The Impact of Single Suture Closure Technique on Oral Health-Related Quality of Life (OHRQoL) Following Mandibular Third Molar Surgery; A Prospective Observational Study.

*Chiedu Benz **Ogboh**, *Peter Esezobor **Egbor**, *Emeka Danielson **Odai**, *Ozoemene Ndubuisi **Obuekwe**

*[*Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria].*

Correspondence
Dr Chiedu Benz Ogboh
Department of Oral and Maxillofacial Surgery
University of Benin Teaching Hospital
Benin City, Edo State
Nigeria
Email: drbenz2004@gmail.com

ABSTRACT

Background: The surgical removal of impacted mandibular third molars is commonly associated with postoperative pain, swelling, trismus, and reduced oral health-related quality of life (OHRQoL). Closure technique influences recovery. The single suture closure technique has been proposed to reduce morbidity. This study aimed to assess the impact of single suture closure techniques on the OHRQoL of patients following impacted mandibular third molar surgery.

Methods: A prospective observational study was conducted at the University of Benin Teaching Hospital, Nigeria, involving 47 participants undergoing mandibular third molar extraction with the single suture technique. OHRQoL was measured using a modified Oral Health Impact Profile-14 (OHIP-14) at baseline, Day 1, Day 3, Day 7, and 1 month postoperatively. Data was analyzed with SPSS version 24, with significance level set at $p < 0.05$.

Results: At baseline, most patients reported impaired OHRQoL due to impacted teeth. Postoperatively, severe impacts were greatest on Day 1 and Day 3, consistent with inflammatory phase. By Day 7, OHRQoL improved significantly, with fewer severe impacts. At 1 month, nearly all patients reported moderate or no impacts, reflecting recovery to baseline or better. No significant associations were found between socio-demographics and OHRQoL outcomes ($p > 0.05$).

Conclusion: The single suture closure technique was associated with progressive improvement in OHRQoL following mandibular third molar surgery. By balancing flap stability with adequate drainage, it offers a reliable and patient-centered alternative to conventional closure techniques.

Keywords: Mandibular third molar extraction, Single suture closure, OHRQoL, Postoperative outcomes.

Chiedu Benz Ogboh
https://orcid.org/0009-0009-0330-7888
Peter Esezobor Egbor
https://orcid.org/0000-0001-6658-0149
Emeka Danielson Odai
https://orcid.org/0000-0001-9172-583X
Ozoemene Ndubuisi Obuekwe
https://orcid.org/0000-0002-6723-9273

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INTRODUCTION

The surgical removal of impacted mandibular third molars is a commonly performed surgery in the field of maxillofacial surgery globally.[1] Although it is considered a routine procedure, it is usually associated with pain, swelling, trismus, and impaired oral function which all point to postoperative morbidity.[1] Evidently, postoperative morbidity negatively affects oral health-related quality of life (OHRQoL).[1,2] This postoperative morbidity is as a result of tissue trauma and post-surgery inflammatory response.[3]

Closure techniques have been recognized to play a critical role in postoperative recovery.[4] Different closure techniques are available and the most conventional being the primary closure is characterized by the flap being sutured completely thereby providing stability.[4] However, the completely sutured flap may entrap exudates, resulting in increased tension and predisposing to pain and swelling[4]. Secondary closure which is characterized by leaving the wound open helps to facilitate drainage but is usually associated with slower soft tissue healing.[5,6] Alternative techniques such as the single suture close technique have been proposed to overcome the limitations of other techniques.[7]

The single suture closure technique is characterized by the mucoperiosteal flap being repositioned and secured by a single suture specifically at the distal relieving incision.[8] This technique provides enhanced opportunity for effective open drainage. It may help in minimizing flap tension and promoting adequate drainage while still maintaining stability at same time.[8] This underscores the fact that the single suture closure technique may help in improving postoperative recovery and patient comfort.

