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Nosocomial Infection Control

Nurses Knowledge and Practices

} Highlights }

Married Women in Finoteselam

Physicians Dentists in Hospitals

Discovering Thoughts, Inventing Future

VOLUME 18 ISSUE 1 VERSION 1.0



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Yemeni Nurses' Knowledge and Practices of Nosocomial Infection Control Measures at Baseline: An Intervention Study

By Gamil Alrubaiee, Anisah Baharom, Hayati Kadir Shahar, Shaffe Mohd Daud
& Huda Omar Basaleem

University of Putra

Abstract- Background: Nurses play an important role in reducing nosocomial infection. Assessing their knowledge and practices in infection prevention and control measures is the starting point in planning and developing an effective educational need-based intervention.

Aim: To assess nurses' knowledge and practices of infection prevention and control measures at baseline.

Methods: This was part of an intervention study conducted from May 1th to 31 October 2016 in Aza'al Region, Yemen. It was carried out prior to the educational intervention of infection prevention and control among Yemeni nurses.

Results: A total of 540 nurses were recruited. Baseline results showed that most participants (94.6%) had a poor level of knowledge and more than half of them (53.9%) had a poor level of practices. There was a significant association between the degree of previous in-service training in NIs control measures and the nurses' knowledge ($P=0.004$).

Keywords: nurses, knowledge, practices, nosocomial infections, yemen.

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YEMENI NURSES KNOWLEDGE AND PRACTICES OF NOSOCOMIAL INFECTION CONTROL MEASURES AT BASELINE AN INTERVENTION STUDY

Strictly as per the compliance and regulations of:



Yemeni Nurses' Knowledge and Practices of Nosocomial Infection Control Measures at Baseline: An Intervention Study

Gamil Alrubaiee ^α, Anisah Baharom ^ο, Hayati Kadir Shahar ^ρ, Shaffe Mohd Daud ^ω
& Huda Omar Basaleem [¥]

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Discussion: The current study highlighted the level of Yemeni nurses' knowledge and practices in infection prevention and control at baseline. It also identified the factors associated with the Yemeni nurses' knowledge and practices in NIs control and prevention at baseline. Therefore, the study provides useful insights into developing future educational programs on infection control measures in nursing education.

Keywords: nurses, knowledge, practices, nosocomial infections, yemen.

1. INTRODUCTION

Nosocomial infections (NIs) are one of the most common problems faced by healthcare institutions worldwide (Sarani, Balouchi, Masinaeinezhad, & Ebrahimitabs, 2016). Although NIs have a significant impact on both developed and developing countries, its impact in the developing countries constitutes a major challenge due to the lack of resources, training chances and knowledge in such context (Amin & Al Wehedy, 2009; Askarian, Memish, & Khan, 2007). The World Health Organization (WHO) and other related studies defined NIs as an infection

acquired by Patients after 48 hours of their admission to a given hospital or any other health care facility. This infection neither exists nor it is incubated at the admission time. It also includes infection acquired by health care workers at the health facilities and those acquired in hospitals and appears after patient discharge (Ayed, Eqtait, Fashafsheh, & Ali, 2015; Ducel, Fabry, Nicolle, & Organization, 2002; Nejad, Allegranzi, Syed, Ellis, & Pittet, 2011; Organization, 2014).

According to the WHO, at least seven patients from developed countries to ten from developing countries out of each 100 patients admitted to hospitals gain at least one kind of NIs at any given time (WHO, 2014). However, such infections can be avoided or reduced by applying basic infection control measures when providing daily nursing care to patients (Endalafer, Gebre-Selassie, & Kotiso, 2011; Shinde & Mohite, 2014). Although it is the responsibility of all health care workers (HCWs) to apply NIs control measures, nurses who represent the majority and the first-line health care providers are most responsible for this because of their long time contact with patients (Sarani et al., 2016). Furthermore, many previous studies reported the key role that nurses play in transmitting NIs among hospitalized patients while providing nursing care. Therefore, updating knowledge and enhancing practices in infection control measures is a crucial need for nurses (Feng et al., 2013).

Nursing education and an in-service training play an important role in improving nurses' knowledge and practices in infection prevention and control measures. Therefore, it is important to, ensure nurses' compliance with these infection control measures, which subsequently leads to reducing the NIs rate (Fashafsheh, Ayed, Eqtait, & Harazneh, 2015; Yeung, 2007). However, evaluating the existing level of knowledge and practices represents a prerequisite for planning and developing any new educational program in nursing education. This is because such evaluation provides a useful database to guide the development and implementation of future educational programs on infection prevention and control with the aim of reducing NIs (Dramowski, Whitelaw, & Cotton, 2016).

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Although many efforts have been undertaken to assess the level of knowledge and practices among nurses in different countries (Abdulraheem, Amodu, Saka, Bolarinwa, & Uthman, 2012; Alwutaib, Abdulghafour, Alfadhli, Makboul, & El-Shazly, 2012; Shamaa & Talaat, 2010), to the researcher's best of knowledge, so far, no practical attempts in the Yemeni context have been reported. Therefore, this study aimed to evaluate the level of knowledge and practices of infection control measures among Yemeni nurses. It also attempted to identify the factors associated with such knowledge and practices in order to provide guidance for future NIs education interventions among Yemeni nurses.

Providing information on the level of nurses' knowledge and practice at baseline will enable planning and developing a need-based intervention to improve nurses' knowledge and practices in NIs control measures, which in turn, will improve patients' safety and the quality of care provided to them.

II. METHODS

a) Study Design

This study was part of a single blinded community randomized trial study which was conducted for the purpose of evaluating the effectiveness of a developed module in improving Yemeni nurses' knowledge and practices in a nosocomial infection control.

b) Study Setting

The study was conducted in eight public hospitals in the Aza'al Region which is located in the north of Yemen. The study covered a period from May 1th to May 31th 2016.

c) Study Population

Probability proportionate to the size sampling technique was used to select the required nurses from each hospital. All nurses who were working in the public hospitals in the Aza'al Region were invited to participate in this study. A two-sample group proportion formula was used to estimate the sample size for this study. The design effect for cluster randomized trial was also taken into consideration during sample size calculation.

d) Research Instrument

A 45-item self-administered questionnaire was used to assess the nurses' knowledge and practices in infection prevention and control at baseline. The questionnaire was developed by the researcher based on the WHO infection control guidelines (Ducel et al., 2002). It comprises three sections: (1) participants' demographic information (age, gender, level of education, current position and duration of working and course training), (2) Nurses' knowledge which consists of 30 items covering hand hygiene (5 items), personal protective equipment (5 items), and safe injection

practices (4 items), routine hospital cleaning (4 items), safe waste handling and disposal (4 items), reprocessing of patient care equipment (4 items) and safe linen handling (4 items) as well as (3) nurses' practices which consist of 15 items covering precautions to prevent NIs (9 items) and actual actions to prevent NIs (6 items). The questionnaire was pretested before use at another public hospital among nurses with similar characteristics but those nurses were not involved in the study reported in this paper.

The items of the questionnaire which are closed-ended items with "Correct", "Incorrect" and "I don't know" options were used to assess nurses' knowledge, whilst those scenario-based items with "Yes", and "No" and "I don't know" options were used to assess their practices. A 0 score was given for each "incorrect" or "I don't know" response and 1 score was given for each correct response after correction of the reverse statement. Correct answers were calculated to obtain total scores for each section. Based on this calculation, knowledge obtained maximum and minimum scores from 1 to 30, while practices scored between 1 and 15. Bloom's cut off point was also used to determine the knowledge and practice levels. A score of less than 59 % was considered poor and 60 % and above was considered as good (Bloom, 1956).

e) Validity and Reliability

Three experts in infection prevention and control at academic institutions and hospitals were requested to verify the content validity. The experts' comments regarding the instrument layout, format, relevance, accuracy, consistency and scoring system were taken by the researchers into consideration. Based on the results obtained from the pre-test of the questionnaire as previously mentioned, the reliability using alpha Cronbach (α) test was=0.81 for knowledge section and =0.79 for practice section, which is acceptable.

f) Data Collection

This study lasted from May 1th to October 30th 2016. The baseline data were collected at the first month prior to conducting the intervention. A 45-item self-administered questionnaire was used for the purpose of this study. One of the researchers and the coordinators in each hospital distributed the questionnaires to the participants to collect the data. A total of 540 questionnaires were distributed at the baseline phase among nurses working in eight public hospitals in the Aza'al Region in Yemen. However, a total of 540 questionnaires were returned back with a response rate of 100%.

g) Data Analysis

The responses were recorded and analysed using the statistical software (IBMSPSS), version 22.0. Descriptive statistics was used (per cent and number). Statistical significance was reported at a P value of less

than 0.05 level with 95% confidence interval. Logistic regression was conducted to determine the association between the outcomes and the selected variables.

h) Ethics

The ethical approval for this study was obtained from the Ethics Committee for Research involving Human Subjects of University Putra Malaysia (JKEUPM) and the Ministry of Public Health and Population in Yemen. Permission was also obtained from the Ethics Committee of all involved public hospitals. A written consent from all participated nurses was obtained prior to conducting the study.

III. RESULT

a) Response Rate

A total number of 540 questionnaires were distributed and completed at the baseline assessment (T1), with a response rate of 100%. However, 510 questionnaires were received from the immediate post-

intervention (T2) with return rate of 94%. For the follow-up survey (T3), the response rate dropped to 493 participants. Therefore, the return rate was 91% at Time 3.

b) Participants' Demographic Details

The results of the study showed that the participants' age ranged from 22 to 55 years, with a mean age of 28.2. There were 280 (51.9%) males and 260 (48.1%) females. The majority of the nurses (74.8%) had no in-service training courses regarding infection control measures. More than half of them (52.2%) had attended training courses one year and less before participating in the current study. For the experience, while 74.8% of the participating nurses had working experience with patient having NIs, 58.9% of them had working experience as a nurse for five years or more. The participants' demographic information is presented in Table 1.

Table 1: Description of the participants involved in the study

Demographic details	Total n (%)
Age (in years)	
<25	117 (21.7)
25+	423 (78.3)
Gender	
Male	280 (51.9)
Female	260 (48.1)
In-service training courses	
Yes	136 (25.2)
No	404 (74.8)
Date of last training course	
One year or less	71 (52.2)
More than one year	65 (47.8)
Working experience with pt. having NIs	
Yes	404 (74.8)
No	136 (25.2)
Working experience as a nurse	
< 5 yrs.	222 (41.1)
≥ 5 yrs.	318 (58.9)

c) Level of nurses' knowledge of different NIs control measures at baseline

Regarding the level of nurses' knowledge on prevention of person-to-person infection transmission, the study results showed that the majority of the nurses had a poor level of knowledge on hand hygiene, personal protective equipment, and safe injection practices (67.2%, 77.2% and 88.5%, respectively). The level of nurses' knowledge on prevention of infection transmission from hospital environment was relatively good in reprocessing patient care equipment (66.9%) and safe linen handling practices (55.7%). However, the level was poor especially in routine hospital cleaning

(72.4%) and safe hospital waste handling and disposal (90.9%). The overall levels of nurses' knowledge on the different NIs control measures at baseline were (94.6%) poor and (5.4%) good. The detailed results are presented in Table 2.

Table 2: Level of knowledge regarding NIs control measures

Practices	Poor	Good
	(>59% score)	(≤60% score)
Knowledge on Prevention of Person-to-Person Transmission		
HH	363 (67.2)	177 (32.8)
PPE	417 (77.2)	123 (22.8)
Safe injection practices	478 (88.5)	62 (11.5)
Knowledge on Prevention of Hospital Environment Transmission		
Routine hospital cleaning	391 (72.4)	149 (27.6)
Safe hospital waste handling & disposal	491 (90.9)	49 (9.1)
Reprocessing of patient care equipment	179 (33.1)	361 (66.9)
Safe linen handling	239 (44.3)	301 (55.7)
Overall level of knowledge	511 (94.6)	29 (5.4)

d) Level of nurses' practices of different NIs control measures at baseline

Concerning the level of nurses' practices on the different NIs control measures, the current study revealed that the majority (94.6%) of the participating nurses had a poor level of practices on precautions

applied to prevent NIs, whereas above half (59.3%) of them had a poor level of practices on actual actions used to prevent NIs. In general, the overall level of different NIs practices, above half (53.9%) was poor and (46.1%) of them had a good level of practices on different NIs practices (Table 3).

Table 3: Level of practices regarding NIs control measures

Practices	Poor	Good
	(>59% score)	(≤60% score)
Level of Practices Regarding Nis Control Measures		
Precautions to prevent NIs	511 (94.6)	29 (5.4)
Actual action to prevent NIs	320 (59.3)	220 (40.7)
Overall level of practices	291 (53.9)	249 (46.1)

e) Association between previous in-service training and working experience with the level of nurses' knowledge

The results of this study demonstrated that there was a significant association between the degree of previous in-service training and the level of nurses'

knowledge of NIs control measures ($P=0.004$). However, there was no significant association between previous working experience and the level of nurses' knowledge of NIs control measures ($P=0.68$). The detailed results are presented in Table 4.

Table 4: Association between nurses' knowledge and previous in-service courses and previous working experiences

Variables	Level of knowledge at baseline						
	B	Std. Error	Wald test	P	Crude OR	95% CI	
						Lower	Upper
Prior in-service training							
Less than one year	1.00						
One year and more	-1.92	0.66	8.45	0.004	0.15	0.040	0.535
Prior working experiences							
< 5 yrs.	1.00						
≥ 5 yrs.	0.160	0.384	0.175	0.68	0.85	0.55	2.49

f) Association between previous in-service training and working experience with the level of nurses' practices

Regarding the association between previous in-service training and working experience with the level of nurses' practices, the results of this study revealed that there was no significant association between previous

in-service training and the level of nurses' practices of NIs control measures ($P=0.27$). Furthermore, the results indicated that there was no association between the nurses' practices and their previous working experience in the NIs control measures ($P=0.92$). The overall results of the association between the variables are presented in Table 5.

Table 5: Association between nurses' practices and previous in-service courses and previous working experiences

Variables	Level of practice at baseline						
	B	Std. Error	Wald test	P	Crude OR	95% CI	
						Lower	Upper
Prior in-Service Training							
Less than one year	1.00						
One year and more	- 0.36	0.35	1.22	0.27	0.68	0.34	1.35
Prior Working Experiences							
< 5 yrs.	1.00						
≥ 5 yrs.	0.08	0.18	0.21	0.92	0.77	1.53	0.64

IV. DISCUSSION

Nosocomial infection is one of the most common problems and difficulties faced by health institutions in developing and developed countries as well. Protecting patients from acquiring NIs is one of the main professional responsibilities for nurses. Therefore, updating nurses' knowledge and practices in infection control measures would play an important role in reducing such infections among both HCWs and hospitalized patients. For this purpose, the present study was conducted.

Our study revealed that the participating nurses' age ranged from 22 to 55 years with a mean age of 28.2. This result is relatively higher than the mean age of 23.9 ± 3.7 reported by Ahmed, Khamis, and Younis (2012). However, it was slightly less than what was reported in a previous study by Ghezaljah, Abbasnejad, Rafii, and Haghani (2015) which was (32.55 ± 6.23 years), respectively. Furthermore, the results showed that the proportion of males (51.9%) to females (48.1%) were nearly equal. This result contradicts the findings reported by Nour-Eldein and Mohamed (2016) who found that the number of males (17.1%) was lower than that of females (82.9%). Over 74.8% of the participants had working experience with patient having NIs and about (52.2%) of them had attended training course about infection control before one year or less. This result is consistent with the result by Wu, Gardner, and Chang (2009) who found that about 70% had no working experience in caring for patients infected with NIs. This result could be an indicator for high prevalence of NIs and the urgent need for engaging nurses in training courses in infection control measures. Also, the result revealed that above half of the nurses (58.9%) were five-year employees in the hospitals. Such result seems combatable with the result by Maheswari and Muthamilselvi (2014) who found that most of the participants had previous working experience in NIs. The contrast in results might be due to the differences in the policy of in-service training, study settings and the targeted groups of nurses in these studies.

According to our results, nurses' knowledge on prevention of person-to-person infection transmission

involves hand hygiene, personal protective equipment, and safe injection practices.

In this regard, our study revealed that the majority of the nurses had a poor level of knowledge about these various infection control measures (67.2%, 77.2% and 88.5%, respectively). While the level of nurses' knowledge on prevention of infection transmission from hospital environment was relatively good in reprocessing of patient care equipment (66.9%) and safe linen handling practices (55.7%), it was poor in routine hospital cleaning (72.4%) and safe hospital waste handling and disposal (90.9%). The overall level of nurses' knowledge on the different NIs control measures at baseline was poor for (94.6%) and good for (5.4%) of the participants. Such finding was lower than what was found by Abdulraheem et al. (2012) and Isara and Ofili (2010) in Nigeria and by Shamaa and Talaat (2010) in Egypt. The level of knowledge in these studies was (12.9%, 37.7% & 10%), respectively. The inconsistency in the findings in these studies might be due to the inadequate training and education provided to nurses during their study or during their work in the hospitals. In relation to this issue, Eskander, Morsy, and Elfeky (2013) stated that nurses who received in-service education achieved a high knowledge scores. The result of this study indicates the urgent need to implement an in-service training course in order to improve nurses' knowledge on infection prevention and control.

Regarding the level of nurses' practices on infection control measures, the current study revealed that the majority (94.6%) of the nurses had a poor level of practices concerning precautions to prevent NIs, whereas above half of them had a poor level of practices on actual actions used to prevent NIs. In general, the overall level of practices among Yemeni nurses was poor for 53.9% and good for 46.1% of the participants in the different NIs control measures. This result was much lower than what was found by Fashafsheh et al. (2015) and Eskander et al. (2013) which indicated that the level of good practice was more than (91.14% & 75%), respectively. However, the finding was relatively close to what was found in other studies (Johnson, Asuzu, & Adebiyi, 2013; Taneja et al., 2008; Teshager, Engeda, & Worku, 2015) which reported that

the good level of knowledge was 48.7%, 55.3% and 57.5%, respectively. Such contradictory findings could be due to the differences in the participating nurses' knowledge about infection prevention and control. It might be also due to the nurses' attitudes towards using infection prevention and control methods in these studies. Furthermore, although almost half (46.1%) of the Yemeni nurses had a good level of practices of infection prevention and control, only 5.4% of them had a good level of knowledge regarding infection prevention and control. This particular result demonstrates the existing gap between theory and practice, which indicates the necessity for linking between theoretical and practical aspects in nursing curriculum addressing infection prevention and control. Moreover, the result could be a further indication of the need for implementing an education program to improve the Yemeni nurses' knowledge and their practices of infection prevention and control.

The second aim of the current study was to determine the factors associated with the Yemeni nurses' knowledge and practices in NIs control measures. In this regard, the result revealed that there was a significant association between the degree of previous in-service training and the level of nurses' knowledge of NIs control measures ($P=0.004$). However, there was no significant association between previous working experience and the level of nurses' knowledge about NIs control measures ($P=0.68$). This result is in line with the result of a study by Gizaw, Alemu, and Kibret (2015) in relation to the previous in-service training, but it is in disagreement with the same study regarding the association between previous working experience and the level of nurses' knowledge of NIs control measures. Moreover, the result of this study was incompatible with what was reported by Fashafsheh et al. (2015) and Ally Tatu (2012) as those researchers found no statistically significant association between knowledge about infection control and previous training courses of the participants. The discrepancy could be due to the differences in the methods and settings of the studies as well as the type of sampled health facilities.

