasion to view and respond to all comments.

Complete support for both authors and co-author is provided.

#### 4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

#### 5. STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also. Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

**Papers:** These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

- (a) Title should be relevant and commensurate with the theme of the paper.
- (b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.
- (c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.
- (d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.
- (e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.
- (f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;
- (g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.
- (h) Brief Acknowledgements.
- (i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.



The Editorial Board reserves the right to make literary corrections and to make suggestions to improve brevity.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

## Format

*Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.*

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than  $1.4 \times 10^{-3} \text{ m}^3$ , or 4 mm somewhat than  $4 \times 10^{-3} \text{ m}$ . Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

## Structure

All manuscripts submitted to Global Journals Inc. (US), ought to include:

Title: The title page must carry an instructive title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) wherever the work was carried out. The full postal address in addition with the e-mail address of related author must be given. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining and indexing.

*Abstract, used in Original Papers and Reviews:*

### Optimizing Abstract for Search Engines

Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art. A few tips for deciding as strategically as possible about keyword search:



- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

*Acknowledgements: Please make these as concise as possible.*

#### References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

The Editorial Board and Global Journals Inc. (US) recommend that, citation of online-published papers and other material should be done via a DOI (digital object identifier). If an author cites anything, which does not have a DOI, they run the risk of the cited material not being noticeable.

The Editorial Board and Global Journals Inc. (US) recommend the use of a tool such as Reference Manager for reference management and formatting.

#### Tables, Figures and Figure Legends

*Tables: Tables should be few in number, cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g. Table 4, a self-explanatory caption and be on a separate sheet. Vertical lines should not be used.*

*Figures: Figures are supposed to be submitted as separate files. Always take in a citation in the text for each figure using Arabic numbers, e.g. Fig. 4. Artwork must be submitted online in electronic form by e-mailing them.*

#### Preparation of Electronic Figures for Publication

Even though low quality images are sufficient for review purposes, print publication requires high quality images to prevent the final product being blurred or fuzzy. Submit (or e-mail) EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Do not use pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings) in relation to the imitation size. Please give the data for figures in black and white or submit a Color Work Agreement Form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.



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*Figure Legends: Self-explanatory legends of all figures should be incorporated separately under the heading 'Legends to Figures'. In the full-text online edition of the journal, figure legends may possibly be truncated in abbreviated links to the full screen version. Therefore, the first 100 characters of any legend should notify the reader, about the key aspects of the figure.*

## **6. AFTER ACCEPTANCE**

Upon approval of a paper for publication, the manuscript will be forwarded to the dean, who is responsible for the publication of the Global Journals Inc. (US).

### **6.1 Proof Corrections**

The corresponding author will receive an e-mail alert containing a link to a website or will be attached. A working e-mail address must therefore be provided for the related author.

Acrobat Reader will be required in order to read this file. This software can be downloaded

(Free of charge) from the following website:

[www.adobe.com/products/acrobat/readstep2.html](http://www.adobe.com/products/acrobat/readstep2.html). This will facilitate the file to be opened, read on screen, and printed out in order for any corrections to be added. Further instructions will be sent with the proof.

Proofs must be returned to the dean at [dean@globaljournals.org](mailto:dean@globaljournals.org) within three days of receipt.

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### **6.4 Author Material Archive Policy**

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### **6.5 Offprint and Extra Copies**

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Before start writing a good quality Computer Science Research Paper, let us first understand what is Computer Science Research Paper? So, Computer Science Research Paper is the paper which is written by professionals or scientists who are associated to Computer Science and Information Technology, or doing research study in these areas. If you are novel to this field then you can consult about this field from your supervisor or guide.

#### TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

**1. Choosing the topic:** In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

**2. Evaluators are human:** First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

**3. Think Like Evaluators:** If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

**4. Make blueprints of paper:** The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**5. Ask your Guides:** If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

**6. Use of computer is recommended:** As you are doing research in the field of Computer Science, then this point is quite obvious.

**7. Use right software:** Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

**8. Use the Internet for help:** An excellent start for your paper can be by using the Google. It is an excellent search engine, where you can have your doubts resolved. You may also read some answers for the frequent question how to write my research paper or find model research paper. From the internet library you can download books. If you have all required books make important reading selecting and analyzing the specified information. Then put together research paper sketch out.

**9. Use and get big pictures:** Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

**10. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

**11. Revise what you wrote:** When you write anything, always read it, summarize it and then finalize it.



**12. Make all efforts:** Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

**13. Have backups:** When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

**14. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

**15. Use of direct quotes:** When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

**16. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

**17. Never use online paper:** If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

**18. Pick a good study spot:** To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

**19. Know what you know:** Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

**20. Use good quality grammar:** Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

**21. Arrangement of information:** Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

**22. Never start in last minute:** Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**23. Multitasking in research is not good:** Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

**24. Never copy others' work:** Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

**25. Take proper rest and food:** No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

**26. Go for seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.



**27. Refresh your mind after intervals:** Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

**28. Make colleagues:** Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

**29. Think technically:** Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

**30. Think and then print:** When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

**31. Adding unnecessary information:** Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

**32. Never oversimplify everything:** To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

**33. Report concluded results:** Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

**34. After conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

### Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.



Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

**General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

- Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

- Use standard writing style including articles ("a", "the," etc.)
- Keep on paying attention on the research topic of the paper
- Use paragraphs to split each significant point (excluding for the abstract)
- Align the primary line of each section
- Present your points in sound order
- Use present tense to report well accepted
- Use past tense to describe specific results
- Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives
- Shun use of extra pictures - include only those figures essential to presenting results

**Title Page:**

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



## Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript-- must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for brevity. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

## Approach:

- Single section, and succinct
- As an outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an abstract must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

## Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

## Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.





- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

#### **Procedures (Methods and Materials):**

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

#### **Methods:**

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

#### **Approach:**

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

#### **What to keep away from**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

#### **Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently. You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



## Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

### What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

### Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

### Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

### Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

### Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.



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<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
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<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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