Numerous studies have examined multiple closure techniques post third molar surgery with inconsistent results.[9-12] Some of these studies have shown reduced swelling and trismus with secondary closure, while others have revealed no significant difference in outcomes.[10,11] Regardless of this, there is little or no patient-centered studies focusing solely on the impact of single suture closure on OHRQoL.

Oral Health Impact Profile-14 (OHIP-14) is a validated instrument for evaluating the effects of oral health conditions and therapeutic interventions on patients' quality of life.[13] This validated instrument enables the evaluation of multiple domains such as functional limitation, pain, psychological discomfort amongst others.[13] The instrument therefore gives a comprehensive representation of the postoperative experience of patient.

Hence, this study aims to assess the impact of the single suture closure technique on the OHRQoL of patients after mandibular third molar surgery across multiple postoperative time points with the aid of the OHIP-14 instrument.

MATERIALS AND METHODS

Design of the Study: This prospective observational study was conducted at the Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria. Ethical approval was obtained from the University Benin Teaching Hospital (UBTH) Ethics and Research Committee, and written informed consent was also obtained from all participants who took part in the study.

Population of the Study: Patients indicated for surgical removal of impacted mandibular third molars at the Oral and Maxillofacial Surgery Clinic, University of Benin Teaching Hospital, Benin-City, Edo state, Nigeria were recruited.

Inclusion Criteria: All patients with age ≥ 18 years, indicated for mandibular third molar surgery who met the National Institute for Health and Clinical Excellence (NICE) guidelines[14], moderate Pederson difficulty index score, literate, surgical site free of active infection, American Society of Anaesthesiologist physical status 1 (ASA 1).

Exclusion Criteria: Patient with systematic conditions affecting healing such as diabetes, pregnancy or lactation, odontogenic infection at operative site, allergy to local anaesthetics or prescribed drugs, previous surgery at operative site and declined consent.

Sample Size and Sampling: A total of 47 patients were consecutively recruited

Surgical Procedure: All surgeries were performed under aseptic conditions. Local anaesthesia was achieved using 2% lignocaine with 1:100,000 adrenaline through inferior alveolar, lingual, and long buccal nerve blocks. A triangular mucoperiosteal flap was raised, and bone guttering was performed with the aid of a round carbide bur under saline irrigation. Impacted teeth were elevated and delivered as necessary, with smoothing of sharp bony edges and thorough irrigation of the socket. Closure was then achieved by the use of the single suture technique which involved a single 3-0 silk suture being placed on the interdental papilla distal to the mandibular second molar, leaving the relieving incisions open for drainage.

Outcome Measure: The primary outcome was OHRQoL, assessed using the validated OHIP-14 questionnaire (modified) across five time points which are Baseline, Day 1, Day 3, Day 5, Day 7, and 1 month. Responses were categorized into "No Impact", "Moderate Impact", or "Severe Impact".

Statistical Analysis: Data was analysed using IBM SPSS version 24 (IBM Corp, Chicago, IL, USA). Descriptive statistics summarized socio-demographic and OHIP-14 data. Associations between socio-demographic data and OHRQoL categories were tested using Chi-square and Fisher's exact tests. Statistical significance was set at $p < 0.05$.

RESULTS

The socio-demographic distribution and OHRQoL outcomes are presented in tables 1-5 across all time points which include Baseline, Day 1, Day 3, Day 7 and 1 Month.

At baseline, across all socio-demographic groups, no participant reported "No Impact". All the 47 participants experienced either moderate or severe impact on OHRQoL with moderate impact dominating most categories. Middle-aged adults (21-40) predominantly showed moderate impact with participants over 40 years experiencing only moderate impact. Participants aged ≤20 years exhibited an equal distribution of moderate and severe impacts (4.3%). Both males and females reported mostly moderate impacts. Severe impact was equal between sexes. However, females showed higher overall prevalence of moderate impact. Single participants experienced more moderate (53.2%) and severe impact (17.0%) than the married participants. Christians dominated the sample and showed high prevalence of moderate impact. The only Muslim participant showed severe impact. Participants with tertiary education showed highest moderate impact. Secondary-educated respondents showed mixed patterns. Across all occupational levels, moderate impact was consistently higher with level V having the highest moderate (29.8%) and severe (10.6%) impacts. Both Edo and non-Edo participants showed a predominance of moderate impact (57.4% and 21.3%, respectively). None of the socio demographic characteristics demonstrated a statistically significant association with impact levels at baseline (Age p=0.468, Sex p=0.473, Marital status p=0.700, Religion p=0.213, Education p=0.341, Occupation p=0.524, Ethnicity p=0.456).