Concerning the association between previous in-service training, working experience and the level of nurses' practices, the results of this study revealed that there was no significant association between the level of nurses' practices of NIs control measures and such variables ($P=0.27$ & $P=0.92$), respectively. This is inconsistent with the result by Gizaw et al. (2015) who found that HCWs with previous experience and infection related training were significantly associated with good practices. However, it is consistent with the findings by Fashafsheh et al. (2015) and (Ally Tatu (2012)) who reported that no statistically significant association was found between the level of nurses' practice and the previous in-service training of infection control

measures. Such contrast in the findings might be attributed to the different policies of in-service training, study settings and targeted groups.

Based on the study findings, it could be concluded that the majority of the Yemeni nurses had a poor level of knowledge but almost half of them had a good level of practices about NIs prevention and control. Therefore, it is necessary to implement an in-service training course in infection prevention and control among Yemeni nurses in order to improve their knowledge and practices of infection prevention and control. Health institutes are recommended to consider the link between theoretical and practical aspects in planning and developing the curriculum and programs in healthcare education in general and, particularly in nursing education.

V. LIMITATIONS

The current study has several limitations, which should be considered in future research. The study was exclusive to public hospitals, and it focused only on nurses. Therefore, the findings might not provide adequate representation of all hospitals and health care providers. Furthermore, this study was exclusive to nurses in one region in the north of the Republic of Yemen. So, the findings of the present study can be only generalized to populations which share the same characteristics

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Declaration of conflicting interests

There are no potential conflicts of interest with respect to the study, authorship, and/or publication of this manuscript.

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REFERENCES RÉFÉRENCES REFERENCIAS

1. Abdulraheem, I., Amodu, M., Saka, M., Bolarinwa, O., & Uthman, M. (2012). Knowledge, awareness and compliance with standard precautions among health workers in north eastern Nigeria. *J Community Med Health Edu*, 2 (3), 1-5.
2. Ahmed, E., Khamis, M., & Younis, E. (2012). Effect of a developed educational booklet about standard infection control precautions on nurses' knowledge and practices at woman's health center-assiut

- university hospital, Egypt. *The Medical Journal of Cairo University*, 80 (2).
3. Ally Tatu, S. (2012). Knowledge and practice of intensive care nurses on prevention of ventilator associated pneumonia at Muhimbili national hospital. *Dar es Salaam, Tanzania: Muhimbili University of Health and Allied Sciences*.
4. Alwutaib, A., Abdulghafour, Y., Alfadhli, A., Makboul, G., & El-Shazly, M. (2012). Knowledge and attitude of the physicians and nurses regarding blood borne infections in primary health care, Kuwait. *Greener Journal of Medical Sciences*, 2 (4), 107-114.
5. Amin, T., & Al Wehedy, A. (2009). Healthcare providers' knowledge of standard precautions at the primary healthcare level in Saudi Arabia. *Healthcare Infection*, 14 (2), 65-72.
6. Askarian, M., Memish, Z. A., & Khan, A. A. (2007). Knowledge, practice, and attitude among Iranian nurses, midwives, and students regarding standard isolation precautions. *Infection Control & Hospital Epidemiology*, 28 (2), 241-244.
7. Ayed, A., Eqtait, M., Fashafsheh, I., & Ali, G. (2015). Knowledge & Compliance of Nursing Staff towards Standard Precautions in the Palestinian Hospitals. *Advances in Life Science and Technology*, 36, 21-30.
8. Bloom, B. S. (1956). *Taxonomy of educational objectives. Vol. 1: Cognitive domain*. New York: Longman.
9. Dramowski, A., Whitelaw, A., & Cotton, M. F. (2016). Healthcare-associated infections in children: knowledge, attitudes and practice of paediatric healthcare providers at Tygerberg Hospital, Cape Town. *Paediatrics and international child health*, 36 (3), 225-231.
10. Duce, G., Fabry, J., Nicolle, L., & Organization, W. H. (2002). *Prevention of hospital-acquired infections : a practical guide* (2nd edition ed.). Geneva: World Health Organization.
11. Endalafer, N., Gebre-Selassie, S., & Kotiso, B. (2011). Nosocomial bacterial infections in a tertiary hospital in Ethiopia. *Journal of Infection Prevention*, 12 (1), 38-43.
12. Eskander, H. G., Morsy, W. Y. M., & Elfeky, H. A. A. (2013). Intensive Care Nurses' Knowledge & Practices regarding Infection Control Standard Precautions at a Selected Egyptian Cancer Hospital. *Journal of Education and Practice*, 4 (19), 160-174.
13. Fashafsheh, I., Ayed, A., Eqtait, F., & Harazneh, L. (2015). Knowledge and Practice of Nursing Staff towards Infection Control Measures in the Palestinian Hospitals. *Journal of Education and Practice*, 6 (4), 79-90.
14. Feng, J. Y., Chang, Y. T., Chang, H. Y., Erdley, W. S., Lin, C. H., & Chang, Y. J. (2013). Systematic Review of Effectiveness of Situated E-Learning on Medical and Nursing Education. *World views on Evidence-Based Nursing*, 10 (3), 174-183.
15. Ghezalje, T. N., Abbasnejad, Z., Rafii, F., & Haghani, H. (2015). Effect of a multimodal training program and traditional lecture method on nurses' hand hygiene knowledge, belief, and practice: A brief report. *American journal of infection control*, 43 (7), 762-764.
16. Gizaw, G. D., Alemu, Z. A., & Kibret, K. T. (2015). Assessment of knowledge and practice of health workers towards tuberculosis infection control and associated factors in public health facilities of Addis Ababa, Ethiopia: A cross-sectional study. *Archives of Public Health*, 73 (1), 15.
17. Isara, A., & Ofili, A. (2010). Knowledge and practice of standard precautions among health care workers in the Federal Medical Centre, Asaba, Delta State, Nigeria. *The Nigerian postgraduate medical journal*, 17 (3), 204-209.
18. Johnson, O., Asuzu, M., & Adebisi, A. (2013). Knowledge and practice of universal precautions among professionals in public and private health facilities in Uyo, Southern Nigeria-a comparative study. *Ibom Med*, 5 (1), 9-19.
19. Maheswari, S., & Muthamilselvi, G. (2014). Assess the Effectiveness of Structured Teaching Programme on Universal Precaution among Class IV Employees Working at Aarupadai Veedu Medical College and Hospital, Puducherry, India. *American Journal of Nursing Research*, 2 (2), 26-30.
20. Nejad, S. B., Allegranzi, B., Syed, S. B., Ellis, B., & Pittet, D. (2011). Health-care-associated infection in Africa: a systematic review. *Bulletin of the World Health Organization*, 89 (10), 757-765.
21. Nour-Eldein, H., & Mohamed, R. A. (2016). Effect of Education Intervention on Prevention of Blood borne Infections for Health Care Workers in Family Medicine Centers, Suez Canal University in Ismailia City, Egypt. *Middle East Journal of Family Medicine*, 7 (10).
22. Organization, W. H. (2014). Health care-associated infections fact sheet. <http://tinyurl.com/d2qwn9m> (accessed 13 December 2016).
23. Sarani, H., Balouchi, A., Masinaeinezhad, N., & Ebrahimitabs, E. (2016). Knowledge, attitude and practice of nurses about standard precautions for hospital-acquired infection in teaching hospitals affiliated to Zabol University of Medical Sciences (2014). *Global journal of health science*, 8 (3), 193.
24. Shamaa, E., & Talaat, E. (2010). DEVELOPING A CONTROL ACTION PLAN FOR INFECTION PREVENTION AT THE ENDOSCOPY UNIT. *International Journal of Academic Research*, 2 (4), 218-227.
25. Shinde, M. B., & Mohite, V. R. (2014). A study to assess knowledge, attitude and practices of five moments of hand hygiene among nursing staff and

students at a tertiary care hospital at Karad. *International Journal of Science and Research (IJSR)*, 3 (2), 311-321.

26. Taneja, J., BibhaBati, M., Aradhana, B., Poonam, L., Vinita, D., & Archana, T. (2008). Evaluation of knowledge and practice amongst nursing staff toward infection control measures in a tertiary care hospital in India. *The Canadian journal of infection control: the official journal of the Community & Hospital Infection Control Association-Canada= Revue canadienne de prevention des infections/ Association pour la prevention des infections a l'hopita.* 24 (2), 104-107.
27. Teshager, F. A., Engeda, E. H., & Worku, W. Z. (2015). Knowledge, practice, and associated factors towards prevention of surgical site infection among nurses working in Amhara regional state referral hospitals, Northwest Ethiopia. *Surgery research and practice*, 2015.
28. WHO. (2014). Health care-associated infections fact sheet. ND <http://tinyurl.com/d2qwn9m> (accessed 13 December 2016).
29. Wu, C. J., Gardner, G., & Chang, A. M. (2009). Nursing students' knowledge and practice of infection control precautions: an educational intervention. *Journal of advanced nursing*, 65 (10), 2142-2149.
30. Yeung, S.-c. (2007). *The effectiveness of educational programs to improve the knowledge and compliance of healthcare workers towards standard precautions*. (PhD), The University of Hong Kong, Hong Kong.



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Knowledge Sharing Behavior of Physicians (Dentists) in Hospitals

By J. Antonette Asumptha, M. Punniyamoorthy & Dr. Roshan Rayen

National Institute of Technology

Abstract- Now a days, there has been much interest for knowledge sharing within professional groups, like physicians in hospital. Knowledge sharing would be alarming if knowledge sharing is not done in hospitals were we deal with human lives. This study examines the factors affecting physician's knowledge sharing behavior within a hospital department by existing theories, the theory of reasoned action (TRA) and the theory of planned behavior (TPB). Here we have a slight differentiation, we compare TPB model to a model where Attitude is further sub divided depending upon age, gender, departments and hospital ownership status. (Ömer Gider & Saffet Ocak & Mehmet Top) Subjective Norms are subdivided among Peers, Top Management, Subordinates and Clients and PBC depending upon Perceived Ease of use and Perceived usefulness. Technology Acceptance Model (Davis et al, 1989) & will power eg: You must genuinely want to change your behavior and willpower is necessary to do that.

Keywords: *knowledge sharing, physicians, types of knowledge, theory of planned model.*

GJMR-K Classification: *NLMC Code: WU 21*



Strictly as per the compliance and regulations of:



Knowledge Sharing Behavior of Physicians (Dentists) in Hospitals

J. Antonette Asumptha ^α, M. Punniyamoorthy ^σ & Dr. Roshan Rayen ^ρ

Abstract- Now a days, there has been much interest for knowledge sharing within professional groups, like physicians in hospital. Knowledge sharing would be alarming if knowledge sharing is not done in hospitals where we deal with human lives. This study examines the factors affecting physician's knowledge sharing behavior within a hospital department by existing theories, the theory of reasoned action (TRA) and the theory of planned behavior (TPB). Here we have a slight differentiation, we compare TPB model to a model where Attitude is further sub divided depending upon age, gender, departments and hospital ownership status. (Ömer Gider & Saffet Ocak & Mehmet Top) Subjective Norms are subdivided among Peers, Top Management, Subordinates and Clients and PBC depending upon Perceived Ease of use and Perceived usefulness. Technology Acceptance Model (Davis et al, 1989) & will power eg: You must genuinely want to change your behavior and willpower is necessary to do that.

Keywords: knowledge sharing, physicians, types of knowledge, theory of planned model.

I. REVIEW OF LITERATURE



Sharing knowledge of physicians within hospitals can realize potential gains and is critical to survive and prosper in competitive environments (O'Dell & Grayson, 1998). Physicians are knowledge-intensive and principal professional group in hospitals. Their theoretical and practical knowledge is vital to the care of patients, and the quality of specialty-based clinical practices is a major determinant for patients' use of medical services. Knowledge sharing in this sense becomes all the more important for physicians in tertiary hospitals, because they are required to be research-oriented, creative in medical care, and ready to take new medical knowledge opportunities that can be acquired through various organizational learning mechanisms (OLMs) (Lipshitz & Popper, 2000). The ultimate objective of physicians' knowledge sharing is to elevate the quality and efficiency of care in hospitals. We consider Rayen Dental Care Centre. (RDCC) as the platform for

the research study. Dentistry especially pediatric is talk of the season now.

II. INTRODUCTION

a) About Rayen Dental Care Centre (RDCC)

"We speak from our heart and not from our tongue when we explain the problem to the patient because ultimately truth prevails in the long run. We work on the above said principles and all our patients work are preferably appointment based.

Rayen's Dental centre located in the central zone (Heart) of Chennai is well known for its hygienic, outstanding, exceptional quality dental practice providing the latest updated scientific data pertaining to all specialities in dentistry. Apart from providing health service we are ignited with a passionate heart to handle our clients with utmost kindness. We provide a comfortable environment with subtle differences in every aspect of dental practice to provide quality care and that earmarks our difference from others".

b) History of Rayen Dental Care Centre

Rayen's dental centre which has been in health care services since 1964 in tuiticorin and has been doing exceptional eye care services to the people in the southern border of tamilnadu. It has extended it's dental care services in chennai for the past five years. This practice strives and thrives with the sole aim of providing quality and concrete solutions to clients based on their individual needs. It has an enormous referral based practice because of the utmost satisfaction provided to the patient (Roshan Rayen, 2016).

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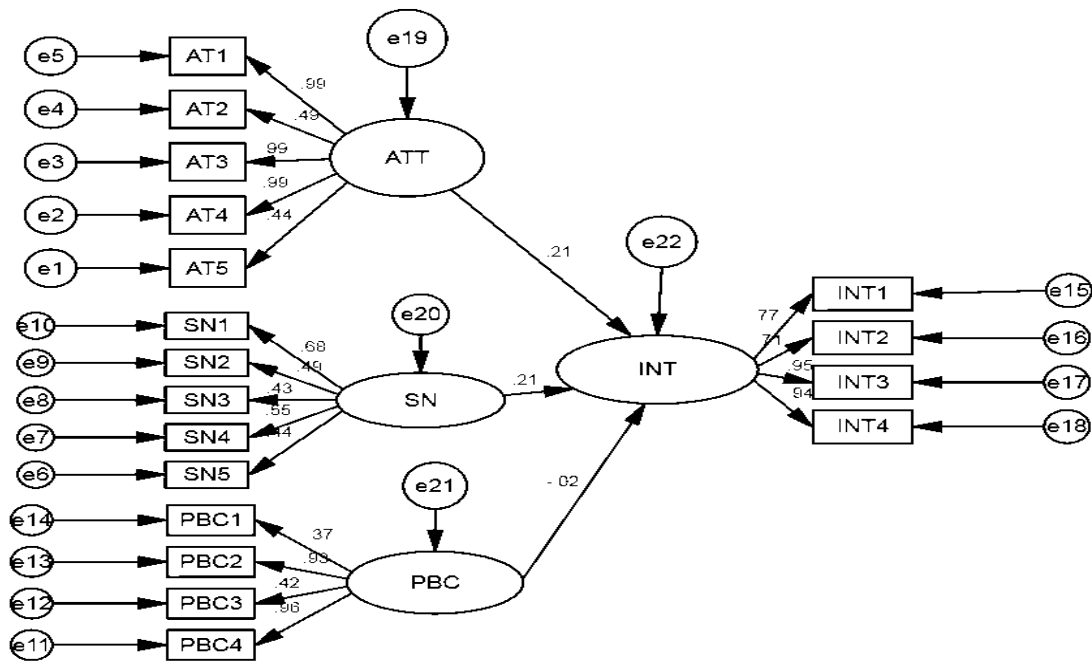


Figure 1: TPB Model

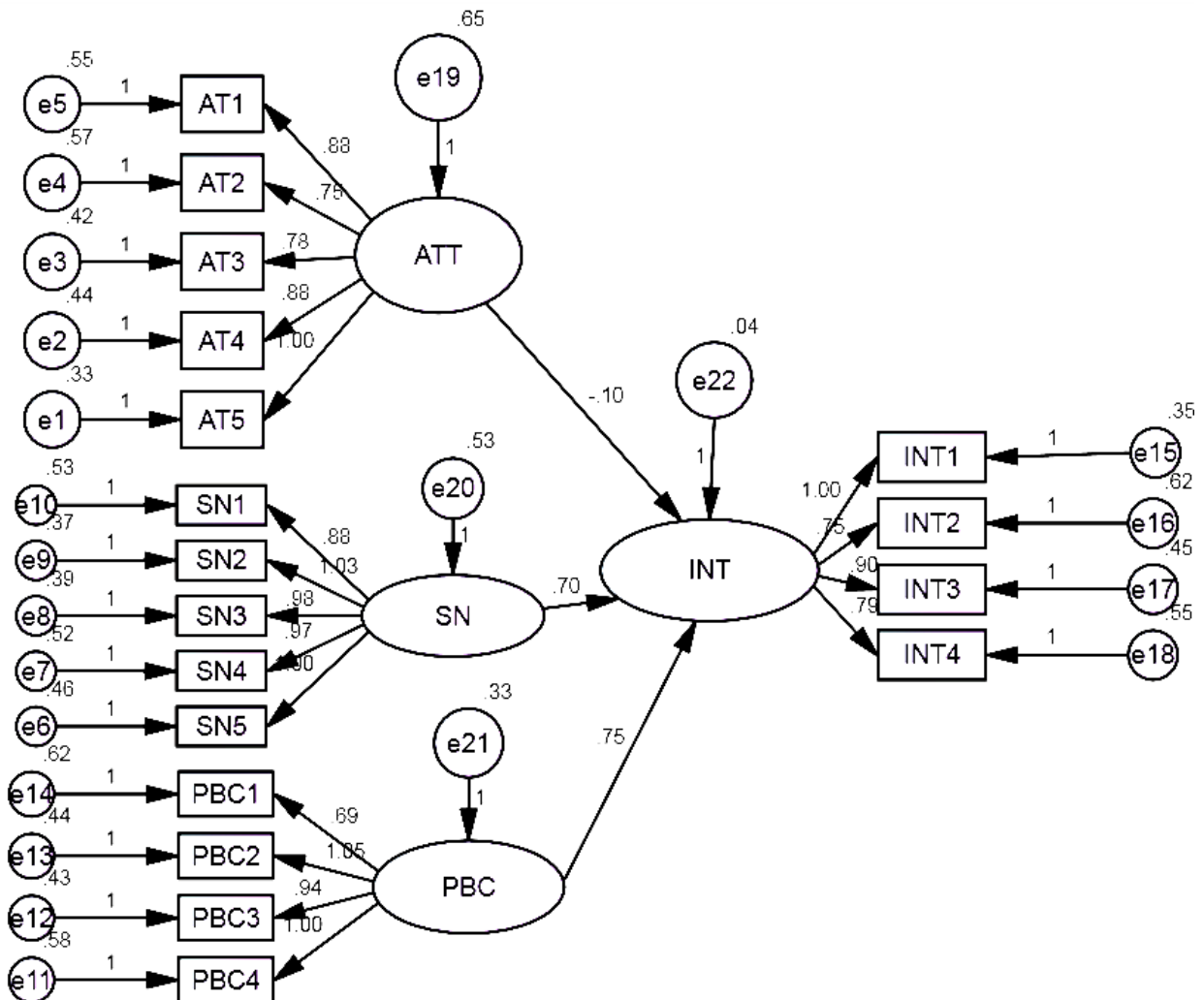


Figure 2

Here we have taken the social responsibility compare with both before and after the survey factor to be present hence there is no bias as we (i.e. awareness).

