Patient satisfaction with nursing care in Ethiopia: A systematic review and meta-analysis

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Abstract

Background: Patient satisfaction with nursing care has been considered as the most important predictor of the overall patient satisfaction with hospital service and quality of health care service at large. However, the national level of patient satisfaction with nursing care remains unknown. Hence, the objective of this systematic review and meta-analysis was to estimate patient satisfaction with nursing care in Ethiopia.

Methods: Studies were accessed through an electronic web-based search strategy from PubMed, Cochrane Library, Google Scholar, Embase, PsycINFO and CINAHL by using combination search terms. Qualities of each included article assessed by using a modified version of the Newcastle-Ottawa Scale for cross-sectional studies. All statistical analyses were done using STATA version 14 software. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline was followed for reporting results.

Results: Of 1,166 records screened, 15 studies with 6091 participants were included. The estimated pooled level of patient satisfaction with nursing care in Ethiopia was 55.15% (95% CI (47.35, 62.95%)). Based on the subgroup analysis, the estimated level of patient satisfaction was 61.84% (95% CI: 44.49, 79.2) in Addis Ababa, 54.24 %(95%CI: 46.84, 61.65) in Amhara region, 44.06% (95%CI: 38.09, 50.03) in SNNP, and 53.02 %(95% CI: 50.03, 56.00) in other regions. Patients who have one nurse in charge [(OR 1.08(0.45, 2.62)], with no history of previous hospitalization [(OR 1.37(0.82, 2.31)], living in the urban area [(OR 1.07(0.70, 1.65)], / and those who have no comorbid disease [(OR 1.08(0.48, 2.62)] were more likely to be satisfied with nursing care than their counterparts even though it was not statistically significant.

Conclusion: This meta-analysis revealed that about one in two patients were not satisfied with the nursing care provided in Ethiopia. Therefore, Ministry of Health should give more emphasis to the quality of nursing care in order to increase patient satisfaction which is important to improve the overall quality of healthcare service.

Keywords: Nursing care, patient satisfaction, systematic review, meta-analysis, Ethiopia.

Background

Quality healthcare delivery and creation of patient satisfaction are the primary goals of hospitals[1]. One of the ways of evaluating the performance of health care is assessing patient satisfaction with the nursing care since it was considered as a fundamental indicator of quality health care provided in hospitals[2, 3].

Patient satisfaction simply described as the value and reaction of patients towards the care they received[4]. Moreover, according to the American Nursing Association patient satisfaction defined as patients' value and attitude of care they received from the nursing staffs during their hospitalization[5].

Today, patient satisfaction is the major concern of healthcare institutions. Satisfied patients are more likely to have a good relationship with the nurses which result in improved quality of care[6, 7]. Literature also suggests that patient satisfaction is directly linked to better patient outcomes. Furthermore, achieving patient satisfaction with nursing care result in better patient compliance with health care regimens and better health outcomes[8].

Nurses are a pivotal part of the health care system and they spent more time with patients. Moreover, nurses provide about 80% of primary health care service in the hospital. Hence, patient satisfaction with the nursing care can determine the overall satisfaction of the hospital service provided [8-10].

Determining the factors that influence patient satisfaction is important for nurses to improve the quality of nursing care. Patient satisfaction with nursing care can be affected by numerous factors since it is a complex and multidimensional concept[8, 11]. For example, some literature suggested that availability of an assigned nurse, behaviors of nurses, the surrounding physical

environment, and history of the previous hospitalization are the major determinant factors for the overall patient satisfaction[4, 8, 12-14]. While others showed that sociodemographic factors like age, residence and educational level are the most determining factors for patient satisfaction[15-18].

In recent years, many studies have been conducted to determine the level of patient satisfaction with nursing care. For instance, a study was done in Iraq[19], Brazil[20] and Egypt[21] showed that patients were highly satisfied with the nursing care. Additionally, the overall level of patient satisfaction with nursing care is 69% in Iran[22], 67% in Kenya[23], and 33% in Ghana[24]. On the contrary, the results of the study done in India revealed that most of the hospitalized patients have poor perception regarding nursing care[25].