On day 1, across all sociodemographic groups, moderate impact on OHRQoL was consistently the dominant outcome, followed by severe impact in a smaller but notable proportion of participants. "No-impact" remained low across all categories (0–4.3%). Across age groups, most participants experienced moderate impact. However, moderate (36.2%) and severe impacts (14.9%) were most prominent among those aged 21–30 years. Both males and females predominantly reported moderate impact (31.9% and 36.2%, respectively). Severe impact was higher among females (19.1%) compared with males (6.4%). "No-impact" response was reported only among the female participants (6.4%). Single participants showed a higher proportion of moderate (48.9%) and severe impact (19.1%) compared with married participants. Both single and married participants reported low "no impact" OHRQoL. Among Christians, moderate impact accounted for the majority (68.1%), with severe impact contributing 23.4%. The only Muslims participant reported severe impact. Participants with tertiary education reported the greatest proportion of moderate impact (55.3%) and showed a substantial severe-impact rate (21.3%). Those with secondary education showed a lower severe-impact proportion (2.1%) and more modest moderate impact (12.8%). The only participant without formal education reported severe impact. Across all occupational levels, moderate impact remained the most frequently reported response. Severe impact appeared across most levels but remained low (1.1–10.6%). No-impact responses were minimal. Both Edo/Indigenous and Non-Edo groups were characterized by a predominance of moderate impact (53.2% and 14.9%, respectively). Severe impact was slightly higher among the

Edo/Indigenous group (14.9%) compared with the non-Edo group (10.6%). No-impact responses remained low in both ethnic categories. None of the sociodemographic characteristics demonstrated a statistically significant association with impact levels (Age p=0.244, Sex p=0.203, Marital status p=0.364, Religion p=0.319, Education p=0.447, Occupation p=0.515, Ethnicity p=0.103).

At Day 3, postoperatively, moderate impact was the most frequently reported outcome across all demographic categories, accounting for 76.6% of responses overall. Severe impact occurred in 23.4% of participants, while no-impact responses were absent in all groups. Moderate impact predominated across all age groups, ranging from 4.3% to 34.0%. Severe impact was most pronounced among participants aged 21–30 years (17.0%), followed by those ≤20 years (4.3%) and 31–40 years (2.1%). No severe impact was observed in participants >40 years. Both males and females primarily reported moderate impact (31.9% and 44.7%, respectively). Severe impact was more common among females (17.0%) than males (6.4%). Single participants demonstrated higher levels of both moderate (46.8%) and severe impact (23.4%), whereas married participants experienced only moderate impact (29.8%) and no severe impact. Christians reported the majority of moderate (76.6%) and severe impacts (21.3%). The single Muslim participant reported severe impact (2.1%). Participants with tertiary education accounted for most moderate (59.6%) and severe impacts (23.4%). Those with secondary education and no formal education reported only moderate impact (14.9%) and (2.1%) respectively. Moderate impact dominated across occupational categories (6.4–23.4%). Severe impact occurred across several levels but was most frequent in Level V (17.0%). Edo Indigenous participants exhibited higher proportions of both moderate (53.2%) and severe impacts (17.0%). Non-Edo participants reported moderate (23.4%) and severe (6.4%) impacts, though at lower frequencies. Importantly, none of the socio-demographic variables demonstrated a statistically significant association with the level of impact (all p-values > 0.05). (Age p=0.366, Sex p=0.862, Marital status p=0.210, Religion p=1.000, Education p=0.782, Occupation p=0.974, Ethnicity p=0.648).