Table 1: Loadings of Before and After the Survey is Conducted

	Before	After
AT1	99	88
AT2	49	75
AT3	99	78
AT4	99	88
AT5	44	1
SN1	68	88
SN2	49	1.03
SN3	43	98
SN4	55	97
SN5	44	60
PBC1	37	69
PBC2	93	1.05
PBC3	42	94
PBC4	96	1
INT1	77	1
INT2	71	75
INT3	95	90
INT4	94	79

H1: The after survey (awareness) is higher.

H2: The before survey (awareness) is higher.

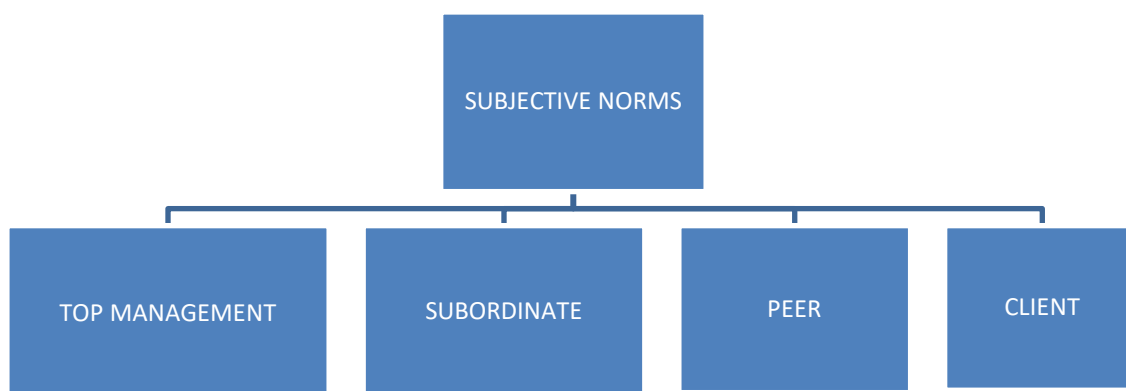
Here in this study we use theory of planned behaviour of Ajzen, further to which we have applied the concept of Human resources as Subjective Norms can be further classified as:

Top Management

Subordinate

Peer

Client



III. MODEL FIT SUMMARY

Table 1: CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	57	1142.399	132	.000	8.655

Table 2: Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta 2	TLI rho 2	CFI
Default model	.859	.818	.874	.836	.873

Table 3: Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.772	.663	.674

Table 4: NCP

Model	NCP	LO 90	HI 90
Default model	1010.399	906.154	1122.091

Table 5: FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.147	1.899	1.703	2.109

Table 6: RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.120	.114	.126	.000

Hence the model is fit for Ajzen's Theory of Planned Behaviour concept (Pilot Study). This is done with the help of Amos.

The model fits data using fit indices.



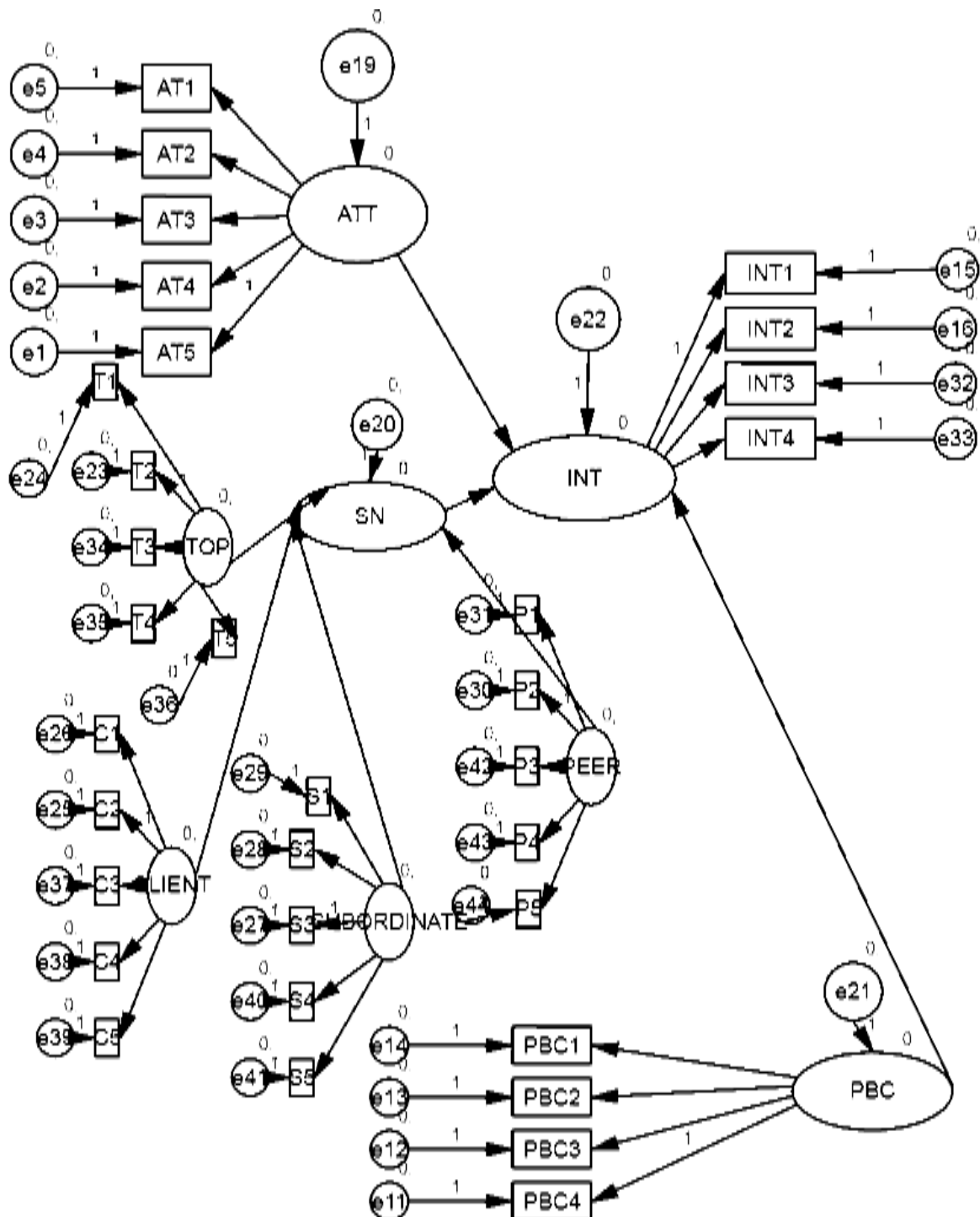


Figure 3: Modified Model

Proposed Model: Will be focused in further study.

IV. SAMPLE AND DATA COLLECTION

A total of 500 questionnaires were administered out of which 400 was answered.

The questionnaires had a cover letter briefing about the aim of this study. The same were administered both before and after the survey-considered as awareness created.

V. MEASUREMENT DEVELOPMENT

The measures used in the research model were mainly adopted from some of the precedent related studies with minor statement changes, adapting to the college faculty knowledge sharing context. In order to increase the accuracy of measurement, a multi-item method was used and each item was based on a five point Likert scale. Such as, the items were measured on a 5-point Likert scale; ranging from

1 = Strongly Disagree,

2 = Disagree,

3 = Neither Agree nor Disagree

4 = Agree and

5 = Strongly Agree.

Table 1: One-Sample Test-T

Test Value = 0						
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AT1	72.852	399	.000	3.898	3.79	4.00
AT2	79.359	399	.000	4.100	4.00	4.20
AT3	70.286	399	.000	3.992	3.88	4.10
AT4	64.473	399	.000	3.900	3.78	4.02
AT5	39.608	399	.000	2.760	2.62	2.90
S1	44.594	399	.000	3.388	3.24	3.54
S2	39.104	399	.000	2.775	2.64	2.91
S3	42.788	399	.000	3.110	2.97	3.25
S4	91.292	399	.000	3.712	3.63	3.79
S5	102.873	399	.000	3.778	3.71	3.85
T1	53.374	399	.000	3.185	3.07	3.30
T2	58.575	399	.000	3.780	3.65	3.91
T3	64.428	399	.000	3.545	3.44	3.65
T4	55.503	399	.000	3.115	3.00	3.23
T5	124.078	399	.000	4.625	4.55	4.70
C1	63.318	399	.000	3.855	3.74	3.97
C2	57.274	399	.000	3.708	3.58	3.83
C3	30.557	399	.000	1.850	1.73	1.97
C4	44.951	399	.000	2.028	1.94	2.12
C5	91.292	399	.000	3.712	3.63	3.79
P1	52.667	399	.000	3.172	3.05	3.29
P2	52.320	399	.000	3.175	3.06	3.29
P3	94.360	399	.000	3.920	3.84	4.00
P4	92.636	399	.000	3.885	3.80	3.97
P5	91.211	399	.000	3.832	3.75	3.92
PBC1	51.186	399	.000	3.172	3.05	3.29
PBC2	41.646	399	.000	2.668	2.54	2.79
PBC3	96.514	399	.000	4.202	4.12	4.29
PBC4	95.847	399	.000	4.205	4.12	4.29
INT1	68.371	399	.000	3.472	3.37	3.57
INT2	71.904	399	.000	3.480	3.38	3.58
INT3	63.318	399	.000	3.855	3.74	3.97
INT4	57.274	399	.000	3.708	3.58	3.83

Table 2: Attitude
Tavg

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	80	20.0	20.0	20.0
	1.00	5	1.3	1.3	21.3
	2.00	27	6.8	6.8	28.0
	3.00	97	24.3	24.3	52.3
	4.00	140	35.0	35.0	87.3
	5.00	51	12.8	12.8	100.0
	Total	400	100.0	100.0	

The maximum percent weightage falls on 3rd question and minimum percent is in the first question.

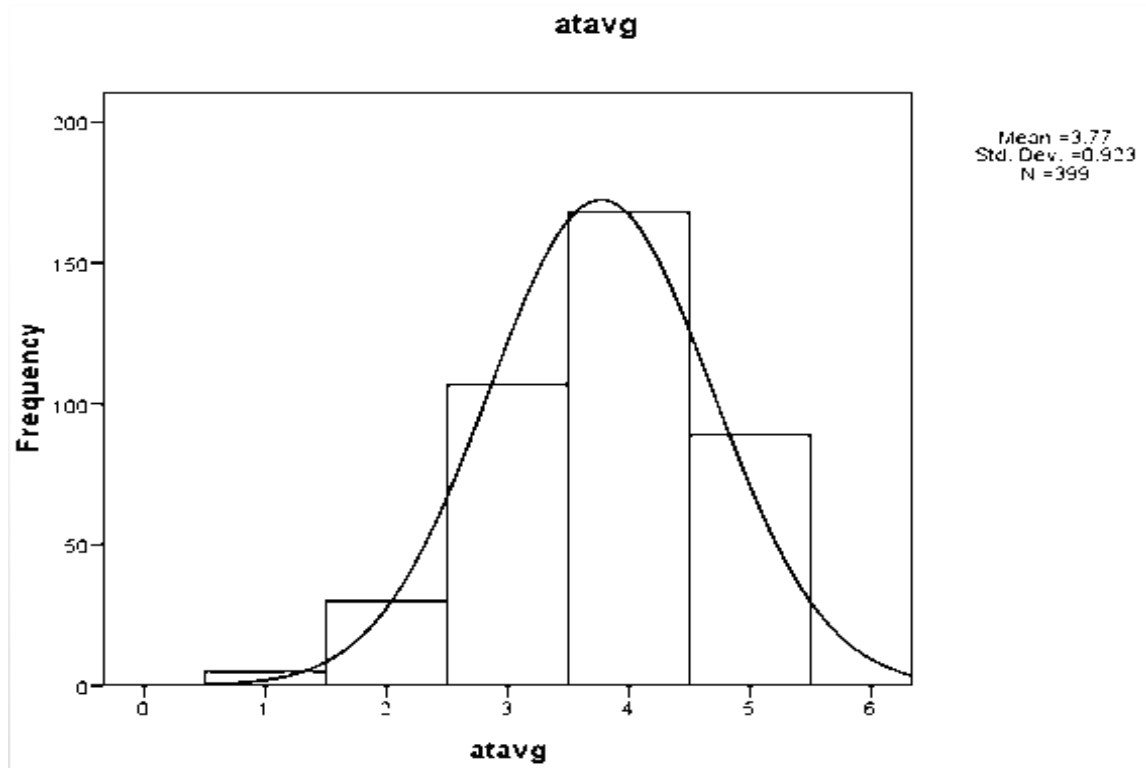


Figure 4: Attitude

a) Attitude towards knowledge sharing is good and valuable

Table 3: Subordinate
Savg

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.2	.2	.2
	2	80	20.0	20.0	20.2
	3	250	62.5	62.5	82.8
	4	64	16.0	16.0	98.8
	5	5	1.2	1.2	100.0
	Total	400	100.0	100.0	

The maximum percent weightage falls on 3rd question and minimum percent is in the first question.

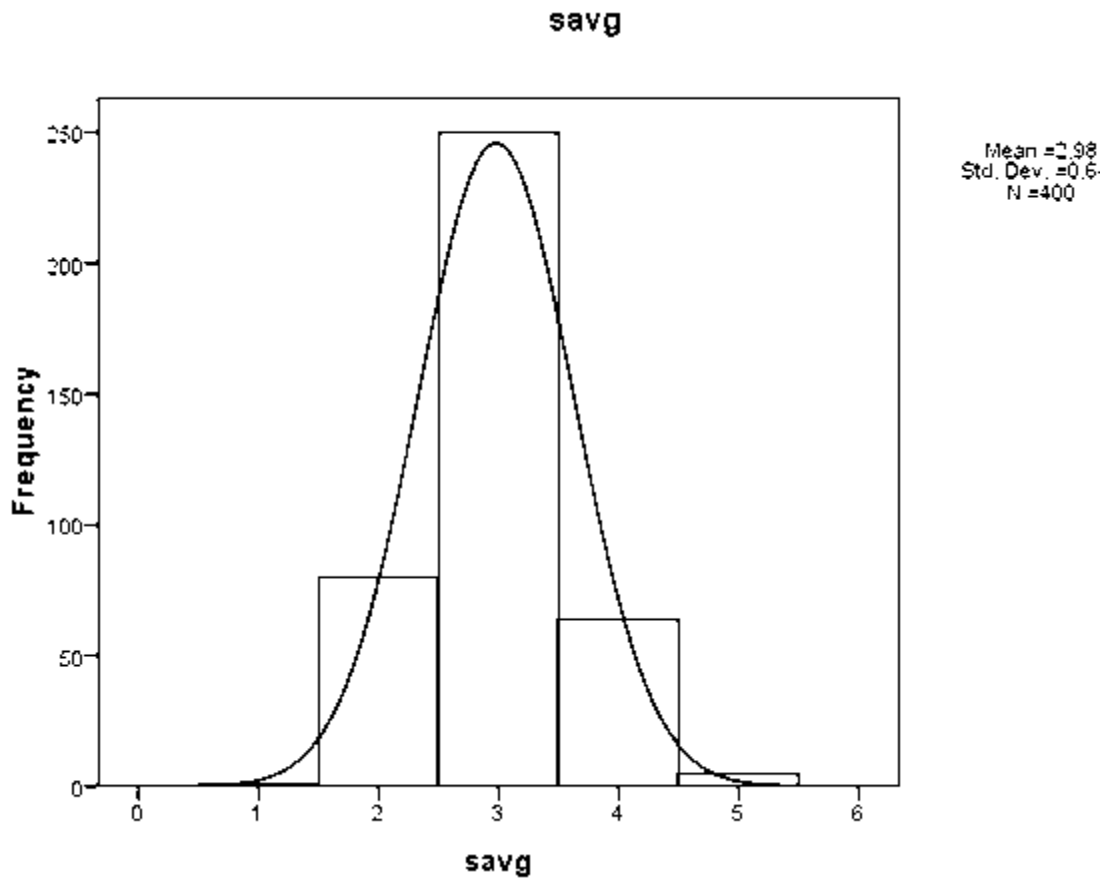


Figure 5: Subordinate

Table 4: Top Mgt

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	80	20.0	20.0	20.0
	1.40	1	.3	.3	20.3
	1.60	1	.3	.3	20.5
	1.80	11	2.8	2.8	23.3
	2.00	6	1.5	1.5	24.8
	2.20	19	4.8	4.8	29.5
	2.40	26	6.5	6.5	36.0
	2.60	28	7.0	7.0	43.0
	2.80	29	7.2	7.2	50.2
	3.00	46	11.5	11.5	61.8
	3.20	39	9.8	9.8	71.5
	3.40	59	14.8	14.8	86.3
	3.60	13	3.3	3.3	89.5
	3.80	11	2.8	2.8	92.3
	4.00	10	2.5	2.5	94.8
	4.20	11	2.8	2.8	97.5
	4.40	5	1.3	1.3	98.8
	4.60	3	.8	.8	99.5
	4.80	2	.5	.5	100.0
	Total	400	100.0	100.0	

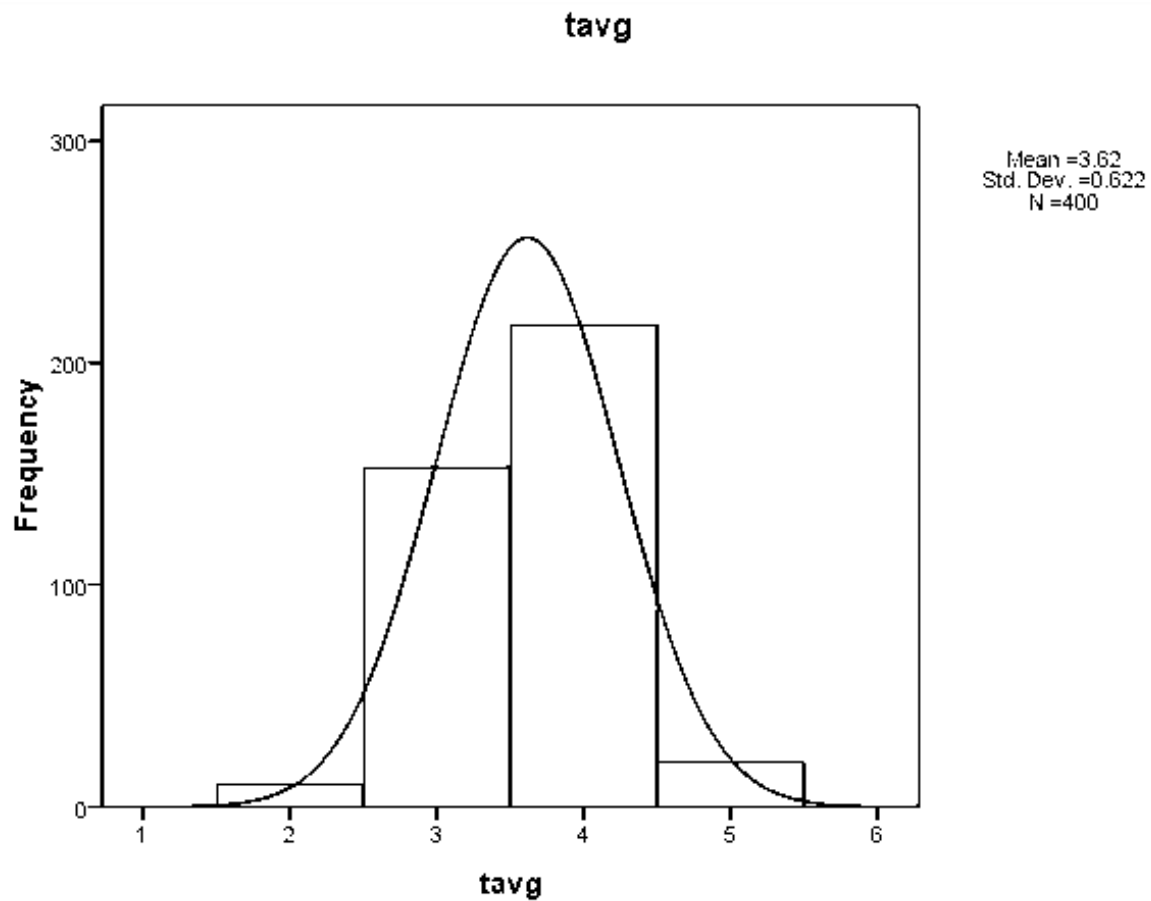


Figure 6: Top Management

The average shows that the 3rd and 4th i.e. 3.5 element has more frequency which means that faculty are ready to share knowledge in the Top Management.