The Ethiopian Federal Ministry of Health is striving to provide quality health care service in the country by developing different quality management guidelines and health sector development plans in order to increase patients' satisfaction with the healthcare service[26-28].

Though few patient satisfaction surveys with nursing care have been conducted previously in different areas of Ethiopia, the overall level of patient satisfaction with nursing care in the country level remains unknown. Moreover, they are not consistent and inconclusive to determine the level of patient satisfaction at the country level. In addition, determining the level of patient satisfaction with nursing care appears crucial to monitor and improve the quality of nursing care. Therefore, the objective of this systematic review and meta-analysis is to estimate the pooled level of patient satisfaction with nursing care and to identify the contributing factors in Ethiopia.

Methods

Design and search strategy

The procedure for this systematic review and meta-analysis was designed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[29]. We searched PubMed, Cochrane Library, Google Scholar, CINAHL, Embase, and PsycINFO database for studies reporting the level of patient satisfaction with nursing care from study conception to May, / 2018. EndNote (version X8) reference management software was used to download, organize, review and cite the related articles. Comprehensive search was performed using the following search terms: “Patient satisfaction”, “satisfaction”, “determinants of patient satisfaction”, “nursing care”, and “Ethiopia”. “AND” and “OR”. Boolean operators were used to combine search terms. Furthermore, we manually searched cross references in order to identify additional relevant articles.

Inclusion and Exclusion criteria

We included studies reporting patient satisfaction with nursing care among admitted patients and its determinants in irrespective of their sex and other demographic characteristics. Studies were also included if they assessed the determinants of patient satisfaction with nursing care. Both published and gray literature reported in the English language regardless of date of study/publication were also included. Nevertheless, articles without full text and with poor quality were excluded. Two authors (H.M. and G.D.) independently evaluated the eligibility of all retrieved studies, and any disagreement and inconsistencies were resolved by discussion and consensus.

Data extraction and quality assessment

After the screening was completed, the relevant data from each included article were extracted using a pre-piloted data extraction format prepared in a Microsoft Excel spreadsheet. Data on

author/s name, year of publication, study area/Region, health institution, study design, sample size, prevalence and determinant factors were extracted from each included article by three independent authors (H.M. FW, and G.D). Disagreement and inconsistencies were resolved by discussion among the authors.

The Joanna Briggs Institute Prevalence Critical Appraisal Tool for use in systematic review for prevalence study was used for critical appraisal of studies[30]. Moreover, methodological and other quality of each article was assessed based on a modified version of the Newcastle-Ottawa Scale for cross-sectional study adapted from Modesti et al[31]. Two authors (HM, HB) independently assessed the quality of each article. Whenever it is necessary a third reviewer (TDH) were consulted. Any disagreement was resolved through discussion and consensus.

Statistical Analysis

The extracted data were transferred to STATA version 14 for meta-analysis. Meta-analysis of the level of patient satisfaction with nursing care was carried out using a random effects model, generating a pooled effect size with 95% confidence interval (CI). The effect of selected determinant variables was independently analyzed and was presented using a forest plot. We also reported measures of association using the ORs with a 95% CI. All data manipulation and statistical analyses were performed using Stata version 14.0 software.

Heterogeneity across studies was evaluated using I^2 test statistics and Cochrane Q statistics. I^2 statistics is used to quantify the percentage of total variation in study estimate due to heterogeneity. I^2 ranges between 0 and 100%. I^2>=75% indicate very high heterogeneity across the studies. A p-value of less than 0.05 was used to declare significant heterogeneity[32, 33]. The random effects model using Der Simonian and Laird method is the most common method in a

meta-analysis to adjust for the observed variability[34, 35]. Furthermore, the source of heterogeneity was also assessed by subgroup analysis based on region and meta-regression.

A Funnel plot was used for visual assessment of publication bias. Asymmetry of the funnel plot is an indicator of potential publication bias[36]. We also employed Egger's and the Begg 's test to determine if there was significant publication bias. A p-value of less than 0.05 was considered significant[37]. Finally, we performed a sensitivity analysis to describe whether the pooled effect size was influenced by individual studies.