At Day 7 postoperatively, moderate impact remained the dominant OHIP-14 outcome across all demographic categories, accounting for 85.1% of responses overall. Severe impact occurred in 12.8% of participants, while no-impact responses were uncommon (2.1%). Moderate impact predominated across all age groups (6.4–42.6%). Severe impact was most frequent among participants aged 21–30 years (6.4%) and 31–40 years (6.4%). The ≤20-year group also recorded one case of severe impact (2.1%), whereas participants >40 years showed no severe impact. Females exhibited higher proportions of both moderate (48.9%) and severe impact (10.6%) compared with males. "No-impact" responses occurred only in females (2.1%). Single participants reported more moderate impact (55.3%) and all severe-impact cases (12.8%), while married participants showed only moderate impact (29.8%). Christians accounted for nearly all cases of moderate (83.0%) and severe impact (12.8%). The single Muslim participant reported moderate impact (2.1%). Those with tertiary education showed the highest proportion of moderate impact (70.2%) and most severe responses (10.6%). Participants with secondary education showed fewer severe cases (2.1%). The single participant with no formal education reported moderate impact (2.2%). Moderate impact was consistently predominant across occupational levels (8.5–34.0%). Severe impact appeared mainly in Levels I, III, IV, and V, with the highest proportion in Level V (6.4%). Edo participants accounted for most moderate (55.3%) and all severe-impact cases (12.8%). Non-Edo participants reported only moderate impact (29.8%) and no severe responses. None of the socio demographic characteristics demonstrated a statistically significant association with impact levels at 7 days post operatively (Age p=0.412, Sex p=0.325, Marital status p=0.528, Religion p=0.477, Education p=0.339, Occupation p=0.544, Ethnicity p=0.362).

At one month postoperatively, moderate impact constituted the predominant OHIP-14 outcome across all demographic categories. Participants aged 21–30 years were the only group with a recorded severe impact (2.1%) and represented the largest proportion of moderate impact (44.7%) followed by participants aged 31-40 (31.9%). Those ≤20 years showed only moderate impact (8.5%), while individuals >40 years exhibited minimal impact overall. "No-impact" responses were rare in all age groups. Both males and females predominantly reported moderate impact (34.0% and 55.3%, respectively). Severe impact was recorded only among males (2.1%), whereas females exhibited slightly more "no-impact" responses (6.4%). Single participants showed a higher proportion of moderate

impact (63.8%) compared with married participants (25.5%). Severe impact appeared only among married participants (2.1%). Christians accounted for nearly all moderate-impact responses (87.2%) and the sole severe-impact case (2.1%). The single Muslim participant reported moderate impact, reflecting the overall dominance of moderate impairment. Participants with tertiary education demonstrated the highest distribution of moderate impact (68.1%) and the only case of severe impact (2.1%). Those with secondary or no formal education reported only moderate or "no-impact". Across all occupational levels, moderate impact remained the most frequently reported outcome (ranging from 10.6% to 38.3%). Severe impact was observed only in Level III (2.1%). No-impact responses were infrequent and evenly distributed. Both Edo and Non-Edo participants showed a predominance of moderate impact (63.8% and 25.5%, respectively). Severe impact was recorded only among the non-Edo group (2.1%). "No-impact" responses were uncommon. None of the socio demographic characteristics demonstrated a statistically significant association with impact levels at one month post operatively (Age p=0.418, Sex p=0.285, Marital status p=0.437, Religion p=0.652, Education p=0.336, Occupation p=0.583, Ethnicity p=0.327).