The maximum percent weightage falls on 3rd question and minimum percent is in the first question.

Table 5: Client

Cavg

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	80	20.0	20.0	20.0
	2.00	1	.3	.3	20.3
	2.20	6	1.5	1.5	21.8
	2.40	4	1.0	1.0	22.8
	2.60	16	4.0	4.0	26.8
	2.80	14	3.5	3.5	30.3
	3.00	21	5.3	5.3	35.5
	3.20	42	10.5	10.5	46.0
	3.40	33	8.3	8.3	54.3
	3.60	42	10.5	10.5	64.8
	3.80	35	8.8	8.8	73.5
	4.00	41	10.3	10.3	83.8
	4.20	32	8.0	8.0	91.8
	4.40	22	5.5	5.5	97.3
	4.60	6	1.5	1.5	98.8
	4.80	3	.8	.8	99.5
	5.00	2	.5	.5	100.0
	Total	400	100.0	100.0	

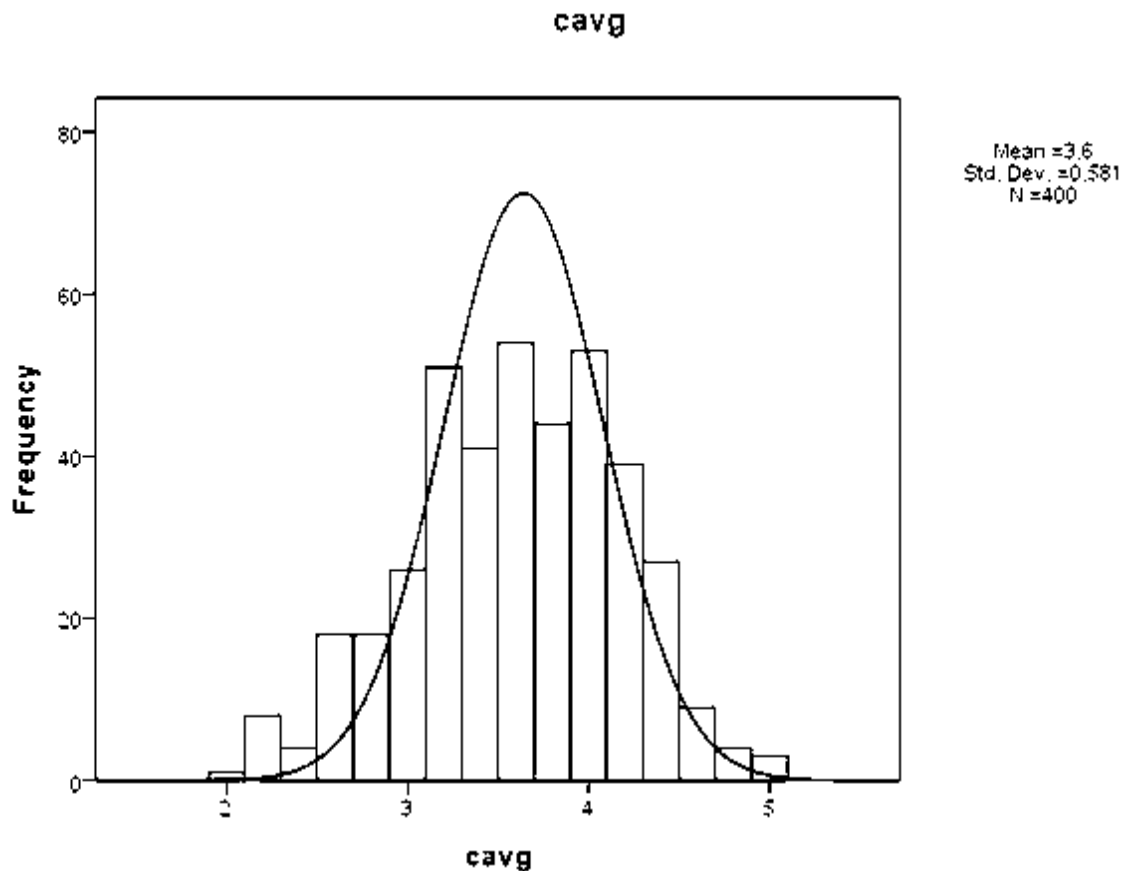


Figure 7: Client Average

The maximum percent weightage falls on 3rd question and minimum percent is in the first question.

Table 6: PBC Avg

		Pbcavg			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	80	20.0	20.0	20.0
	1.50	2	.5	.5	20.5
	1.75	5	1.3	1.3	21.8
	2.00	7	1.8	1.8	23.5
	2.25	9	2.3	2.3	25.8
	2.50	14	3.5	3.5	29.3
	2.75	17	4.3	4.3	33.5
	3.00	35	8.8	8.8	42.3
	3.25	31	7.8	7.8	50.0
	3.50	43	10.8	10.8	60.8
	3.75	40	10.0	10.0	70.8
	4.00	48	12.0	12.0	82.8
	4.25	24	6.0	6.0	88.8
	4.50	24	6.0	6.0	94.8
	4.75	16	4.0	4.0	98.8
	5.00	5	1.3	1.3	100.0
Total		400	100.0	100.0	

The maximum percent weightage falls on 3rd question and minimum percent is in the first question.

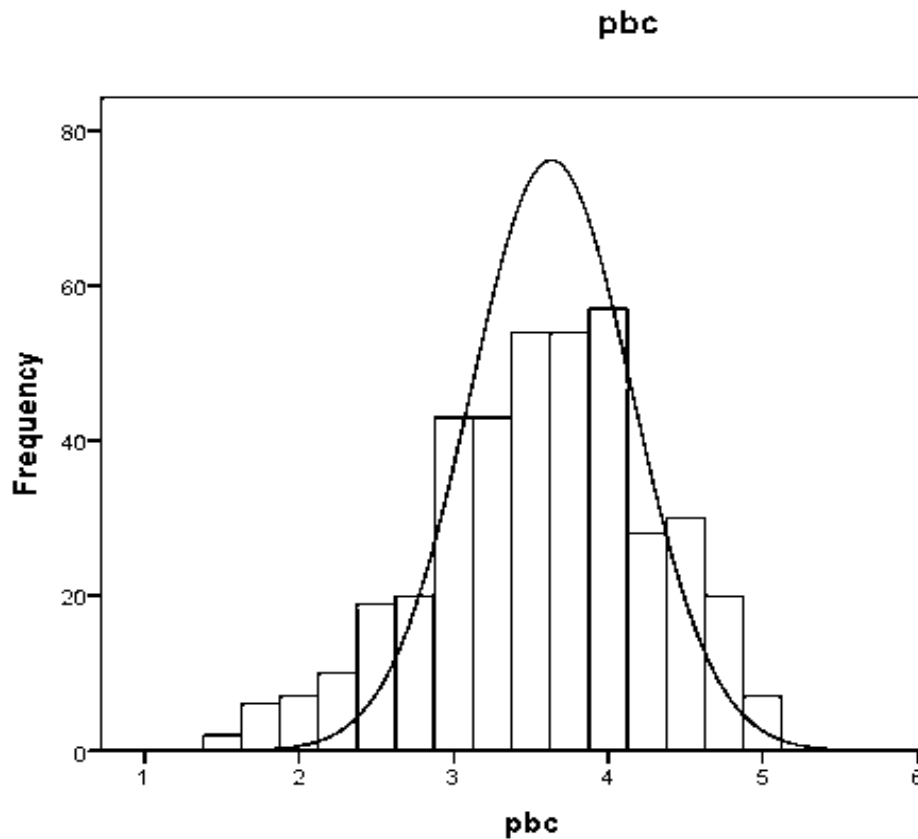


Figure 8: Perceived Behavioral Control Average

The Attitude average shows that the 4th element has more frequency which means that it is very valuable to share knowledge.

Table 7: Intention

Int

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.25	2	.5	.5	.5
	1.5	2	.5	.5	1.0
	1.75	6	1.5	1.5	2.5
	2	8	2.0	2.0	4.5
	2.25	16	4.0	4.0	8.5
	2.5	21	5.2	5.2	13.8
	2.75	27	6.8	6.8	20.5
	3	43	10.8	10.8	31.2
	3.25	33	8.2	8.2	39.5
	3.5	36	9.0	9.0	48.5
	3.75	28	7.0	7.0	55.5
	4	46	11.5	11.5	67.0
	4.25	41	10.2	10.2	77.2
	4.5	33	8.2	8.2	85.5
	4.75	29	7.2	7.2	92.8
	5	29	7.2	7.2	100.0
	Total	400	100.0	100.0	

The maximum percent weightage falls on 3 question and minimum percent is in the first question.

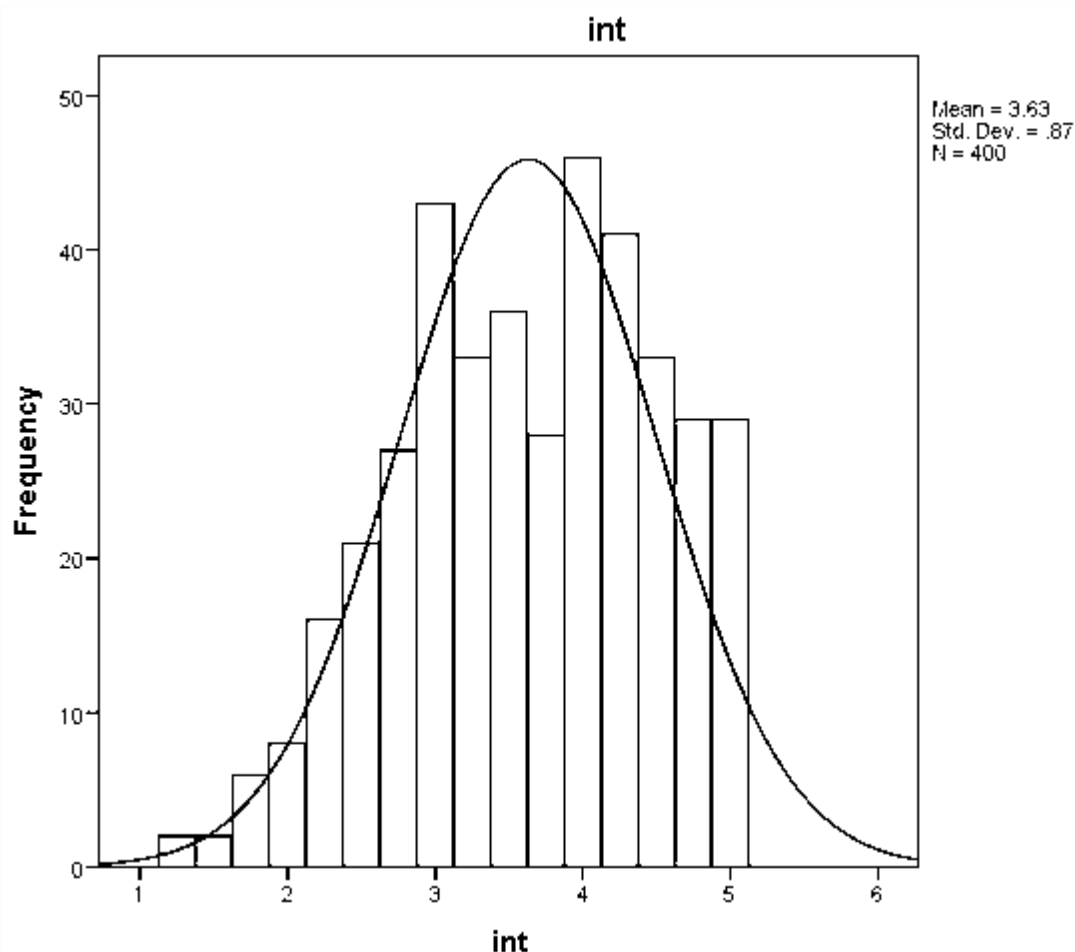


Figure 9: Intention Average

The Intention average shows that the 4th element has more frequency which means that it is very valuable to share knowledge.

VI. PATH COEFFICIENTS AND CONCLUSIONS

Table 5: Significance and strengths of individual paths

Path Coefficient	Model 1 (Theory of Planned Behavior)	Model 2
AT → IN	0.21	0.10
SN → IN	0.21	0.70
PBC → IN	0.2	0.75

The path coefficients were tested for significance level of 0.01.

The path coefficients from attitude to intention and subjective norms to behavioral intention were noteworthy for all the models. After model seems to be more convincing thus the analysis is proved.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Perceptions of Physicians about Knowledge Sharing Barriers in Turkish Health Care System <http://www.willpowered.co/learn/factors-of-behavior-influence>.
2. Knowledge sharing behavior of physicians in hospitals Seewon Ryua*, Seung Hee Hob, Ingoo Hanb.
3. <http://drroshandentistchennai.com/index.html>.
4. O' Dell, C., & Grayson, C. J. (1998). If only we knew what we know identification and transfer of internal best practices. California Management Review, 40(3), 154–174.
5. Lipshitz, R., & Popper, M. (2000). Organizational learning in a hospital. The Journal of Applied Behavioral Science, 36(3), 345–361.

APPENDIX A.

Knowledge Sharing in Physicians

Age:

Highest Qualification:

Position:

Organization Name:

Years of Experience with PG:

Organization Type: Govt./Private

If Government : State/ Central

If Private: Self-Financing / Non Self – Financing

Questionnaire Items

Construct Items

Intentions to share knowledge(IN:4 items)

I always will

IN1: ...plan to share knowledge with my colleague

IN2: ...try to share knowledge with my colleague

IN3: ...make an effort to share knowledge with my colleague

IN4: ...intend to share knowledge with my colleague, if they ask

Attitude toward knowledge sharing (AT: 5 items)

If I share my knowledge with other physicians, I feel

AT1: very harmful.....very beneficial

AT2: very unpleasant.....very pleasant

AT3: very bad.....very good

AT4: very worthless.....very valuable

AT5: very unenjoyable....very enjoyable

Subjective norms (SN: 5 items)

SN1: It is expected of me that I share knowledge with other physicians.

Most physicians who are important to me

SN2: ...think that I should share knowledge with other physicians.

SN3: ...share their knowledge with others physicians whose opinions I value

SN4: ...would approve of my behavior to share knowledge with other physicians.

SN5: ...share their knowledge with others

Perceived behavioral control (PBC: 4 items)

PBC1: For me to share my knowledge is possible always

PBC2: If I want, I always could share knowledge

PBC3: It is mostly up to me whether or not I share knowledge

PBC4: I believe that there are much control I have to share my knowledge with other physicians.

Most physicians who are important to me

SN2: ...think that I should share knowledge with other physicians.

SN3: ...share their knowledge with others physicians whose opinions I value.

SN4: ...would approve of my behavior to share knowledge with other physicians.

SN5: ...share their knowledge with others-this is further as

➤ Top Management

➤ Subordinate

➤ Peer

➤ Client

Perceived behavioral control (PBC: 4 items)

PBC1: For me to share my knowledge is possible always.

PBC2: If I want, I always could share knowledge.

PBC3: It is mostly up to me whether or not I share knowledge.

PBC4: I believe that there are much control I have to share my knowledge with other physicians.



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The Private or Public Hospital: Where One Should Present with Appendicitis: A Systematic Review

By Dr. Matthew Binks, Dr. Thomas Lyford, Dr. Jessica Henegan, Dr. Alice Grant
& Dr. Leigh White

University of Newcastle

Introduction- Appendectomy for appendicitis remains the second most common urgent gastrointestinal surgery in the United States and one of the most common worldwide [1, 2]. Low socioeconomic status and a lack of private health insurance have been shown to have detrimental effects on the prognosis of patients with appendicitis [3-7]. Such patients experience higher rates of appendiceal perforation, which increases morbidity 10-fold. [8, 9]. They also attend hospital later, have reduced access to laparoscopic surgery and confront extended hospital stays and prolonged periods absent from work [3-7].

Private hospital emergency departments have helped offset the healthcare burden on public hospital emergency departments worldwide [10]. Patients presenting to private hospitals have the luxury of choosing and having better access to their treating surgeon and generally have access to a better-funded system of care. Previously it has been hypothesized that this will expedite diagnosis and therefore definitive care for conditions such as appendicitis through surgery [11]. Furthermore, privately-treated patients will more likely be operated upon by a specialist surgeon with more advanced equipment [4, 8, 11].

GJMR-K Classification: NLMC Code: WI 535



THE PRIVATE OR PUBLIC HOSPITAL WHERE ONE SHOULD PRESENT WITH APPENDICITIS: A SYSTEMATIC REVIEW

Strictly as per the compliance and regulations of:



RESEARCH | DIVERSITY | ETHICS

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The Private or Public Hospital: Where One Should Present with Appendicitis: A Systematic Review

Dr. Matthew Binks^α, Dr. Thomas Lyford^σ, Dr. Jessica Henegan^ρ, Dr. Alice Grant^ω & Dr. Leigh White[¥]

I. INTRODUCTION

Appendectomy for appendicitis remains the second most common urgent gastrointestinal surgery in the United States and one of the most common worldwide [1, 2]. Low socioeconomic status and a lack of private health insurance have been shown to have detrimental effects on the prognosis of patients with appendicitis [3-7]. Such patients experience higher rates of appendiceal perforation, which increases morbidity 10-fold. [8, 9]. They also attend hospital later, have reduced access to laparoscopic surgery and confront extended hospital stays and prolonged periods absent from work [3-7].