Results

Search result and study characteristics

The electronic online search yielded 1166 records, of which 42 duplicate records identified and removed. Title and abstract screening result in the exclusion of 1042 non-relevant articles. From the remaining 82 articles, 28 articles were excluded since they are on general hospital service. Then, 54 articles underwent for full-text screening. However, 39 articles were excluded based on our predetermined eligibility criteria. Finally, a total of 15 articles included in the meta-analysis (Figure 1).

A total of 15 studies with 6,091 participants were included in this meta-analysis. Among 15 studies five[14, 28, 38-40] were conducted in Addis Ababa, five [26, 41-44] were conducted in Amhara region, two [27, 45] were in SNNP region, and three studies[12, 46, 47] were in other regions(Oromia, Harari and Tigray). All studies were a cross-sectional study conducted among admitted adult patients in different hospitals of Ethiopia (Table1).

Figure 1: PIRSMA Flowchart diagram of the study selection

169 Table 1: Characteristics of studies included in the meta-analysis of patient satisfaction with nursing care

S.No	Author/s[reference]	Publication Year	Study area, Region	Health Facility Name	Study Design	Sample Size	Proportion % (95%CI)
1	Mulugeta M. et al [28]	2014	Addis Ababa	Black Lion Hospital	Cross-sectional	374	90.1(87.1,93.1)
2	Getachew G. et al [38]	2016	Addis Ababa	Menelik Hospital	Cross-sectional	372	46.7(41.6,51.8)
3	Solomon Bekele [39]	2009	Addis Ababa	Addis Ababa Public Hospitals	Cross-sectional	435	56.3(51.6,61.0)
4	Bekele Chaka [40]	2005	Addis Ababa	Addis Ababa Public Hospitals	Cross-sectional	631	67.0(63.3,70.7)
5	Melsew Getinet [14]	2017	Addis Ababa	Addis Ababa Public Hospitals	Cross-sectional	422	48.8(44.0,53.6)
6	Melesse Belayneh [26]	2016	Bahir Dar, Amhara	Felege Hiwot Referral Hospital	Cross-sectional	236	44.9(38.6,51.2)
7	Negash AK. et al [43]	2014	Bahir Dar, Amhara	Felege Hiwot Referral Hospital	Cross-sectional	373	67.1(62.3,71.9)
8	Sharew NT. et al [44]	2018	Debre Birhan, Amhara	Debre Birhan Referral Hospital	Cross-sectional	384	49.2(44.2,54.2)
9	Alemu S. et al [41]	2014	Debre Markos, Amhara	Debre Markos Referral Hospital	Cross-sectional	392	56.9(52.0,61.9)
10	Haile Eyasu K. et al [42]	2016	Dessie, Amhara	Dessie Referral Hospital	Cross-sectional	374	52.5(47.4,57.6)
11	Mensa M. et al [27]	2017	Arba Minch, SNNP	Arba Minch General Hospital	Cross-sectional	236	40.9(35.5,46.3)
12	Legesse MT. et al [45]	2016	Hawassa, SNNP	Hawassa University Specialized Hospital	Cross-sectional	406	47.0(42.2,51.9)
13	Jiru TG. et al [46]	2017	Nagele Borena, Oromia	Nagele Borena And Adola General Hospital	Cross-sectional	413	55.9(51.1,60.7)
14	Ahmed T. et al [12]	2014	Harar, Harari	Public Hospitals in Eastern Ethiopia	Cross-sectional	582	52.7(48.6,56.8)
15	MollaTeferi [47]	2017	Mekelle, Tigray	Ayder Specialized Hospital	Cross-sectional	374	50.3(45.2,55.4)

170

171 **Patient satisfaction with nursing care**

172 The pooled effect size of patient satisfaction with nursing care using the fixed effect model
173 showed a significant heterogeneity across the studies. Therefore, we performed the analysis with
174 a random effects model with 95% CI in order to adjust for the observed variability. Using
175 random effects model, the overall estimated pooled level of patient satisfaction with nursing care
176 as reported by the 15 studies was 55.15% (95% CI (47.35, 62.95%)) with significant
177 heterogeneity between studies (I^2=97.7, P=0.001). The pooled effect size of patient satisfaction
178 with nursing care presented using forest plot (Figure2).