Table 1: OHIP-14 Quality of Life at Baseline (Single Suture Closure Technique)

Variable	Category	No Impact n (%)	Moderate Impact n (%)	Severe Impact n (%)	Total n (%)	p-value
Age (years)	≤20	0 (0.0)	2 (4.3)	2 (4.3)	4 (8.5)	0.468
	21–30	0 (0.0)	19 (40.4)	5 (10.6)	24 (51.1)	
	31–40	0 (0.0)	13 (27.7)	3 (6.4)	16 (34.0)	
	>40	0 (0.0)	3 (6.4)	0 (0.0)	3 (6.4)	
Sex	Male	0 (0.0)	13 (27.7)	5 (10.6)	18 (38.3)	0.473
	Female	0 (0.0)	24 (51.1)	5 (10.6)	29 (61.7)	
MaritalStatus	Single	0 (0.0)	25 (53.2)	8 (17.0)	33 (70.2)	0.700
	Married	0 (0.0)	12 (25.5)	2 (4.3)	14 (29.8)	
Religion	Christian	0 (0.0)	37 (78.7)	9 (19.1)	46 (97.9)	0.213
	Muslim	0 (0.0)	0 (0.0)	1 (2.1)	1 (2.1)	
Education	Primary	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.341
	Secondary	0 (0.0)	4 (8.5)	3 (6.4)	7 (14.9)	
	Tertiary	0 (0.0)	32 (68.1)	7 (14.9)	39 (83.0)	
	None	0 (0.0)	1 (2.1)	0 (0.0)	1 (2.1)	
Occupation	Level I	0 (0.0)	3 (6.4)	2 (4.3)	5 (10.6)	0.524
	Level II	0 (0.0)	6 (12.8)	1 (2.1)	7 (14.9)	
	Level III	0 (0.0)	7 (14.9)	2 (4.3)	9 (19.1)	
	Level IV	0 (0.0)	7 (14.9)	0 (0.0)	7 (14.9)	
	Level V	0 (0.0)	14 (29.8)	5 (10.6)	19 (40.4)	
Ethnicity	Non-Edo	0 (0.0)	10 (21.3)	4 (8.5)	14 (29.8)	0.456
	Edo	0 (0.0)	27 (57.4)	6 (12.8)	33 (70.2)	
Total		0 (0.0)	37 (78.7)	10 (21.3)	47 (100.0)	

Table 2: OHIP-14 Quality of Life at Day 1 (Single Suture Closure Technique)

Variable	Category	No Impact n (%)	Moderate Impact n (%)	Severe Impact n (%)	Total n (%)	p-value
Age (years)	≤20	0 (0.0)	3 (6.4)	1 (2.1)	4 (8.5)	0.244
	21–30	0 (0.0)	17 (36.2)	7 (14.9)	24 (51.1)	
	31–40	2 (4.3)	11 (23.4)	3 (6.4)	16 (34.0)	
	>40	1 (2.1)	1 (2.1)	1 (2.1)	3 (6.4)	
Sex	Male	0 (0.0)	15 (31.9)	3 (6.4)	18 (38.3)	0.203
	Female	3 (6.4)	17 (36.2)	9 (19.1)	29 (61.7)	
Maritalstatus	Single	1 (2.1)	23 (48.9)	9 (19.1)	33 (70.2)	0.364
	Married	2 (4.3)	9 (19.1)	3 (6.4)	14 (29.8)	
Religion	Christian	3 (6.4)	32 (68.1)	11 (23.4)	46 (97.9)	0.319
	Muslim	0 (0.0)	0 (0.0)	1 (2.1)	1 (2.1)	
Education	Primary	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.447
	Secondary	0 (0.0)	6 (12.8)	1 (2.1)	7 (14.9)	
	Tertiary	3 (6.4)	26 (55.3)	10 (21.3)	39 (83.0)	
	None	0 (0.0)	0 (0.0)	1 (2.1)	1 (2.1)	
Occupation	Level I	0 (0.0)	3 (6.4)	2 (4.3)	5 (10.6)	0.515
	Level II	1 (2.1)	4 (8.5)	2 (4.3)	7 (14.9)	
	Level III	2 (4.3)	6 (12.8)	1 (2.1)	9 (19.1)	
	Level IV	0 (0.0)	5 (10.6)	2 (4.3)	7 (14.9)	
	Level V	0 (0.0)	14 (29.8)	5 (10.6)	19 (40.4)	
Ethnicity	Non-Edo	2 (4.3)	7 (14.9)	5 (10.6)	14 (29.8)	0.103
	Edo	1 (2.1)	25 (53.2)	7 (14.9)	33 (70.2)	
Total		3 (6.4)	32 (68.1)	12 (25.5)	47 (100.0)	