Private hospital emergency departments have helped offset the healthcare burden on public hospital emergency departments worldwide [10]. Patients presenting to private hospitals have the luxury of choosing and having better access to their treating surgeon and generally have access to a better-funded system of care. Previously it has been hypothesized that this will expedite diagnosis and therefore definitive care for conditions such as appendicitis through surgery [11]. Furthermore, privately-treated patients will more likely be operated upon by a specialist surgeon with more advanced equipment [4, 8, 11].

We set out to test whether these perceived advantages play out in reality. The primary aim of this systematic review was to compare the outcomes of patients admitted to public and private hospitals with appendicitis. The secondary aims were to compare the patient characteristics and operative details, such as access to laparoscopic surgery, of these two patient groups.

II. METHODS

a) Search Strategy

Beginning on the 15th February 2018, four databases were systematically searched by two reviewers (MB, TL) and involved articles up to and

reviewers (MB, TL) and involved articles up to and including the 16th of February, 2018. The search terms used were (1) (public OR university OR government) AND (private OR university) AND appendi*. We performed a manual reference check of each of the included studies.

b) Inclusion Criteria

Studies that compared appendectomies performed in public and private hospitals were included in our piece. Assessment of paper eligibility was made by two researchers (MB, TL). There were no restrictions regarding country or language of publication. Consideration was given to all age groups. There was no limitation on study design. Published abstracts were considered for inclusion.

c) Exclusion Criteria

We excluded studies devoid of a control group. Unpublished data was deemed ineligible.

d) Data Extraction

Pre-operative data such as demographics, clinical findings and investigations, operative findings such as duration and rates of laparoscopic approach and postoperative results such as complication rates and length of stay were extracted independently by two reviewers (MB, TL).

III. RESULTS

The initial search elicited 258 citations and the manual reference check a further six (Figure 1). Once duplicates were discarded and titles reviewed, fifty-four abstracts were analyzed. Fourteen papers were identified for full-text appraisal and of these, six met the inclusion criteria, with a combined 1112 patients [5, 11-15]. The articles were a mixture of prospective [14] and retrospective [5, 11-13, 15] case-control trials. Two studies were produced in Brazil and the remaining four were carried out in Australia [12], South Africa [14], the USA [15] and France [5], respectively (Table 1). One study was undertaken in pediatric facilities only [15] and the remainder were conducted in majority adult facilities [5, 11-14].

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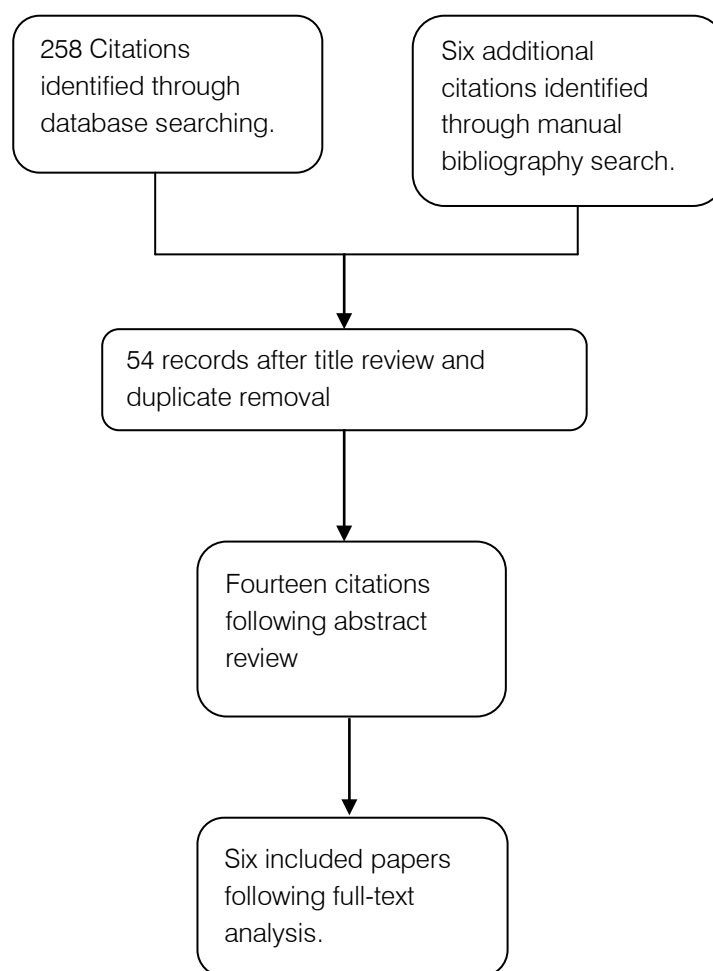


Figure 1: Systematic search strategy

Table 1: Study characteristics. Pub = public, priv = private. *Analysis was performed on cohort following removal of cases of perforation

Study	Nationality	Study type	Hospitals (pub/priv)	No. hosp priv	Period of study	Patient numbers (pub/priv)	Number female (pub/priv)
Coelho 2010 [11]	Brazil	Retrospective case control	1	1	2007-2009	100/100	46/56
Yang 2015 [14]	South Africa	Prospective case control	2	3	2013-2014	73/61	36/30
Steinman 2013 [13]	Brazil	Retrospective case control	1	1	2010	111/143	44/74
Zilbert 2009 [15]	USA	Retrospective case control	1	1	2004-2008	100/155 (84/134)*	31/84
Lienhart 2003 [5]	France	Retrospective cohort	Nation-wide		1996	2847	
Mackrill 2014 [12]	Australia	Retrospective case control	1	1	13-month period not specified	164	87/55

*Analysis was performed on cohort following removal of cases of perforation

a) *Timing*

Five papers compared the timing of the preoperative journeys of public and private patients with appendicitis [11-15]. Steinman *et al.* (2013) found public patients presented after a significantly longer duration of symptoms (48 vs. 24hrs; $p<0.001$). However, both Yang *et al.* (2015) (56.2 vs. 49.2hrs; $p=0.360$) and Zilbertet *al.* (2009) (24 vs. 24hrs) found no such disparity. Coelho *et al.*, 2010, found public patients waited a mean of 72 hours from symptom onset to appendectomy, compared with private patients' 36 hours ($p<0.001$). Steinman *et al.*, 2013 (12 vs. 9 hours; $p<0.001$) and Mackrillet *al.*, 2014 (median 13 vs. 9.5hrs) both found public patients waited longer from presentation to operation [12, 13]. Mackrillet *al.*, 2014, found that 12.2% of public and 4.8% of private patients were operated on greater than 24hrs after presentation [12]. The authors also report that 111 of their 164 public cases (68%) were performed outside of normal working hours (0800-1700), compared with 55 of 105 (52%) private patients.

b) *Preoperative Characteristics*

Three studies examined the preoperative clinical parameters of public and private patients to varying degrees. Coelho *et al.* (2010) was the only study to compare the presenting symptoms of patients presenting to public and private hospitals [11]. In their cohort out of Brazil, they found the public patients presented with significantly more diarrhea (19% vs. 8%; $p<0.001$), while suggestive abdominal pain, anorexia, nausea and vomiting were evenly distributed between the cohorts. Regarding signs, fever was significantly more prevalent in public patients (41% vs. 15%; $p<0.001$), whereas abdominal tenderness and rebound tenderness were present in equal measure [11]. Yang *et al.* (2015) found fever to exist equally amongst public and private patients presenting with appendicitis [14]. Heart rate (99.6 vs. 85.5 beats/min; $p=0.002$) and diastolic blood pressure (76.6 vs. 72.8mmHg; $p=0.030$) were both higher in their public hospital cohort.

Coelho *et al.*, 2010, found that a significantly larger number of public patients were reviewed by a physician prior to surgeon assessment (85 vs. 13; $p<0.001$). The authors argued that this was likely a significant factor in these patients' delay to operation and therefore perforation [11].

c) *Investigations*

Both Yang *et al.* (2015) (15.8 vs. 13.4×10^9 cells/L; $p=0.071$) and Zilbertet *al.* (2009) (16.6 vs. 4.5×10^9 cells/L; $p=0.030$) found public patients' white blood cell counts to be significantly higher [14, 15]. Yang *et al.* (2015) also found CRP to be significantly elevated in public patients relative to private (202.2 vs. 72.8mg/L; $p<0.001$).

There was discordance amongst the studies regarding the number of imaging studies performed prior to operation. Mackrillet *al.*, 2014 and Steinman *et*

al., 2013, found that imaging was requested at higher rates amongst private patients [12, 13]. Mackrillet *al.* reported that 19 and 20 public patients received ultrasound and CT abdomen scans, respectively, versus 16 ultrasounds and 42 CT scans in the private cohort. Steinman *et al.*, found that 34 ultrasounds and 9 CT scans were performed on public patients compared with 67 ultrasounds and 20 CT scans in their private patients ($p<0.001$). Zilbertet *al.*, 2009 discovered that although imaging in some form was requested equally in public and private patients (77% vs. 77%), CT scans were significantly more prevalent in the public cohort (36% vs. 21%; $p=0.02$) [15]. Coelho *et al.*, 2010, discovered that ultrasound scans were effected significantly more frequently in the public population (56% vs. 30%; $p<0.001$) [11].

d) *Operations*

Rates of laparoscopic vs. open surgeries were inconsistent amongst the included studies. Coelho *et al.*, 2010 (22% vs. 86%; $p<0.001$) and Yang *et al.*, 2015 (25% vs. 48%; $p=0.003$) found the laparoscopic approach was used more with private patients [11, 14]. However, Zilbertet *al.*, 2009 (76% vs. 54%; $p=0.002$) found that public patients underwent proportionally more laparoscopic surgeries than private patients [15]. All patients in the piece by Mackrillet *al.*, 2014, underwent laparoscopic surgery [12]. In a search for factors predictive of the use of a laparoscopic approach in French appendectomies, Lienhartet *al.*, 2003, found that private patients had an adjusted odds ratio of 2.7 relative to public patients [5]. Nine public patients of Yang *et al.*'s required conversion to an open procedure. None of their private patients required conversion [14].

Steinman (55.9% vs. 46.5%; $p=0.011$), Yang (41% vs. 23%; $p=0.026$), Mackrill (22% vs. 10%; $p=0.008$) and Coelho (37% vs. 21%; $p=0.013$) found significantly higher rates of appendiceal perforation in the public cohorts of their studies. Zilbert (19% vs. 13%) found no significant difference between cohorts.

Yang *et al.*, 2015, were the only group to investigate differences in operation duration between the groups. They found public cases typically took more than half an hour longer to complete (1.7 vs. 1.1hrs; $p<0.001$).

e) *Negative appendectomy rates*

Only one of each of Steinman *et al.*'s (2013) public (1%) and private (1%) patients had a negative appendectomy [13]. Yang *et al.*, 2015, found the rate of histologically normal appendices were similar between groups (13.9% vs. 5.7%; $p=0.076$) [14]. Mackrillet *al.*, 2014, had 13.4% negative appendectomies in their public cohort and 16% in their private cohort [12]. Coelho *et al.*, 2010 and Zilbertet *al.*, 2009, included only patients with true appendicitis.

f) Complications

Public operations were more likely to end in complications according to Coelho *et al.*, 2010 (36% vs. 20%; $p=0.012$) and Steinman *et al.*, 2013 (18% vs. 8%; $p=0.024$) [11, 13]. Yang *et al.*, 2015, found no difference between the cohorts (30% vs. 26%; $p=0.617$), as did Zilbertet *et al.*, 2009 (12% vs. 11%; $p>0.05$) and Mackrille *et al.*, 2014 (7% vs. 9%; $p=0.817$).

Regarding individual complications, Coelho *et al.*, 2010, found wound infections were significantly more common in public patients (22% vs. 11%; $p=0.036$). Abscess formation, incisional hernias, atelectasis, urinary retention, urinary tract infections and thrombophlebitis were equal between groups [11]. Yang *et al.*, 2015, deemed ileus more prevalent in the public cohort (7% vs. 0%; $p=0.045$). Wound infection, fistula formation and pneumonia were not different [14]. Mackrille *et al.*, 2014, found similar numbers of abscesses, wound infections and episodes of ileus and urinary retention between their public and private cohorts [12].

Two cases of appendicitis died during the course of the included studies. Both were public patients in the study by Yang *et al.*, 2015 [14].

g) Length of hospital stay, readmission and time to resumption of activities

Public patients spent significantly longer periods in hospital than their private comparisons in each of the four studies that investigated the outcome [11, 13-15]. Coelho *et al.*, 2010, found public patients stayed a day longer (3.5 vs. 2.5 days; $p=0.002$), as did Zilbertet *et al.*, 2009 (2 vs. 1 day; $p<0.001$) [11, 15]. Steinman *et al.*, 2013, found public patient's length of stay was 2.2 days longer (4 vs. 1.8 days; $p<0.001$) and Yang *et al.*, 2015 found theirs to be 2.4 days longer (5.3 vs. 2.9; $p=0.036$) [13, 14].

Coelho *et al.*, 2010, had four readmissions in their public cohort and one in their private cohort (4% vs. 1%; $p=0.174$) [11]. Yang *et al.*, 2015, had six public readmissions and three private (8.2% vs. 4.9%; $p=0.344$) [14].

Coelho *et al.*, 2010, found public patients took 16.8 days longer than their private comparisons to resume normal daily activities (33.2 vs. 16.4 days; $p<0.001$). Similarly, Yang *et al.*, 2015, found public patients returned to work after 23 days, against private patients' 12.1 days [4, 8, 11]s ($p<0.001$).

IV. DISCUSSION

Ours is the first systematic review comparing public and private hospital's care of patients with appendicitis. The published literature on this topic is sparse and conducted in variable healthcare systems. Nevertheless, the widespread utilization of private hospitals as emergency healthcare facilities

necessitates an update on the state of care offered by them [16].

Many of the trends in the data seem to transcend the heterogeneity of their original studies. From the included studies, it appears that patients presenting to and being cared for within public institutions present later and with more complicated disease. This presentation is the first in a series of steps in the patient's hospital journey that concludes with a prolonged stay and relative difficulty in returning to normal life. The intervening steps include delays in reaching the operating theatre, reduced access to laparoscopic surgery, prolonged theatre operating times and increased operative complication rates [5, 11-15].

Previous investigations of the relationship between appendiceal perforation and health insurance status or socioeconomic status have varied in their conclusions. In a retrospective analysis of appendicitis presentations to hospitals in Canada and the USA, Krajewski *et al.*, 2009, found that uninsured Americans were more likely to present to hospital with a perforated appendix than those with insurance [4]. They also found that risk of perforation had a significant and inverse relationship to income in the United States, the risk of perforation increasing with each reduction in income quintile. Conversely in Canada, where health insurance is universal, the authors discovered that poorer population groups were no more likely to present to hospital with complicated appendicitis than the richest quintile [4]. In a study of Greek patients with appendicitis, Papaziogas *et al.*, 2009, found no difference in perforation rate with varying insurance status [9]. Similarly, in their study out of New York, Bickell *et al.*, 2006, found no relationship between insurance status and perforation rates [17].

Despite this variation in the literature, our study's finding that as a group, public patients present more unwell and yet take longer to receive definitive care in the form of surgery, is particularly concerning. For instance, despite Steinman *et al.*'s (2015) public cohort experiencing 20% more perforations at presentation, their private cohort underwent surgery three hours earlier [13]. Such findings obviously require further investigation and if proven consistent, demand institutional and systemic redress.

Laparoscopic appendectomy is safer than open surgery and allows patients a faster postoperative recovery [18-20]. Complications such as wound infection and ileus are increased with open surgery [18, 20]. Laparoscopy being more expensive and requiring specialized equipment, uninsured, non-white patients, and those presenting to low-volume facilities are less likely to receive it [2-4, 8, 11]. We found that this disparity holds with regards to public and private hospitals, which will likely have contributed to the overall increase in complications in public hospital patients.

Our study is quite limited by the scarcity of published studies available for comparison and is a strong indicator that more data is required from more institutions. Our study crosses national boundaries and hence compares articles founded in different healthcare systems, limiting its value. The inclusion of pediatric data, while broadening the scope, similarly limits the comparability of the papers. Operative data offered by each paper was truncated, with no description of technique or laparoscopic equipment used. Each paper analysed had incomplete outcome data. The quality of the included studies is restricted, with five of the six being retrospective in nature and none of them being randomized.

V. CONCLUSION

This is the first systematic review analyzing the outcomes of cases of appendicitis treated at public and private hospitals. Our study suggests that patients treated at public hospitals have more complicated disease, receive more basic care at a later time point and suffer more operative complications and a longer hospital stay. There is a concerning dearth of literature on this topic and this report highlights the need for further research.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Masoomi, H., et al., Comparison of outcomes of laparoscopic versus open appendectomy in adults: data from the Nationwide Inpatient Sample (NIS), 2006–2008. *Journal of gastrointestinal surgery*, 2011. 15(12): p. 2226-2231.
2. Bliss, L.A., et al., Appendicitis in the modern era: universal problem and variable treatment. *Surgical endoscopy*, 2015. 29(7): p. 1897-1902.
3. Kong, V., B. Sartorius, and D. Clarke, Acute appendicitis in the developing world is a morbid disease. *The Annals of The Royal College of Surgeons of England*, 2015. 97(5): p. 390-395.
4. Krajewski, S.A., et al., Access to emergency operative care: a comparative study between the Canadian and American health care systems. *Surgery*, 2009. 146(2): p. 300-307.
5. Lienhart, A., et al. Factors associated with laparoscopic approach for cholecystectomy, appendectomy and inguinal herniorrhaphy in France. in *Annales francaises d'anesthesie et de reanimation*. 2003.
6. Ponsky, T.A., et al., Hospital-and patient-level characteristics and the risk of appendiceal rupture and negative appendectomy in children. *Jama*, 2004. 292(16): p. 1977-1982.
7. Tian, Y., et al., The necessity of socio-demographic status adjustment in hospital value rankings for perforated appendicitis in children. *Surgery*, 2016. 159(6): p. 1572-1582.
8. Kearney, D., et al., Influence of delays on perforation risk in adults with acute appendicitis. *Diseases of the colon & rectum*, 2008. 51(12): p. 1823-1827.
9. Papaziogas, B., et al., Effect of time on risk of perforation in acute appendicitis. *Acta chirurgica Belgica*, 2009. 109(1): p. 75-80.
10. Hoot, N.R. and D. Aronsky, Systematic review of emergency department crowding: causes, effects, and solutions. *Annals of emergency medicine*, 2008. 52(2): p. 126-136. e1.
11. Coelho, J.C., et al., Appendectomy: comparative study between a public and a private hospital. *Revista da Associação Médica Brasileira*, 2010. 56(5): p. 522-527.
12. Mackrill, D. and S. Allison, Laparoscopic appendectomy: an operation for all trainees but does the learning curves continue into consultant-hood? *ANZ journal of surgery*, 2015. 85(5): p. 349-352.
13. Steinman, M., et al., Appendicitis: What does really make the difference between private and public hospitals? *BMC emergency medicine*, 2013. 13(1): p. 15.
14. Yang, E., C. Cook, and D. Kahn, Acute appendicitis in the public and private sectors in Cape Town, South Africa. *World journal of surgery*, 2015. 39(7): p. 1700-1707.
15. Zilbert, N.R., et al., Management and outcomes for children with acute appendicitis differ by hospital type: areas for improvement at public hospitals. *Clinical pediatrics*, 2009. 48(5): p. 499-504.
16. FitzGerald, G., et al., Private hospital emergency departments in Australia: challenges and opportunities. *Emergency Medicine Australasia*, 2013. 25(3): p. 233-240.
17. Bickell, N.A., et al., How time affects the risk of rupture in appendicitis. *Journal of the American College of Surgeons*, 2006. 202(3): p. 401-406.
18. Bennett, J., A. Boddy, and M. Rhodes, Choice of approach for appendicectomy: a meta-analysis of open versus laparoscopic appendicectomy. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, 2007. 17(4): p. 245-255.
19. Li, X., et al., Laparoscopic versus conventional appendectomy-a meta-analysis of randomized controlled trials. *BMC gastroenterology*, 2010. 10(1): p. 129.
20. Shabanzadeh, D.M. and L.T. Sørensen, Laparoscopic surgery compared with open surgery decreases surgical site infection in obese patients: a systematic review and meta-analysis. *Annals of surgery*, 2012. 256(6): p. 934-945.