179 Figure 2: Forest plot showing the pooled level of patient satisfaction with nursing care

180 Subgroup analysis by region in Ethiopia was conducted to compare the level of patient
181 satisfaction with nursing care. Based on the subgroup analysis, the highest estimated level of
182 patient satisfaction was observed in Addis Ababa (61.84% (95% CI: 44.49, 79.2), I^2 = 98.9%),
183 followed by Amhara region (54.24% (95% CI: 46.84, 61.65), I^2 = 90.3 %). Moreover, the lowest
184 estimated level of patient satisfaction was observed in SNNP region (44.06% (95% CI: 38.09,
185 50.03), I^2= 63.4%) (Figure 3).

186 Figure 3: Subgroup analysis by regions on the level of patient satisfaction with nursing care

187 **Investigation of heterogeneity and publication bias**

188 Given that the result of this meta-analysis revealed a statistically significant heterogeneity among
189 studies (I^2 statistics=97.7%), we performed subgroup analysis by region in order to minimize
190 heterogeneity (Figure 3). Furthermore, to identify the possible source of heterogeneity, we
191 performed meta-regression using sample size and publication year as covariates. However, the

result of the meta-regression analysis showed that both covariates were not statistically significant for the presence of heterogeneity (Table 2).

Table 2: Meta-regression analysis of factors with heterogeneity of patient satisfaction with nursing care in Ethiopia, 2018.

Heterogeneity source	Coefficients	Std. Err.	P-value
Publication Year	**-1.3836**	**5.738**	**0.814**
Sample size	**0.01500**	**0.190**	**0.939**

Presence of publication bias was examined using funnel plot and Egger's test. Visual inspection of the funnel plot suggests symmetry (Figure 4). However, the result of Egger's test is statistically significant for the presence of publication bias (p=0.001). Moreover, the result of sensitivity analyses using random effects model suggested that no single study influenced the overall estimate (Figure 5).

Figure 4: Funnel plot to test publication bias of the 15 studies

Figure 5: Result of sensitivity analysis of the 15 studies

Determinant factors

Availability of assigned nurse in charge of individual care

Patients who had one nurse in charge of their care had 1.08 higher chance of being satisfied with nursing care compared to those patients without the assigned nurse in charge of their care although not statistically significant(OR: 1.08 (95% CI (0.45,2.62)) (Figure 6). The heterogeneity test (p=0.011) showed a significant evidence of variation across studies. Moreover, the result of Egger's test showed no statistically significant evidence of publication bias (P=0.541).

Figure 6: Forest plot showing the association between patient satisfaction and availability of one assigned nurse in charge of patient care

Place of residence

Patients living in the urban area had 1.07 higher chance of being satisfied with nursing care compared to those patient in a rural area although not statistically significant (OR: 1.07 (95% CI (0.70, 1.65)) (Figure 7). The heterogeneity test (P= 0.071) showed no significant evidence of variation across studies, Moreover, the result of Egger's test showed a significant evidence of publication bias(P=0.012).

Figure 7: Forest plot showing the association between patient satisfaction and residence

History of admission

Patients who had no history of previous hospitalization had 1.37 higher chance of being satisfied with nursing care compared to those patients with a history of admission although not statistically significant (OR: 1.37 (95% CI (0.82,2.31)) (Figure 8). The heterogeneity test (P= 0.001) showed a significant evidence of variation across studies. Moreover, the result of Egger's test showed no statistically significant evidence of publication bias (P=0.25).

Figure 8: Forest plot showing the association between patient satisfaction and history of admission

Presence of other diseases

Patients who had no comorbid disease had 1.08 higher chance of being satisfied with nursing care compared to those patients without comorbidity (OR: 1.08 (95% CI (0.48, 2.39)) (Figure 9). The heterogeneity test showed a significant evidence of variation across studies, P= 0.001. Moreover, the result of Egger's test to examine publication bias showed no statistically significant evidence of publication bias (P=0.91).