Table 3: OHIP-14 Quality of Life at Day 3 (Single Suture Closure Technique)

Variable	Category	No Impact n (%)	Moderate Impact n (%)	Severe Impact n (%)	Total n (%)	p-value
Age (years)	≤20	0 (0.0)	2 (4.3)	2 (4.3)	4 (8.5)	0.366
	21–30	0 (0.0)	16 (34.0)	8 (17.0)	24 (51.1)	
	31–40	0 (0.0)	15 (31.9)	1 (2.1)	16 (34.0)	
	>40	0 (0.0)	3 (6.4)	0 (0.0)	3 (6.4)	
Sex	Male	0 (0.0)	15 (31.9)	3 (6.4)	18 (38.3)	0.862
	Female	0 (0.0)	21 (44.7)	8 (17.0)	29 (61.7)	
Marital Status	Single	0 (0.0)	22 (46.8)	11 (23.4)	33 (70.2)	0.210
	Married	0 (0.0)	14 (29.8)	0 (0.0)	14 (29.8)	
Religion	Christian	0 (0.0)	36 (76.6)	10 (21.3)	46 (97.9)	1.000
	Muslim	0 (0.0)	0 (0.0)	1 (2.1)	1 (2.1)	
Education	Primary	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0.782
	Secondary	0 (0.0)	7 (14.9)	0 (0.0)	7 (14.9)	
	Tertiary	0 (0.0)	28 (59.6)	11 (23.4)	39 (83.0)	
	None	0 (0.0)	1 (2.1)	0 (0.0)	1 (2.1)	
Occupation	Level I	0 (0.0)	3 (6.4)	2 (4.3)	5 (10.6)	0.974
	Level II	0 (0.0)	7 (14.9)	0 (0.0)	7 (14.9)	
	Level III	0 (0.0)	8 (17.0)	1 (2.1)	9 (19.1)	
	Level IV	0 (0.0)	7 (14.9)	0 (0.0)	7 (14.9)	
	Level V	0 (0.0)	11 (23.4)	8 (17.0)	19 (40.4)	
Ethnicity	Non-Edo	0 (0.0)	11 (23.4)	3 (6.4)	14 (29.8)	0.648
	Edo	0 (0.0)	25 (53.2)	8 (17.0)	33 (70.2)	
Total		0 (0.0)	36 (76.6)	11 (23.4)	47 (100.0)	

Table 4: OHIP-14 Quality of Life at Day 7 (Single Suture Closure Technique)

Variable	Category	No Impact n (%)	Moderate Impact n (%)	Severe Impact n (%)	Total n (%)	p-value
Age (years)	≤20	0 (0.0)	3 (6.4)	1 (2.1)	4 (8.5)	0.412
	21–30	1 (2.1)	20 (42.6)	3 (6.4)	24 (51.1)	
	31–40	0 (0.0)	14 (29.8)	2 (6.4)	16 (34.0)	
	>40	0 (0.0)	3 (6.4)	0 (0.0)	3 (6.4)	
Sex	Male	0 (0.0)	17 (36.2)	1 (2.1)	18 (38.3)	0.325
	Female	1 (2.1)	23 (48.9)	5 (10.6)	29 (61.7)	
Marital Status	Single	1 (2.1)	26 (55.3)	6 (12.8)	33 (70.2)	0.528
	Married	0 (0.0)	14 (29.8)	0 (0.0)	14 (29.8)	
Religion	Christian	1 (2.1)	39 (83.0)	6 (12.8)	46 (97.9)	0.477
	Muslim	0 (0.0)	1 (2.1)	0 (0.0)	1 (2.1)	
Education	Secondary	0 (0.0)	6 (12.8)	1 (2.1)	7 (14.9)	0.339
	Tertiary	1 (2.1)	33 (70.2)	5 (10.6)	39 (83.0)	
	None	0 (0.0)	1 (2.1)	0 (0.0)	1 (2.1)	
Occupation	Level I	0 (0.0)	4 (8.5)	1 (2.1)	5 (10.6)	0.544
	Level II	0 (0.0)	7 (14.9)	0 (0.0)	7 (14.9)	
	Level III	1 (2.1)	7 (14.9)	1 (2.1)	9 (19.1)	
	Level IV	0 (0.0)	6 (12.8)	1 (2.1)	7 (14.9)	
	Level V	0 (0.0)	16 (34.0)	3 (6.4)	19 (40.4)	
Ethnicity	Non-Edo	0 (0.0)	14 (29.8)	0 (0.0)	14 (29.8)	0.362
	Edo	1 (2.1)	26 (55.3)	6 (12.8)	33 (70.2)	
Total		1 (2.1)	40 (85.1)	6 (12.8)	47 (100.0)	