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Detection of Medically Important Parasites in Fruits and Vegetables Collected from Local Markets in Dire Dawa, Eastern Ethiopia

By Adugna Endale, Belay Tafa, Desalegn Bekele & Firehiwot Tesfaye

Dire Dawa University

Abstract- Background: Consumption of fruits and vegetables are highly beneficial for maintenance of health and prevention of diseases. On the other hand, they can act as potential sources for the spread of various infectious parasitic diseases. Detection of medically important parasites in fruits and vegetables is paramount in the prevention and control of parasitic diseases.

Objective: The objective of this study was to determine the prevalence & determinants of medically important parasites in fruits & vegetables collected from local markets in Dire Dawa City, Eastern Ethiopia.

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Keywords: medically important parasites, fruits and vegetables, local markets, dire dawa, ethiopia.

GJMR-K Classification: NLMC Code: QX 45



Strictly as per the compliance and regulations of:



Detection of Medically Important Parasites in Fruits and Vegetables Collected from Local Markets in Dire Dawa, Eastern Ethiopia

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Abstract- Background: Consumption of fruits and vegetables are highly beneficial for maintenance of health and prevention of diseases. On the other hand, they can act as potential sources for the spread of various infectious parasitic diseases. Detection of medically important parasites in fruits and vegetables is paramount in the prevention and control of parasitic diseases.

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Results: Out of the total 376 samples of fruits and vegetables examined, 178 (47.3%) were positive for medically important parasites. The highest rate of parasitic contamination was detected from lettuce, 29 (61.7%) and the least from orange, 12 (25.3%). The medically important Protozoans and Helminths identified were *Gardia lamblia*, 35 (9.3%), *Entamoeba histolytica*, 33 (8.8%), *Strongyloide* spp, 30 (8%), *Cryptosporidium* spp, 29 (7.7%), *Cyclospora* spp, 28 (7.4%), *Ascaris lumbricoides*, 24 (6.4%), *Isospora* spp, 16 (4.3%), *Trichuris trichiura*, 7 (1.9%) and *Hymenolepis* spp, 6 (1.6%). Significantly higher parasitic contamination rate was detected from fruits and vegetables which had not washed before display (AOR: 3.24; 95% CI: 1.54-6.80) and those displayed on a floor (AOR: 5.56; 95% CI: 3.26-9.49).

Conclusions: Almost half of fruits and vegetables sold in the local markets of the study area were being contaminated with medically important parasites which are probably potential sources for the transmission of intestinal parasites to humans. Therefore, health education on proper handling and washing

of fruits and vegetables should be given to the venders and consumers.

Keywords: medically important parasites, fruits and vegetables, local markets, dire dawa, ethiopia.

1. BACKGROUND

Consumption of fruits and vegetables is highly beneficial for maintenance of health and prevention of diseases since they form a major component of healthy diet [1]. Fruits and vegetables are valued mainly for their high carbohydrate, vitamins, minerals, and fiber contents. WHO recommended the intake of a minimum of 400g of fruits and vegetables per day for the prevention of chronic diseases such as heart disease, cancer, diabetes and obesity as well as for the prevention and alleviation of several micronutrient deficiencies, especially in less developed countries [2]. However, consumption of unwashed, raw and unhygienically prepared vegetables and fruits is considered a risk factor for human parasitic infections [3]. On the other hand, they can act as potential sources for the spread of various infectious parasitic diseases [4].

Intestinal parasites cause significant morbidity and mortality throughout the world, especially in tropical and sub-tropical countries [5]. Besides causing morbidity and mortality, infection with intestinal parasites has known to cause iron deficiency anemia, growth retardation in children and other physical and mental health problems [6, 7]. Globally, it is estimated that 3.5 billion people are affected, and that 450 million are sick from intestinal parasitic infections with an estimated 200,000 deaths annually [8].

Fruits and vegetables may get exposed to parasitic contaminants during pre-harvest (cultivation, irrigation, livestock manure etc.), post-harvest handling-storage, transportation, or while processing for consumption [9, 10]. It has been reported that the use of insufficiently treated wastewater to irrigate vegetables was responsible for the high rates of contamination with pathogenic parasites in many developing countries [10]. Contamination of soil with animal wastes and increased application of improperly composted manures to soil in which vegetables are grown also play a role in parasite contamination to fruits and vegetables [11]. Bad hygienic practice during production, transport,

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processing and preparation by handlers including consumers also contribute in vegetable contaminations [12]. Other factors which affect the susceptibility of the public to food-borne diseases also play a role in increasing the number of infected cases. Because of ageing, malnutrition, HIV infection and other underlying medical conditions, highly susceptible persons are markedly increased. Changes in lifestyle and food consumption patterns such as the increase in the number of people eating meals prepared in restaurants, canteens and fast food outlets as well as from street food vendors who do not always respect food safety increase the risk of exposure to food borne infections [13].

The risk of parasitic infections has been reported to be higher among the inhabitants of towns of developing countries like Ethiopia where there is a poor hygienic and sanitation practice [2, 5]. However, there is a little information available on the risks of parasitic infections associated with the consumption of fruits and vegetables in Ethiopia. As these parasites are highly resistant and able to withstand harsh conditions, assessing the sources of infectious agents and their level of contamination is paramount on the prevention and control of medically important parasitic diseases. Therefore, this study was aimed to determine the prevalence and determinants of medically important parasites in fruits & vegetables collected from local markets in Dire Dawa City, Eastern Ethiopia.

II. METHODS AND MATERIALS

a) Study Design and Setting

A cross-sectional study involving parasitological analysis and structured questionnaire was conducted to determine the level of parasitic contamination of fruits and vegetables sold in selected local markets in Dire Dawa City from September 14 to October 29, 2015.

b) Sample Size Estimation

Sample size was determined using a single population proportion formula with assumptions that the overall prevalence of medically important parasites in fruits and vegetables was 57.8% from previous study [14], confidence level 95% and degree of precision 5%. Accordingly, the calculated sample size was 376.

c) Sampling Techniques and Sample Collection

First, the study area (Dire Dawa City) was stratified by villages based on their proximity, and nine local markets were selected. Then, the total sample size was distributed proportionally to the size of fruits and vegetables retail in the villages after having sampling frame. Two trained data collectors were recruited for sample collection and interview. Eight types of fruits and vegetables (lettuce, cabbage, carrot, tomato, green pepper, banana, orange, and spinach) were purchased from the selected markets during data collection period.

The samples were put in plastic bags, properly labeled, and transported to Microbiology Laboratory of Biology Department of Dire Dawa University for parasitological analysis. Equal number of samples (47 each, totally 376 samples) were randomly collected from the selected markets retail fruits and vegetables. In addition, the fruits and vegetables venders were interviewed regarding their educational status and service factors.

d) Sample Preparation and Parasitological Examination Procedures

A portion (200g) of each fruits and vegetables was washed separately in 500ml of normal saline (0.85% NaCl) for detaching the stages (ova, larvae, cysts, and oocysts) of parasites commonly assumed to be associated with contamination.

The washing solution was then allowed to stand on the bench for overnight to allow proper sedimentation. After discarding the supernatant with a Pasteur pipette, 15 ml of the sediment was transferred to a centrifuge tube using a sieve so as to remove undesirable matters. For concentrating the parasitic stages, the tube was centrifuged at 3000 rpm for five minutes [15]. After centrifugation, the supernatant was decanted carefully without shaking. Then, the sediment was agitated gently by hand for redistributing the parasitic stages. Finally, the 100 μ l sediment was transferred to a clean glass slide covered with cover glass, and examined under a light microscope using $\times 10$ and $\times 40$ objectives.

Modified Zeihl-Neelsen staining technique was used for identification of oocysts of *Cryptosporidium*, *Isospora* and *Cyclospora* species [16]. In this method, a thin smear was prepared directly from the sediment and allowed to air dry. Then, the slides were fixed with methanol for 5 minutes and were stained with carbol fuchsin for 30 minutes. Next, the slides were washed with tap water and decolorized with acid alcohol (1ml Hcl and 99 ml of 96% ethanol) for 1-3 minutes. After washing the slides with tap water, they were counterstained with methylene blue for 1 minute. Finally, the slides were washed in tap water and allowed to air dry. The slides, then, were observed under light microscope with $\times 1000$ magnification. Each slide was observed for 10 minutes to decide whether it was negative or positive.

III. STATISTICAL ANALYSIS

The data collected from the questionnaire and the results of the laboratory investigations were cleaned and entered into a computer and statistical analysis was performed using SPSS for windows version 20. Descriptive statistics such as frequency for categorical variables and percentage (prevalence) of fruits and vegetables with different stage of parasites were determined by dividing the total number of positive samples with the total sample size. Bivariate and

multivariate logistic regressions were used to observe the effects of independent variables on the outcome variable while simultaneously controlling for other potential confounding factors. Those variables that emerged from the bivariate analysis as appearing to be statistically significant predictors of status of parasitic contamination at a cut-off point 0.05 were then used as independent variables in multivariate logistic regression. Variables which showed association in multivariate analysis were considered as final predictors of the status of parasitic contamination. The strength of association between different exposure variables and the outcome variable was measured through adjusted odds ratios.

IV. RESULTS

a) General characteristics of the examined fruits and vegetables and venders

A total of 376 fruits and vegetables samples were used in this study. Majority of the venders were females (93.4%) and few of them had no formal education (18.4%). Majority of the fruits and vegetables (85.1%) were not washed before display. About one fourth of the samples were displayed on floor/ground, and 79% samples were collected from open market category (Table 1).

Table 1: General information of the examined fruits and vegetables and venders, Dire Dawa, Ethiopia, October to November 2015

Variables (N=376)	Categories	Frequency	%
Sex of venders	Male	25	6.6
	Female	251	93.4
Educational level of venders	No formal education	69	18.4
	Formal education	307	81.6
Washed before display	Yes	56	14.9
	No	320	85.1
Type of water used for washing (For those washed)	Waste water	15	26.8
	Clean water	41	73.2
Means of display	On floor/ground	95	25.3
	On table/shelf	281	74.7
Market category	Grocery	79	21.0
	Open market	297	79.0

b) Prevalence of Medically Important Parasites in fruits and vegetables

Out of 376 fruits and vegetable samples examined microscopically, 178 (47.3%) were positive for at least one type of medically important parasites. From

47 samples examined for each items of fruits and vegetables, the highest level of parasitic contamination was detected from lettuce, 29 (61.7%) followed by carrot, 27 (57.4%) and cabbage, 26 (55.3%) and the least was from orange, 12 (25.5%) (Table 2).

Table 2: Frequency distribution of parasitic contaminations among fruits and vegetables sold in local markets, Dire Dawa, Ethiopia, September - October 2015

Types of Fruits & Vegetables	Status		
	Positive (at least one parasite)	Negative	Total
Lettuce	29 (61.7%)	18 (38.3%)	47
Carrot	27 (57.4%)	20 (42.6%)	47
Cabbage	26 (55.3%)	21 (44.7%)	47
Spinach	25 (53.2%)	22 (46.8%)	47
Tomato	23 (48.9%)	24 (51.1%)	47
Banana	19 (40.4%)	28 (59.6%)	47
Green paper	17 (36.2%)	30 (63.8%)	47
Orange	12 (25.5%)	35 (74.5%)	47
Total	178 (47.3%)	198 (52.7%)	376

c) Types of Parasites Detected in Fruits and Vegetables

The types and stages of parasites detected in the samples were oocysts of *Cryptosporidium* spp., *Giardia lamblia* cysts, *E. histolytica/dispar* cysts, larvae of *Strongyloide* spp., oocysts of *Cyclospora* spp., *Ascaris lumbricoides* eggs, oocyst of *Isospora* spp., *Hymenolepis nana* eggs and *Trichuris trichuria* eggs.

The most prevalent parasite detected in the fruits and vegetables samples was *G. lamblia*, 35 (9.31%) followed by *E. histolytica/dispar*, 33 (8.78%) and *Cryptosporidium* spp., 29 (7.71%) and the least prevalent parasite was *Hymenolepis nana*, 6 (1.60%) (Table 3).

Table 3: Types of medically important parasites detected in fruits and vegetables, Dire Dawa, Ethiopia, September – October 2015

Type of parasites	Types of Fruits and Vegetables								Total (N = 376)
	Lettuce	Cabbage	Spinach	Carrot	Tomato	Banana	G/Pepper	Orange	
<i>Cryptosporidium</i> spp	+	6(12.8%)	6(12.8%)	5(10.6%)	5(10.6%)	1(2.1%)	0	4(8.5%)	29(7.7%)
	-	41(87.2%)	41(87.2%)	42(89.4%)	42(89.4%)	46(97.9%)	47(100%)	43(91.5%)	347(92.3%)
<i>G. lamblia</i>	+	11(23.4%)	5(14.3%)	4(11.4%)	5(14.3%)	3(8.6%)	2(5.7%)	1(2.9%)	35(9.3%)
	-	36(76.6%)	42(12.3%)	43(12.6%)	42(12.3%)	44(12.9%)	45(13.2%)	46(13.5%)	341(90.7%)
<i>E.histolytica/dispar</i>	+	4(12.1%)	6(12.8%)	3(9.1%)	4(12.1%)	4(12.1%)	6(12.8%)	2(6.1%)	33(8.8%)
	-	43(12.5%)	41(87.2%)	44(12.8%)	43(12.5%)	43(12.5%)	41(87.2%)	45(13.1%)	343(91.2%)
<i>Strongyloide</i> spp	+	3(10.0%)	4(13.3%)	5(16.7%)	5(16.7%)	2(6.7%)	6(20.0%)	4(13.3%)	30(8.0%)
	-	44(12.7%)	43(12.4%)	42(12.1%)	42(12.1%)	45(13.0%)	41(11.8%)	43(12.4%)	346(92.0%)
<i>Cyclospora</i> spp	+	5(17.9%)	2(7.1%)	4(14.3%)	3(10.7%)	4(14.3%)	5(17.9%)	4(14.3%)	28(7.4%)
	-	42(12.1%)	45(12.9%)	43(12.4%)	44(12.6%)	43(12.4%)	42(12.1%)	43(12.4%)	348(92.6%)
<i>A. lumbricoides</i>	+	2(8.3%)	5(20.8%)	5(20.8%)	5(20.8%)	4(16.7%)	1(4.2%)	2(8.3%)	24(6.4%)
	-	45(12.8%)	42(11.9%)	42(11.9%)	42(11.9%)	43(12.2%)	46(13.1%)	45(12.8%)	352(93.6%)
<i>Isospora</i> spp	+	4(25.0%)	1(6.2%)	2(12.5%)	5(31.2%)	1(6.2%)	0	0	16(4.3%)
	-	43(11.9%)	46(12.8%)	45(12.5%)	42(11.7%)	46(12.8%)	47(13.1%)	44(12.2%)	360(95.7%)
<i>Hymenolepis</i> spp	+	1(16.7%)	2(33.3%)	0	0	2(33.3%)	0	1(16.7%)	6(1.6%)
	-	46(12.4%)	45(12.2%)	47(12.7%)	47(12.7%)	45(12.2%)	47(12.7%)	46(12.4%)	370(98.4%)
<i>T. trichuria</i>	+	1(14.3%)	2(28.6%)	0	0	2(28.6%)	2(28.6%)	0	7(1.9%)
	-	46(12.5%)	45(12.2%)	47(12.7%)	47(12.7%)	45(12.2%)	45(12.2%)	47(12.7%)	369(98.1%)

d) *Bivariate Analysis*

Crude analysis of variables on binary logistic regression showed that types of fruits and vegetables, washing status of fruits and vegetables and means of display were significantly associated with parasitic

contamination at $p < 0.2$. On the other hand, sex and educational status of fruits and vegetable venders did not show statistically significant association with parasitic contamination of fruits and vegetables in the bivariate analysis (Table 4).

Table 4: Bivariate analysis on binary logistic regression of factors associated with parasitic contamination of fruits and vegetables sold in local markets, Dire Dawa, Ethiopia, September - October 2015

Variables		Status of fruits and vegetables		COR (95% CI)
		Positive	Negative	
Sex of vender	Male	15	10	1.73 (0.76, 3.96)
	Female	163	188	Ref
Educational level of vender	No formal education	34	35	1.10 (0.65, 1.85)
	Having formal education	144	163	Ref
Types of fruit & vegetables	Lettuce	29	18	1.30 (0.57, 2.96)
	Cabbage	26	21	1.42 (0.62, 3.22)
	Spinach	25	22	1.19 (0.52, 2.72)
	Carrot	27	20	1.68 (0.74, 3.82)
	Tomato	23	24	2.37 (1.04, 5.43)*
	Banana	19	28	2.84 (1.23, 6.56)*
	Green paper	17	30	4.70 (1.95, 11.34)*
	Orange	12	35	Ref
Washed before display	Yes	15	41	Ref
	No	163	157	2.84 (1.51, 5.33)*
Means of display	On floor/ground	73	22	5.56 (3.24, 9.49)*
	On table/shelf	105	176	Ref

*Statistically significant at p value of 0.2

e) *Multivariate Analysis*

A multivariate analysis involving all associated variables in the bivariate analysis was performed to identify independent predictors of parasitic contamination status of fruits and vegetables. Consequently, two variables were showed statistically significant association with parasitic contamination status of fruits and vegetables after adjusting for other variables. Thus, washing status and means of display of fruits and vegetables showed statistically significant

association with parasitic contamination status at the p -value < 0.05 . Fruits and vegetables not washed before display were 2.95 times more likely to be contaminated with medically important parasites compared to fruits and vegetables washed before display (AOR=2.95, 95% CI: 1.49, 5.84). Additionally, fruits and vegetables displayed on floor/ground were 5.21 folds more likely to be contaminated with medically important parasites compared to fruits and vegetables displayed on table/shelf (AOR=5.21, 95% CI: 2.99, 9.08) (Table 5).