Figure 9: Forest plot showing the association between patient satisfaction and presence of other diseases

Discussion

Within the healthcare of today, nurses spend more time by giving bedside nursing care for admitted patients than any other healthcare professionals in the hospital. Hence, patient satisfaction with nursing care is a definitive determinant of the quality of healthcare in the hospital [19, 48, 49]. In this systematic review and meta-analysis, we estimated the pooled proportion of satisfied patients with nursing care in Ethiopia.

Assessing the level of patient satisfaction with nursing care is crucial to improving the quality of care, also patient satisfaction has been considered as an indicator of patient outcome[50]. Moreover, patients' overall satisfaction has a positive correlation with the health care provided at the hospital[51].

The result of this meta-analysis revealed that the overall estimated pooled level of patient satisfaction with nursing care was 55.15%. This finding was similar to previous studies conducted in Serbia and the Philippines in which 51.7% and 57.8% of patients were satisfied with nursing care respectively[18, 52].

The level of patient satisfaction with nursing care in our study was lower than other similar studies report of 69% in Iran[22], 67% in Kenya[23], 69.4% in Jordan[53], 82.7% in Malaysia[5], and 89.6% in Saudi Arabia[7]. This could be due to poor job satisfaction among Ethiopian nurses, low level of health care service and not well-qualified healthcare professionals in the country.

On the other hand, the level of patient satisfaction with nursing care in this study was higher than a study conducted in Ghana which revealed that about 33% of patients were satisfied with their nursing care[24]. Similarly, our finding was higher than other study conducted in public

hospitals of Mosul City to assess patient satisfaction with nursing care which revealed 40% in ibn-Sina, 47% in Al-Jamhory, 42% in Al-Salam and 49% in AL-Kanssa teaching hospital[54]. The difference might be due to variation in sociodemographic characteristics of the study participants, sample size, measurement tool used to quantify the level of satisfaction, and others.

The result of this meta-analysis has found that patients' residence, availability of assigned nurse in charge, previous history of admission, and the presence of other diseases had an influence on the patients' satisfaction with nursing care even though not statistically significant. A similar studies revealed a significant association between patient satisfaction and previous admission to hospital[54, 55]. Poor quality of care, repeated costs, and bad experience during their past admission might be the possible reasons for patients with a history of admission to be dissatisfied with nursing care. Similar to our finding, a study done in England showed that availability of nurse in charge increases patients level of satisfaction with nursing care[56]. The possible reason might be due to the fact that patients could get a quick response from the available nurse for their needs and demand. Moreover, in our study urban patients were more satisfied than rural patients. This is in agreement with a recent systematic review[57].

Even though this review has provided valuable information and best evidence regarding the level of patient satisfaction with nursing care, there were some limitations, which we address below. First, our overall estimates showed significant heterogeneity among studies, so that interpretation of the results has to be taken cautiously. Although we performed subgroup analysis and meta-regression, we could not identify the sources of variability. Second, it was difficult to analyze some additional major factors since they were not examined in a similar fashion across the studies. Third, it was difficult to compare our results with others due to lack of other published

systematic review and meta-analysis on patient satisfaction with nursing. Finally, publication bias was appreciated even though it is inevitable in any meta-analysis.

Conclusions and recommendations

The overall level of patient satisfaction with nursing was relatively moderate. Patient satisfaction was influenced by patients' history of admission, residence, availability of assigned nurse, and presence of other diseases even though not statistically significant. This systematic review and meta-analysis provided a national evidence on the level of patient satisfaction with nursing care in Ethiopia. This might be very useful for policymakers to give more emphasis to the quality of nursing care in order to improve the overall quality of healthcare service. Furthermore, the Federal Ministry of health and Hospital administrator should give a great attention to the importance of quality nursing care to increase patient satisfaction.

Abbreviations

CI: Confidence Interval, **OR:** Odds Ratio, **PRISMA:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses, **SNNP:** Southern Nations, Nationalities, and Peoples, **WHO:** World Health Organization.

Declarations

Consent for publication

Not applicable.

Availability of data and materials

The data analyzed during the current systematic review and meta-analysis is available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

Not applicable.