Table 5: OHIP-14 Quality of Life at 1 Month (Single Suture Closure Technique)

Variable	Category	No Impact n (%)	Moderate Impact n (%)	Severe Impact n (%)	Total n (%)	p-value
Age (years)	≤20	0 (0.0)	4 (8.5)	0 (0.0)	4 (8.5)	0.418
	21–30	2 (4.3)	21 (44.7)	1 (2.1)	24 (51.1)	
	31–40	1 (2.1)	15 (31.9)	0 (0.0)	16 (34.0)	
	>40	1 (2.1)	2 (4.3)	0 (0.0)	3 (6.4)	
Sex	Male	1 (2.1)	16 (34.0)	1 (2.1)	18 (38.3)	0.285
	Female	3 (6.4)	26 (55.3)	0 (0.0)	29 (61.7)	
MaritalStatus	Single	3 (6.4)	30 (63.8)	0 (0.0)	33 (70.2)	0.437
	Married	1 (2.1)	12 (25.5)	1 (2.1)	14 (29.8)	
Religion	Christian	4 (8.5)	41 (87.2)	1 (2.1)	46 (97.9)	0.652
	Muslim	0 (0.0)	1 (2.1)	0 (0.0)	1 (2.1)	
Education	Secondary	1 (2.1)	6 (12.8)	0 (0.0)	7 (14.9)	0.336
	Tertiary	3 (6.4)	32 (68.1)	1 (2.1)	36 (76.6)	
	None	0 (0.0)	4 (8.5)	0 (0.0)	4 (8.5)	
Occupation	Level I	0 (0.0)	5 (10.6)	0 (0.0)	5 (10.6)	0.583
	Level II	0 (0.0)	7 (14.9)	0 (0.0)	7 (14.9)	
	Level III	1 (2.1)	7 (14.9)	1 (2.1)	9 (19.1)	
	Level IV	1 (2.1)	6 (12.8)	0 (0.0)	7 (14.9)	
	Level V	2 (4.3)	18 (38.3)	0 (0.0)	20 (42.6)	
Ethnicity	Non-Edo	0 (0.0)	12 (25.5)	1 (2.1)	13 (27.7)	0.327
	Edo	4 (8.5)	30 (63.8)	0 (0.0)	34 (72.3)	
Total		4 (8.5)	42 (89.4)	1 (2.1)	47 (100.0)	

DISCUSSION

This study evaluated the impact of single suture closure technique on OHRQoL following mandibular third molar surgery using the OHIP-14 questionnaire. The findings of the study indicate that although patients experienced notable post-operative

morbidity in the early days after surgery, there was steady improvement across the observation period, with significant recovery by one month.