Table 5: Multivariate analysis showing the final predictors of contamination of fruit and vegetables, Dire Dawa, Ethiopia, September - October 2015

Variables		Status		COR (95% CI)	AOR (95% CI)
		Positive	Negative		
Types of fruits & vegetables	Lettuce	29	18	1.30(0.57, 2.96)	1.47(0.60, 3.59)
	Cabbage	26	21	1.42(0.62, 3.22)	1.28(0.53, 3.09)
	Spinach	25	22	1.19(0.52, 2.72)	1.08(0.44, 2.62)
	Carrot	27	20	1.68(0.74, 3.82)	1.81(0.74, 4.42)
	Tomato	23	24	2.37(1.04, 5.43)	2.11(0.87, 5.14)
	Banana	19	28	2.84(1.23, 6.56)	2.82(0.91, 6.96)
	Green paper	17	30	4.70(1.95, 11.34)	4.71(0.98, 12.10)
	Orange	12	35	Ref	Ref
Washed before display	Yes	15	41	Ref	Ref
	No	163	157	2.84(1.51, 5.33)	2.95(1.49, 5.84)*
Means of display	On floor/ground	73	22	5.56(3.26, 9.49)	5.21(2.99, 9.08)*
	On table/shelf	105	176	Ref	Ref

*Statistically significant at p value of 0.05

V. DISCUSSION

Isolation of medically important intestinal parasites from fruits and vegetables suggested that fruits and vegetables are the possible sources of transmission of food borne diseases in humans. Their presence in those fruits and vegetables not only associated to the favorable climatic conditions for the survival and dissemination of the parasites but also due to the unsanitary conditions and ineffective hygienic practices that facilitate their transmissions [17, 18].

The overall prevalence of parasitic contamination of fruits and vegetables of this study was found to be 47.3%. The result of the current study is lower than the findings reported in studies conducted in Kenya, Nigeria and Jimma [5, 14, 19] and higher than what were reported by others [3, 17-23]. These inconsistencies in findings might be attributed to varying environmental conditions and sanitation and hygiene practices of the study areas.

In this study, lettuce, carrot and cabbage were the most highly contaminated items which accounted 61.7%, 57.4% and 55.3%, respectively and orange was the least contaminated item (25.5%). This variation of contamination level among the items might be due to the fact that cabbage, lettuce and carrot have uneven/rough surfaces which make the parasitic stages attach more easily to the surface of these vegetables. The smooth surface of green pepper, tomato and orange might reduce the rate of parasitic attachment; hence they had lower contamination rate. On top of this, strong adhesion or internalization of the parasites to such leafy vegetables overcomes the effects of washing.

In this study, nine types of medically important parasites were detected from the fruits and vegetables. These parasites include: oocysts of *Cryptosporidium* spp., *Cyclospora* spp. and *Isospora* spp., cysts of *Giardia lamblia* and *E. histolytica/dispar*, larvae of *Strongyloide* spp, and eggs of *Ascaris lumbricoides*, *Hymenolepis nana* and *T. trichuria*. Most of the parasites isolated in this study were also isolated in the study conducted in Jimma [14] and studies conducted in Nigeria and Egypt [3, 24].

In the current study, the most prevalent parasite isolated was *G. lamblia* (9.31%) followed by *E. histolytica/dispar* (8.78%) and *Cryptosporidium* spp (7.71%), and the least prevalent parasite isolated was *Hymenolepis nana* (1.60%). In the study conducted in Jimma, larvae of *Strongyloide* spp., Ova of *Toxocara* spp and oocysts of *Cryptosporidium* spp were the most frequently detected parasites [14]. The findings reported by other investigators include *Ascaris lumbricoides*; *Cryptosporidium* spp, *E. histolytica/dispar* and *Toxocara* spp were as the predominant parasites detected [3, 20, 21, 25]. The discrepancy between the current study and the other studies might be as a result of the variations in geographical locations, climatic and

environmental conditions, the kind of sample and sample size examined and/or hygiene practices.

The need to understand factors contributing to parasitic contamination of fruits and vegetables is paramount for improving the efforts in the prevention and control of intestinal parasitosis as a medical and public health problem.

Findings from multivariate analysis revealed that washing status and means of display were found to be independent predictors of parasitic contamination of fruits and vegetables at the p-value < 0.05. Those fruits and vegetables not washed before display were almost three times more likely to be contaminated with medically important parasites compared to fruits and vegetables washed before display. In addition, fruits and vegetables displayed on floor/ground were around five folds more likely to be contaminated with medically important parasites compared to those displayed on tables/shelves. These findings are consistent with a study conducted in Jimma [14]. This might be due to the fact that food items which are displayed for sale on the floor are exposed to dusts and flies. It is well established fact that flies can act as vectors for a number of pathogenic microorganisms including parasites like *Cryptosporidium parvum* and *Toxoplasma gondii*, thereby transmitting different parasites to the fruits and vegetables displayed for sale.

As a limitation, this study is a cross-sectional study which did not address the effect of seasonal variability on the contamination rate of the fruits and vegetables.

VI. CONCLUSION

In conclusion, results of the current study showed high level of contamination of fruits and vegetables with medically important intestinal parasites. Almost half of the fruits and vegetables sold in the local markets of the study area were being contaminated with medically important parasites which are a potential source for the transmission of intestinal parasites to humans. Significantly higher parasitic contamination rate was detected from fruits and vegetables which had not been washed before display and those displayed on a floor. These findings highlight the public health implication of fruits and vegetables where farmers, sellers and consumers are being at a high-risk of infection with intestinal parasites. Therefore, it is advisable to wash fruits and vegetables thoroughly before eating or using for salad preparation.

Declarations

Ethics approval and consent to participate

The study was approved by Dire Dawa University Ethical Committee Board. Written informed consent was obtained from all participants.

Consent for Publication

Not Applicable.

Availability of data and materials: All the questionnaire and laboratory results are available with the authors.

Competing Interests: The authors declare that they have no competing interests.

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REFERENCES RÉFÉRENCES REFERENCIAS

1. P. Okyay, S. Ertug, B. Gultekin, O. Onen, and E. Beser. Intestinal parasites prevalence and related factors in school children, a western city sample-Turkey. BMC Public Health, 2004, 4(64).
2. T. Wegayehu, T. Tsalla, B. Seifu, and T. Teklu. Prevalence of intestinal parasitic infections among highland and lowland dwellers in Gamo area, South Ethiopia. BMC Public Health 2013, 13: 151.
3. Said, D. Detection of parasites in commonly consumed raw vegetables. Alexandria J. Med. 2012, 48: 345–352.
4. Izadi, S.H., Abedi, S., Ahmadian, S. and Mahmoodi, M. Study of the current parasitic contamination of the edible vegetables in Isfahan in order to identify preventive measures. Sci. J. Kurdistan Univ. Med. Sci. 2006, 11: 51-58.
5. Robert M Nyarango, Peninah A Aloo, Ephantus W Kabiru and Benson O Nyanchongi. The risk of pathogenic intestinal parasite infections in Kisii Municipality, Kenya. BMC Public Health 2008, 8: 237.
6. Evans AC, Stephenson LS. Not by drugs alone: the fight against parasitic helminths. World Health Forum 1995, 16: 258–261.
7. WHO. De-worming for health and development. Report of the third global meeting of the partners for parasite control. World Health Organization, Geneva 2005.
8. Wakid, H. M. Improvement of Ritchie Technique by Identifying the Food That Can Be Consumed Pre-analysis. J. App. Sci. 2009, 5: 293-296.
9. Erkan, E.M. and Vural, A. Investigation of microbial quality of some leafy green vegetables. J. Food. Tech. 2008, 6: 285-288.
10. A.H. Mahvi, E. B. Kia. Helminth eggs in raw and treated wastewater in the Islamic Republic of Iran. East Mediterr Health J. 2006, 12 (1–2): 137–143.
11. L.R. Beuchat. Ecological factors influencing survival and growth of human pathogens on raw fruits and vegetables Microbes Infect. 2002, 4 (4): 413–423.
12. S. Gupta, S. Satpati, S. Nayek, D. Garai Effect of wastewater irrigation on vegetables in relation to bioaccumulation of heavy metals and biochemical changes nviron Monit Assess, 165 (1–4) (2010): 169–177
13. WHO, World Health Organization, Food borne Diseases, Emerging, (2002) <<http://www.who.int/mediacentre/factsheets/fs124/en/print.html>>
14. Tamirat Tefera, Abdissa Biruksew, Zeleke Mekonnen, and Teferi Eshetu. Parasitic Contamination of Fruits and Vegetables Collected from Selected Local Markets of Jimma Town, Southwest Ethiopia. International Scholarly Research Notices Volume 2014, 2014, P 7
15. O. T. Idahosa, "Parasitic contamination of fresh vegetables sold in Jos Markets," Global Journal of Medical Research. 2011, 11(1): 20–25.
16. M. Cheesbrough, District Laboratory Practice in Tropical Countries, pp. 206-207, part 1, Cambridge University Press, New York, NY, USA, 2009.
17. Mercanoglu Taban B, Halkman AK. Do leafy green vegetables and their ready-to-eat RTE salads carry a risk of foodborne pathogens? Anaerobe 2011: 17(6): 286–7.
18. O. S. Omowaye and P. A. Audu, "Parasites contamination and distribution on fruits and vegetables in Kogi, Nigeria," Cibtech Journal of Bio-Protocols, vol. 1, no. 1, pp. 44–47, 2012.
19. Z. Tomass and D. Kidane, "Parasitological contamination of wastewater irrigated and Raw Manure fertilized vegetables in Mekelle city and its Suburb, Tigray, Ethiopia," Momona Ethiopian Journal of Science, vol. 4, no. 1, pp. 77–89, 2012.
20. G. L. Sia Su, C. M. R. Mariano, N. S. A. Matti, and G. B. Ramos, "Assessing parasitic infestation of vegetables in selected markets in Metro Manila, Philippines," Asian Pacific Journal of Tropical Disease, vol. 2, no. 1, pp. 51–54, 2012.
21. S. Uga, N. T. Hoa, S. Noda et al., "Parasite egg contamination of vegetables from a suburban market in Hanoi, Vietnam," Nepal Medical College Journal, vol. 11, no. 2, pp. 75–78, 2009.
22. A. Ishaku, D. Ishakeku, and S. Agwale, "Prevalence of parasitic contamination of some edible vegetables sold at alhamis market in lafia metropolist," Scholarly Journal of Biotechnology, vol. 2, no. 2, pp. 26–29, 2013.
23. D. O. Ogbolu, O. A. Alli, V. F. Ogunleye, F. F. Olusoga Ogbolu, and I. Olaosun, "The presence of intestinal parasites in selected vegetables from open markets in south western Nigeria," African Journal of Medicine and Medical Sciences, vol. 38, no. 4, pp. 319–324, 2009.
24. J. A. Alli, GO Abolade, A.F. Kolade, A.O. Salako, C.J. Mgbakor, M.T. Ogundele, A.J. Oyewo and M.O.

Agboola. Prevalence of Intestinal Parasites on Fruits Available in Ibadan Markets, Oyo State, Nigeria. *Acta Parasitologica Globalis* 2 (1): 06-10, 2011

25. R. M. Al-Shawa and S. N. Mwafy, "The enteroparasitic contamination of commercial vegetables in Gaza Governorates," *The Journal of Infection in Developing Countries*, vol. 1, no. 1, pp. 62– 66, 2007.





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Assessment of the Magnitude and Determinants of Unmet need for Family Planning among Married Women in Finoteselam District, North West Ethiopia

By Simeneh Worku Tessema
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Abstract- Background: Ethiopia is one of the most populous countries in Africa. Among currently married women, 22% of them had unmet need for family planning. Due to this, unwanted pregnancies and abortion is wide spread. And, it is the leading causes of maternal mortality. The Amhara Regional State is characterized by a high level of fertility rate of 5.1 children per women of reproductive age and low level of contraceptive use that is 9.1%.

Method: Community based quantitative cross- sectional study was conducted in Finoteselam district, Northwest Ethiopia. A total of 360 (61.1% urban & 38.9% rural) women were proportionally included from April 2016-May 2016. A Stratified random sampling technique was carried out for sample selection. A pretested structured interview questionnaire was the main instrument used for data collection.

Result: The median age at first marriage in the study area was found to be 17 years. Average number of children desired in the study area was 4.8. Unmet need for family planning in the study area was 29.7% of which 18.9% for spacing and 10.8% for limiting of child birth.

Keywords: *unmet need, family planning, married women, finoteselam district.*

GJMR-K Classification: NLMC Code: WA 550



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Result: The median age at first marriage in the study area was found to be 17 years. Average number of children desired in the study area was 4.8. Unmet need for family planning in the study area was 29.7% of which 18.9% for spacing and 10.8% for limiting of child birth. Among the non-users of family planning 25.2% did not use, due to husbands opposition, 22.4% did not use due to religion prohibition & 18.7% did not use due to desire to have more children to use family planning. Thirty percent of women with unmet need for family planning had intention to use family planning in the near future. The contraceptive prevalence rate of the study area was 28.3%. Among respondents who discontinued use of contraception was, 16.7% mentioned desire to have more children, 15.3%, preference method was not available & 9.8%, health concern and side effects.

Conclusion: Knowledge about contraception, family size, place of residence and husband's attitude towards contraception were found to be determinants of unmet need for contraception. More over maximize access to good quality services, improving the quality of family planning services and making contraceptives easier to obtain and use will help to meet the need of many women.

Keywords: unmet need, family planning, married women, finoteselam district.

I. INTRODUCTION

Unmet need, which is estimated from survey data, refers to married women who say that they would prefer to avoid or postpone childbearing, but who

are not using any method of contraception [1]. The concept of unmet need for family planning was first explored in the 1960s, when data from surveys of contraceptive knowledge, attitude and practice [KAP] showed a gap between some women's reproductive intentions and their contraceptive behavior (1). Unplanned pregnancy poses a major public health challenge to women of reproductive age worldwide, especially in developing countries. World-wide, 64% of married women use contraception but an estimated 225 million women in developing countries would like to delay or stop childbearing, but are not using any method of contraception. Globally, the prevalence of contraceptive use has been increasing, but the unmet need for contraception still remains a problem (1). It has been estimated that about 80 million (38%) of the 210 million pregnancies that occur annually worldwide, are unplanned, and about 46 million (22%) end up in abortion (2). Ethiopia is one of the most populous countries in Africa. It stands third after Nigeria and Egypt. With the highest annual population growth rate of 2.9 %, high maternal mortality of 412/100,000 live births and high infant mortality of 97/1000 live births (3). Among currently married young women, 22% had unmet need for family planning. Due to this, unwanted pregnancies and abortion is wide spread and generally performed by untrained persons. It is the leading causes of maternal mortality. In a community based study abortion accounted for 54.2% of the direct causes of maternal deaths (3). In recognition of the need to address these issues, the Government of Ethiopia adopted a population policy in 1993. The prime objective of the policy is to harmonize the rate of population growth with the socioeconomic development. The population policy also aims at reducing the total fertility rate from 7.7 children per women in 1995 to 4 Children per women in 2015 and an increase in contraceptive prevalence rate from 15% in 2005 to 44% in 2015 [3]. The International Conference on Population and Development [ICPD] held in Cairo in 1994 secured international agreement on population and development approach that put people first and places women at the centre of development efforts.

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These were already guiding principles of the national population policy adopted in Ethiopia, as part and the centre of the new economic and social policies adopted by the Transitional Government of Ethiopia [4]. Control over one's fertility is a basic need for family planning, which is as basic as food and housing. The Amhara National Regional State of Ethiopia is characterized by high infant mortality of 94/1000 live birth, a high level of fertility rate of 5.1 children per women of reproductive age and low level of contraceptive use, that is 9.1% [3]. Therefore, this study is aimed at assessing the magnitude and factors associated with unmet need for family planning among married women in the study area.

II. MATERIALS AND METHODS

A Stratified random sampling procedure was employed in the catchment area. Using the household unit lists, the number of households unit was identified. By applying simple random sampling procedure, the house number of each unit was selected. If there was no any eligible in the house, to choose one of the neighbor houses, lottery method was used to take one of them instead of it.

III. STUDY AREA AND POPULATION

Finoteselam district has a total population of 48,955. Among this in rural, males, 9115, and females, 8699, where as in urban, males, 14,294 and females 16,847. The source population of the study is total married women of child bring age (15-49 years old) groups that found in the district. The study population is Proportion of married women of child bearing age (15-49 years old) groups with inclusion criteria from the source population.

IV. DATA COLLECTION AND PROCEDURE

A community based quantitative cross sectional study was conducted to assess the magnitude and factors associated with unmet need for family planning among married women in FinoteSelam district, from April, 2016 to May, 2016. A Stratified random sampling procedure was employed in the catchment area, using the household unit lists, the number of households in each unit was identified. By applying simple random sampling procedure, the house number of each unit was selected. If there was no any eligible in the house, to choose one of the neighbor houses, lottery method was used to take one of them instead of it.

V. STATISTICAL METHODS

The sample size was calculated using EPI info statistical soft ware version 7.2.1 for determination of sample size& analysis was performed by SPSS version 20.0 statistical software package. Frequency and percentage were calculated for the study variables.

P-value and two tail Fisher's exact test was used to calculate and determine significance. In all statistical tests, the differences were considered to be statistically significant if p-value less than 0.05. By taking single population proportion using the following estimates: Prevalence rate of unmet need for family planning of the country is 34.4% (3). On-non response rate 10% and confidence level of 95 % (1.96). Based on this, giving a total sample size of 369.

Availability of data and materials: The data can be shared at any stage in time.

VI. ETHICAL CONSIDERATION

Ethical clearance was secured from the Ethical Clearance Committee of the school of public Health of Gondar University. The concerned officials at all levels, community leaders, and government bodies were informed, to get the assurance of the study. The purpose, objectives, and importance of the study were explained and informed. Consent was secured from each participant. Confidentiality was maintained at all levels of the study. Participation in the study was on a voluntary basis. Participants who were un willing to participate in the study and those who wish to quit from the study at any point in time were informed to do so without any restriction.

VII. CONSENT FOR PUBLICATION

This manuscript does not contain any identifiable individual person's data; therefore the consent is not applicable.

VIII. RESULT

Unmet need to space & limit births among married women and not using contraception in the study area was 68 [18.9%] & 39 [10.8%] respectively. Unmet need to space & limit births among currently pregnant and post-partum amenorrhoeic women was 10 [2.8%] and 0% respectively.

Total unmet need in the district was 107 (29.7%) of which 68 (18.9%) was for spacing and 39 (10.8%) for limiting [Fig 1].