Ethics approval and consent to participate

Not applicable.

Authors' contributions

HM and GD developed the protocol and involved in the design, selection of study, data extraction, and statistical analysis and developing the initial drafts of the manuscript. FW, TDH and HB involved in data extraction, quality assessment, statistical analysis and revising subsequent drafts. HM and TDH prepared the final draft of the manuscript. All authors read and approved the final draft of the manuscript.

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477

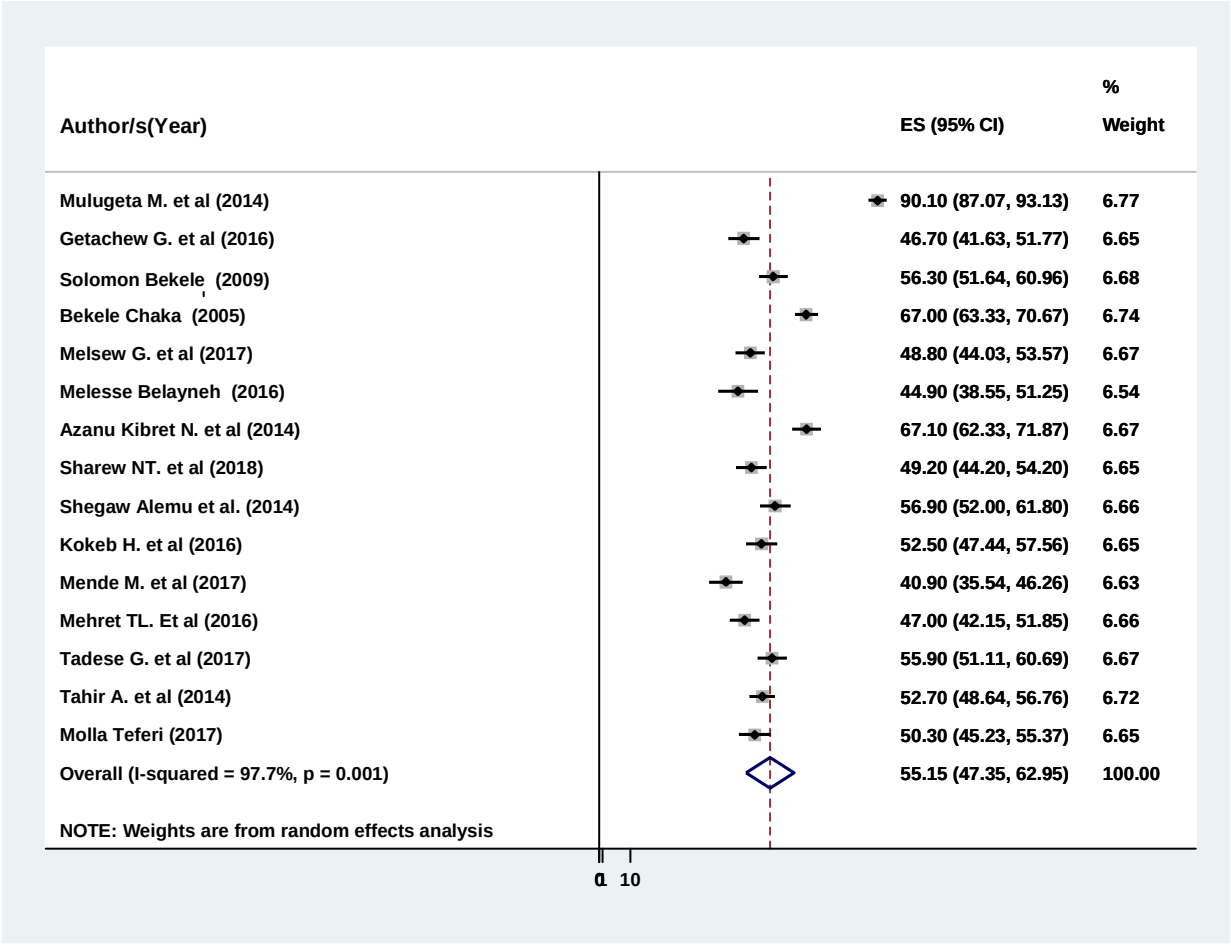


Figure 2: Forest plot showing the pooled proportion of satisfied patient with nursing care