At baseline, most participants already reported impaired quality of life due to the presence of impacted mandibular third molars. This corresponds with previous studies documenting that impacted third molars are often associated with pain, recurrent pericoronitis, and infection which adversely affect daily oral function as well as general well-being.[1,2,15-17] In addition, a systematic reviews[16] emphasized that mandibular third molars contribute significantly to negative quality of life before extraction, especially when symptomatic. This preoperative burden therefore underlines the need for surgical removal not only as a curative procedure but also as a means of improving OHRQoL.

On the first postoperative day (Day 1), the proportion of proportion of patient who reported severe impact increased, reflecting the acute inflammatory response to surgical trauma. This pattern is consistent with studies showing that postoperative pain, swelling, and trismus usually peak within the first 24-48 hours.[18-20] By the third day, the persistence of morbidity in this cohort was similar to findings from studies which indicated that the impact on quality of life often remains high during the early recovery stage.[17-19] More importantly, the findings of this present study suggest no further worsening beyond Day 3, indicating that the single suture closure technique may mitigate prolonged morbidity by reducing flap tension and allowing drainage.

By Day 7, a clear improvement in OHRQoL was observed with a marked reduction in severe impacts. The recovery trajectory is in line with previous studies demonstrating that modified closure techniques result in reduced postoperative swelling and pain compared with primary closure.[8-10] Pasqualini et al.[10] found out that secondary closure led to significantly less pain and swelling after mandibular third molar removal compared to primary closure. Similarly, Osunde et al.[8] observed improved outcomes with partial closure, further supporting the role of drainage in enhancing recovery. More recently, a study comparing single-suture and conventional three-suture techniques reported that the single suture technique reduced postoperative pain and trismus, though differences in swelling were not significant.[21] These reports corroborate the findings of the present study that single suture closure provides a clinical balance between stability and drainage, hence accelerating recovery.

After one month, nearly all the participants reported only moderate or no impact on quality of life demonstrating a return to baseline or improved function. This long-term improvement is consistent with studies showing that the negative quality of life impacts of third molar surgery are generally short-lived, with most patient experiencing resolution of symptoms within 4-6 weeks.[1,18,22,23] However, some randomized studies of sutureless techniques have shown no significant long-term differences in quality of life or healing compared to sutured closures.[24,25] This also highlights the fact that single suture closure achieves predictable recovery while avoiding the risks of instability sometimes associated with completely sutureless techniques.

More importantly, socio-demographic variables such as age, sex, marital status, education, and occupation were not significantly associated with OHRQoL outcomes. While some studies have reported variations in postoperative morbidity by sex or age, with females and younger patients sometimes experiencing worse symptoms[26-29], the findings of this study are consistent with other studies[30,31] who reported that sex and younger age do not significantly influence postoperative pain perception after mandibular third molar surgery. However, this variability suggests that the effect of sociodemographic factors may depend heavily on surgery type, technique (e.g. suture type, flap design), postop care, and timing of assessment (immediate days vs. long-term follow-up). In fact, this evidence also supports the findings that the benefits of a technique with consistent mechanical advantages (like single-suture closure) may be generalizable across different patient groups, because demographic factors do not always or consistently predict worse outcomes.

CONCLUSION

The single suture closure technique improved OHRQoL after mandibular third molar surgery, reducing morbidity and supporting steady recovery within one month. By balancing flap stability and drainage, it offers a simple, cost-effective alternative to conventional methods, with broad applicability and potential to enhance patient-centered surgical outcomes.

Limitation of the study

The relatively small sample size limits generalizability of the findings of the present study to broader population. The reliance on self-reported outcomes via the OHIP-14, without incorporation of

objective clinical measures, may introduce subjective bias. The short follow-up duration also restricts conclusions about long-term functional outcomes or tissue healing.

Future Directions

Future randomized controlled trials with larger sample sizes are needed to directly compare single suture closure with other suture techniques. Incorporating both patient-reported outcomes such as OHIP-14 and objective clinical measures such as swelling, trismus and periodontal status would provide more comprehensive evidence. Longer follow-up would also help determine whether the early quality of life benefits of single suture closure translate into improved periodontal or functional outcomes in the long term.

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Competing Interests

The author declares that there no competing interest.

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