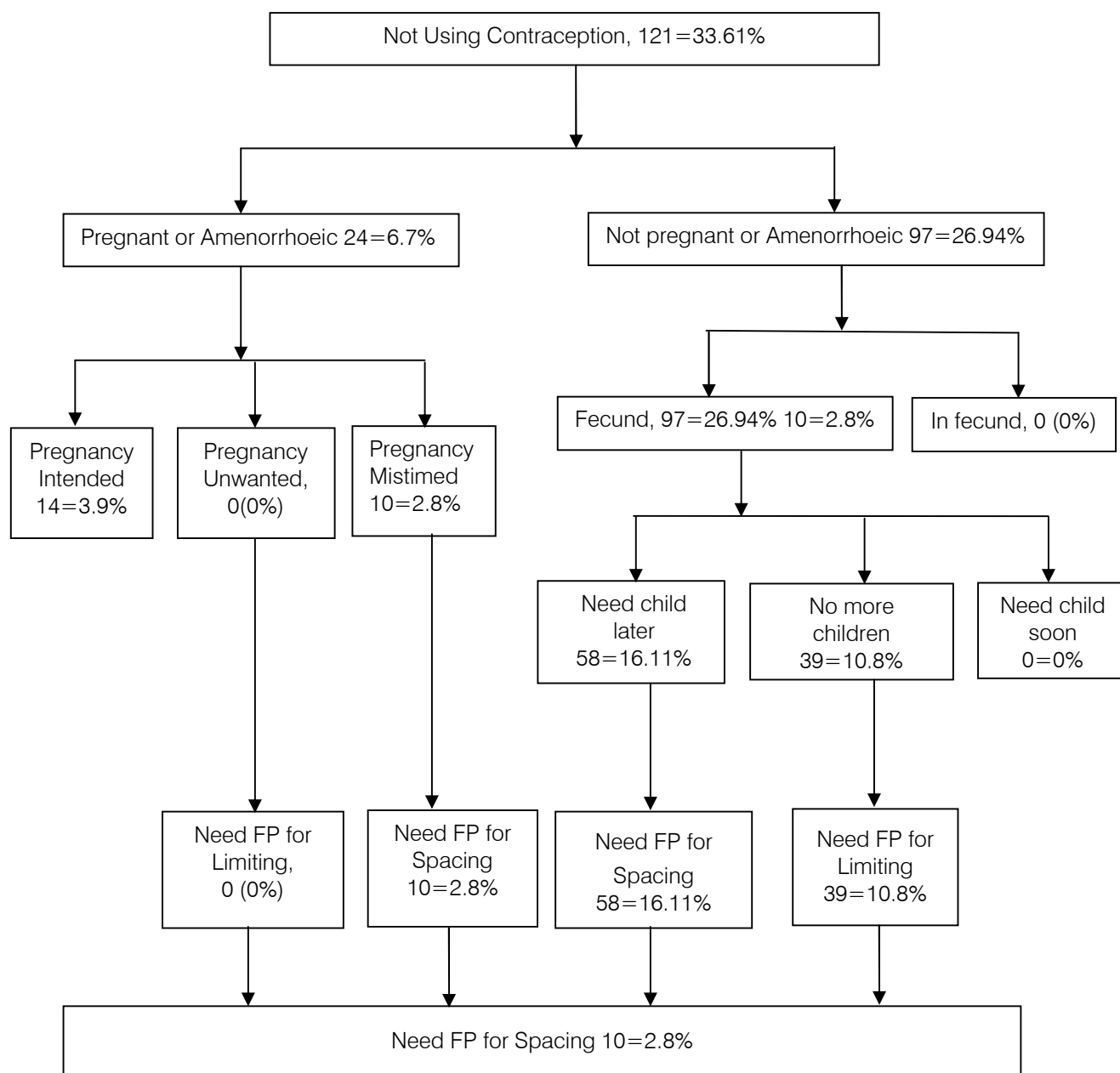


Fig. 1: Unmet need for family planning among married women in Finoteselam district, 2016

About 21.5% of the respondent in age group 25-29 in the study area had unmet need for spacing and 11.2% in the same age group had unmet need for limiting in the study area [Table 1]. 4.7% for spacing and 9.3% for limiting had unmet need in age group of 40-49 respectively. Women with current living children of 5 & above were 3.3 times more likely to have unmet need for FP than women with current children of 1-2 [OR=3.266, 95% CI: 1.858, 5.741]. In the study area women whose husbands do not approve using contraception are 2.7 times more likely to have unmet need for contraception [OR=2.731, 95% CI: 1.243, 6.471]. Two

percent of women's: husband among limiters approve use of contraception in the study area. Illiterate women in the study area were 6.5 times more likely than women with high school & above to have unmet need for contraception [OR=6.513, 95% CI: 1.081, 7.052]. Among women with unmet need for F Pin rural was 38.3% for spacing and 22.4% for limiting of child birth, where as unmet need for FP in urban was 29.9% for spacing and 9.3% for limiting birth. Rural women were 2.3 times more likely to have unmet need for family planning than urban women [OR=2.272, 95% CI: 1.170, 3.437]. [Table 1]

Table 1: Comparison of the study population with unmet need by selected Socio-demographic variables, in
Finoteselam district, 2016

Variables	n=107, n (%)		p-value	OR (95%CI) Crude	Adjusted OR
	To space	To limit			
Age					
15—19	5(4.7)	0(0)		1.00	1.00
20—24	15(14)	1(0.9)	.004	.116(.027, .801)	.103(.006, 1.727)
25—29	23(21.5)	12(11.2)	.001	.079(.027, .503)	.093(.008, 1.036)
30—34	13(12.1)	2(1.9)	.027	.254(.076, .856)	.463(.046, 4.690)
35—39	7(6.5)	14(13)	.049	.341(.102, .435)	.643(.066, 6.276)
40—49	5(4.7)	10(9.3)	.737	1.250(.340, 4.590)	1.754(.155, 2.791)
Alive child					
1—2	15(14)	2(1.9)		1.00	1.00
3—4	27(25)	6(5.6)	0.001	5.948(3.086, 11.462)	4.240(1.320, 5.801)
Five & Above	23(21.5)	27(25)	.000	3.266(1.858, 5.741)	3.058(1.367, 4.044)
Husband Attitude					
Approve	8(7.5)	2(1.9)		1.00	1.00
Disapprove	54(50.5)	36(33.6)	.008	2.731(1.243, 6.471)	2.771(1.073, 3.052)
Do not know	6(5.6)	1(.93)	0.452	1.623(0.941, 2.023)	1.058(.367, 3.044)
Education					
Illiterate	30(28)	26(24.3)	0.041	6.513(1.081, 7.052)	4.931(3.512, 5.231)
Read and Write	22(20.6)	8(7.5)	.758	.331(.012, 4.852)	1.342(.332, 5.313)
Primary School	12(11.2)	3(2.8)	.151	1.182(.352, 3.971)	1.745(.472, 6.392)
High school & above	4(3.7)	2(1.9)		1.00	1.00
Residences					
Rural	41(38.3%)	24(22.4%)	.000	2.272(1.170, 3.437)	3.673(2.290, 5.892)
Urban	32(29.9)	10(9.3)		1.00	1.00

About 25.2% and 22.4% of women in the study area did not use contraception due to husband opposition and religion prohibition respectively [Table 2]. Twelve percent of the respondents did not use contraception due to health problems and side effects. And 18.7% of women did not use contraception, due to, the desire to have more children. While, the rest of 2.8%, 11.2%, and 1.9% of the respondents were due to relative opposition, lack of knowledge and risk of pregnancy

respectively [Table 2]. Reasons for non-use of contraception, religion prohibition, husband opposition, lack of knowledge about advantage of contraceptive method and relatives opposition, were by 2, 1.7, 1.53 & 1.5 times more likely to be reasons for non-use of contraceptives compared to those women with desire to have more children (OR (95% CI) = 2.035 (1.005, 3.266), 1.714 (1.336, 1.976), 1.532 (1.204, 1.950) & 1.505 (1.385, 1.663) respectively [Table 2].

Table 2: Comparison of the study population with unmet need by Reasons for non-use of contraception among
women with selected variables, in Finoteselam district, 2016

Reasons	Never users n=107		p-value	OR (95% CI) Crude	Adjusted OR
	No	%			
Husband Opposition	37	34.6	.000	1.714(1.336, 1.976)	1.052(1.006, 1.454)
Lack of Knowledge	12	11.2	.001	1.532(1.204, 1.950)	1.102(1.011, 1.908)
Relatives Opposed	3	2.8	.024	1.505(1.385, 1.663)	1.050(1.004, 1.604)
Religion Prohibition	24	22.4	.018	2.035(1.005, 3.266)	2.713(1.007, 3.707)
Desire to have More children	20	18.7		1.00	1.00

Moreover, in the study area 30% of women with unmet need among never-users had intention to use contraception in the near future.

IX. DISCUSSION

There are different factors attributed to prohibit using of FP in the study area, which implies the desire to have more children due to religious and husband opposition. There are also some people who think children are an asset and it is up to God to determine the number of children. Other studies also support this

finding [2]. Moreover, there is a gap between knowledge and contraceptive practice. In the study area 20.8% use contraceptives for spacing, while 7.5% use for limiting the birth. This shows the majority of the women used the contraception for spacing, while the minority of the respondents used the contraception for limiting the birth. This can be explained by women in the study area have the desired number of children lately than earlier. This finding is in line with other studies conducted in other parts of the country & a Rural Area of Kanchipuram District, Tamil Nadu, South India [3, 8].

Among respondents who discontinued use of contraception were 16.7% mentioned desire to have more children, 15.3%, preference method was not available & 39.8%, health concern and side effects. This again indicates that there is inadequate information, education, communication and counseling services that would help the client to continue use of contraception. The finding is also in line with study findings Unmet Needs for Family Planning among Women of Reproductive Age in Nigeria [2]. An effort was made to identify those women who wanted to space or limit their fertility without using any form of contraception during the survey. This is important because, it helps to estimate the contraceptive demand in the future and to select target groups for family planning program intervention. In the study area the level of unmet need for family planning was 29.7% among currently married, pregnant and post-partum amenorrhoeic women. The finding is more than from what the national level was found, that was 22 %, of which 13% was for spacing and 9% for limiting, [3]. The findings of this study indicates that more married women have unmet need than using contraception. Which are in line with the DHS result for Ethiopia [3] and Northern West of Tigray, Ethiopia [5]. In this study 18.9% & 10.8% of unmet need in the study area was for spacing & limiting birth of FP respectively. This shows that the greater percentage of unmet need in the study area women was for spacing than limiting birth, which are in line with the DHS result for Ethiopia, a Rural Area of Kanchipuram District, Tamil Nadu, South India and in Urban Cameroon [3,6,8]. Moreover, Unmet need for family planning in rural was 18% of which 11.3% for spacing and 6.7% for limiting of child birth, where as unmet need in Urban was 11.7% of which 8.9% for spacing and 2.8% for limiting birth. Total unmet need for family planning was greater for those rural than urban [18 % vs. 11.7 %]. This was true especially for rural women with unmet need for family planning for the purpose of spacing, that is 11.3% compared to 8.9 % of the spacers from the urban area. This is in line with DHS result for Ethiopia [3]. Examining unmet need for family planning across various demographic, social and economic variables suggests that unmet need for family planning is affected by some of these factors. Unmet need is specifically high among the women in the 25-29 age group [32.7%]. Smaller percentages need of family planning were found in the age group of 15-19 [4.7%] and the oldest age group 40-49 [14%]. In the case of young women, the reason might be that, they have not yet achieved their desired number of children, while the older women might have considered themselves as no more at risk of conception, due to, perceived or actual sub fecund and menopausal state. Examining the age distribution of unmet need from the spacer and limiter perspective, there exists a difference in the age pattern. As expected, family planning unmet need for limiting increases with age toward the later age group. Among

the limiters 22.4 % from the study areas were in the age group 35-49, whereas among younger women [15-19]. And there is no limiter wanted to limit childbirth. Among the study population in the 35-49 ages group 11.2% had unmet need for spacing. Were as among respondents of women in the 15-34 age groups 52.3% had unmet need for limiting birth of FP. As expected, only a small proportion of spacers were found in the last childbearing age group. Age is an important factor when total unmet need is decomposed into need for spacing and need for limiting. Otherwise its importance becomes negligible. Hence age is not an important determinant of overall unmet need for family planning. On the other hands unmet need FP for spacing concentrated around the relatively younger age groups and declines towards the oldest age groups. Women with large numbers of surviving children have a greater unmet need for family planning than those women with fewer children. Women with five or more living children are 3 times more likely unmet need for FP than women with to have fewer children. In general 21.5% women in the study area with five or more living children were spacers, while 25% with similar numbers of living children were limiters. Thus, unmet need for family planning, especially for limiting births predominates among women with 5 or more surviving children. There might be several reasons for the greater family planning need of women from the study area. Total unmet need as well as unmet need for limiting and spacing is greater among illiterate women in the study area. Illiterate Women were 6.5 times more likely than women with high school & above to have unmet need. Thus, it is clear that unmet need is highest among women with illiterate or low level of education. Unmet need declines as the education level of women improved. This is possibly due to the reason that the level of awareness of fertility control and preference for a smaller number of families are less understood among the less educated, while the better educated women appreciate the value of small planned family as well as the means in achieving it. Nine percent of women with unmet need in the study area of women thought that their husbands approve of family planning compared with 84% of women whose husbands do not approve using contraception. Women whose husbands do not approve using contraception are 2.7 times more likely to have unmet need than women whose husbands do approve use of family planning. Women who wanted either to space or limit their birth but were not using family planning methods were further asked to state the reasons for not using contraception. The main reasons of non-use mentioned by women with unmet need in their order of importance were husbands/partners opposition to using family planning [25.2%], religion prohibition (22.4%), desire to have more children (18.7%), fear of side effect and health problems [12.1%], lack of information [11.2%], relative opposed (2.8%) & little perceived risk of pregnancy (1.9%). These rates are



comparable with finding in developing counties [5, 7]). There were statistically significant associations between reasons for non-users of contraception like, husband opposition, religion prohibition, and lack of awareness & relative' sopposition. These results agree with the result of bivariate analysis. Moreover, religion prohibition was 2 times more likely to be reasons for non-use of contraceptives compared to those women with desire to have more children, (OR=2.035, 95 CI, 1.005, 3.266). Further investigation of women's intention to use family planning methods in the future showed that, thirty percent of women with unmet need for family planning had intention to use contraceptives in the near future.

X. LIMITATION OF THE STUDY

Cross- sectional study design was used in the present study. This type of study design shows the exposure and outcome at the same point in time, so that; we cannot formulate a cause and effect relationship. Other possible limitations are: Reliability of answers and sensitivity of the subject.

XI. CONCLUSIONS

Husband opposition to use contraception, religion prohibition, desire to have more children, lack of knowledge, relative opposed, risk of pregnancy, health problem and fear of side effects were reasons to have unmet need for family planning among women who have never used contraception. Husband opposition & religion prohibition were main reasons to have unmet need for family planning. If factors that causes to have unmet needs for family planning to be avoided, women with unmet need, who have never used contraception, have intention to use family planning in the near future. Moreover, Knowledge about contraception, family size, place of residence, and husband's attitude towards contraception were found to be determinants of unmet need for contraception.

Competing interest: The authors declare that they have no competing interests.

Authors' contribution: Simenehworku: designs the study, collected and analyzed the data, critically revised & wrote the manuscript.

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REFERENCES RÉFÉRENCES REFERENCIAS

1. Vasudevan K, Soundarya C, Assessment of unmet need for contraception in an urban area of Pondicherry, National Journal of Research in

Community Medicine. Vol.5.Issue 4. Oct.-Dec.-2016; 223-228.

2. Bamgboye E.A and Ajayil. Changing Patterns of Unmet Needs for Family Planning Among Women of Reproductive Age in Nigeria, (*Afr J Reprod Health 2016; (Special Edition); 20 [3]: 127-135*).
3. Ethiopia Demographic and Health Survey: 2016;
4. Freedman R. And Blanc AK: Fertility Transition. An Update International Family Planning Perspectives June 2016. [2]; 44-50, 72.
5. Gelawdiwos Gebre, Nigussie Birhan, Kahsay Gebreslasie, Prevalence and factors associated with unmet need for family planning among the currently married reproductive age women in Shire-Enda-Slassie, Northern West of Tigray, Ethiopia 2015.
6. Atem Bethel Ajong, Philip Nana Njotang, Martin Ndinakie Yakum, Marie José Essi, Felix Essiben, Filbert EkoEko, Bruno Kenfack and Enow Robinson Mbu, Determinants of unmet need for family planning among women in Urban Cameroon, Ajong et al. BMC Women's Health 2016; 16: 4.
7. Dr. Nabanita Chakraborty, Dr.Sunetra Kaviraj Roy, Prof. Asok Kumar Mandal, Use of Family Planning Methods And Unmet Need of Contraception among Married Women in a Rural Area of West Bengal, *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 15, Issue 2 Ver. X (Feb. 2016; PP 24-29)*.
8. R. Vishnu Prasad • J. Venkatachalam • Zile Singh, Unmet Needs of Family Planning among Women: A Cross-Sectional Study in a Rural Area of Kanchipuram District, Tamil Nadu, South India, he Journal of Obstetrics and Gynecology of India (September–October 2016).
9. Wulifan JK, Brenner S, Jahn A, De Allegri M. A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Women's Health*. 2015; 16: 2.
10. Alex Ezeh, Anibal Faundes, Anna Glasier, Jolene Innis. Family planning: the unfinished agenda. The Lancet Sexual and Reproductive Health Series, October 2006.
11. Michael T Mbizvo and Anne Burke, BMC reproductive health: family planning global conference series, Reproductive Health 2016; 13: 9.

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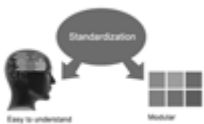
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AUXILIARY MEMBERSHIPS

Institutional Fellow of Open Association of Research Society (USA) - OARS (USA)

Global Journals Incorporation (USA) is accredited by Open Association of Research Society, U.S.A (OARS) and in turn, affiliates research institutions as “Institutional Fellow of Open Association of Research Society” (IFOARS).

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The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as “Institutional Board of Open Association of Research Society”-(IBOARS).

The Institute will be entitled to following benefits:



The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA). The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

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We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.



After nomination of your institution as “Institutional Fellow” and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.

The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.



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- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.



- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10% discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
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- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in-depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of “Difference of Opinion [if any]” among the Board members, our decision will be final and binding to everyone.

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We accept the manuscript submissions in any standard (generic) format.

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2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s') names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
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Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

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Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- 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.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

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



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

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The title page must carry an informative 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) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

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A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

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

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning 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 a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

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Numerical methods used should be transparent and, where appropriate, supported by references.

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Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

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Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

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Tables: Tables should be 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. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



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Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

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1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. 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.

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

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

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10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. 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 for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

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

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

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

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.



20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

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23. Upon 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 for 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 of 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 criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to 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 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 avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
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- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

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

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Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
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Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
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Approach:

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- o Simplify—detail how procedures were completed, not how they were performed on a particular day.
- o If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

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- o Resources and methods are not a set of information.
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The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

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- o Recommendations for detailed papers will offer supplementary suggestions.

Approach:

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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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