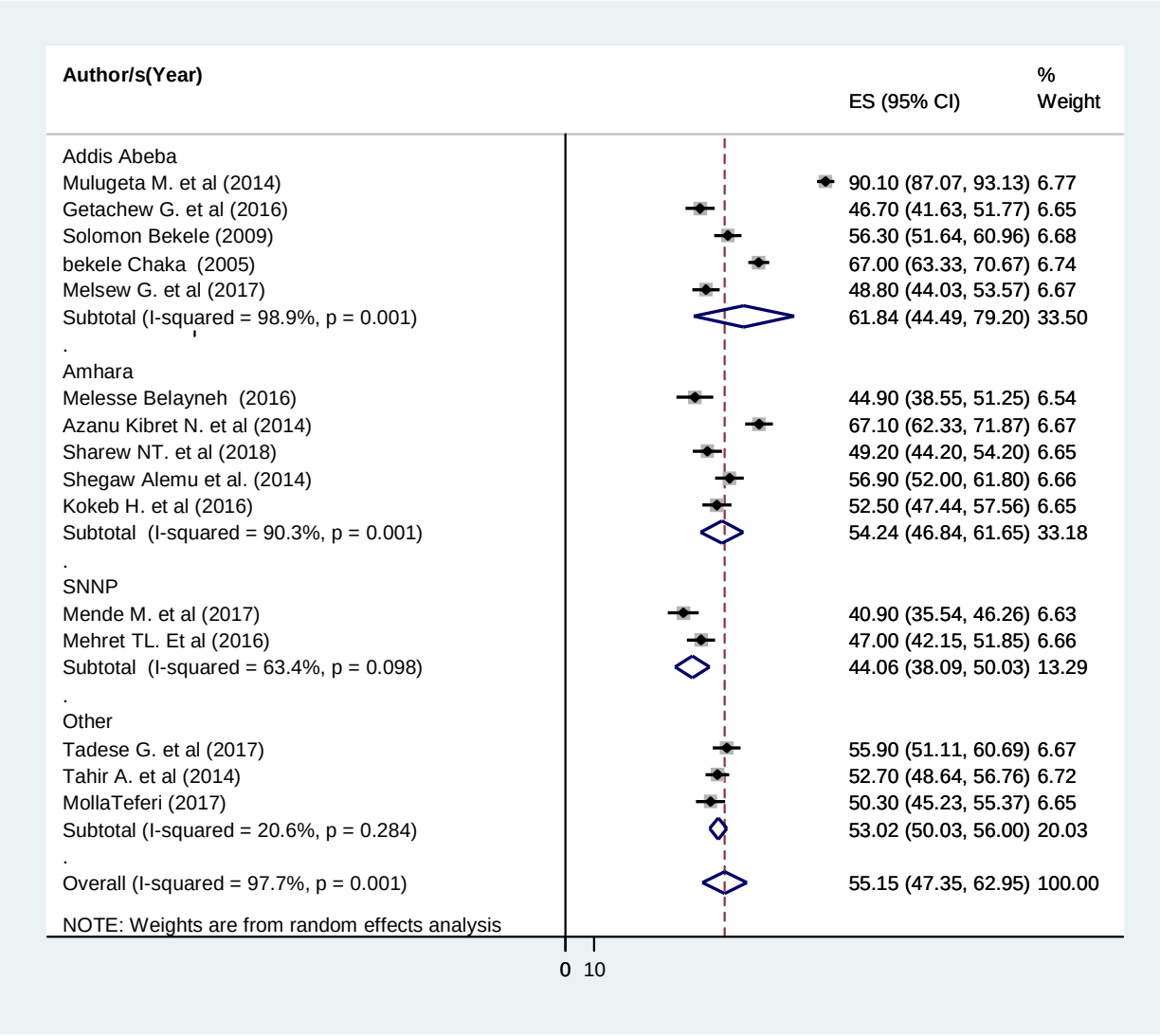
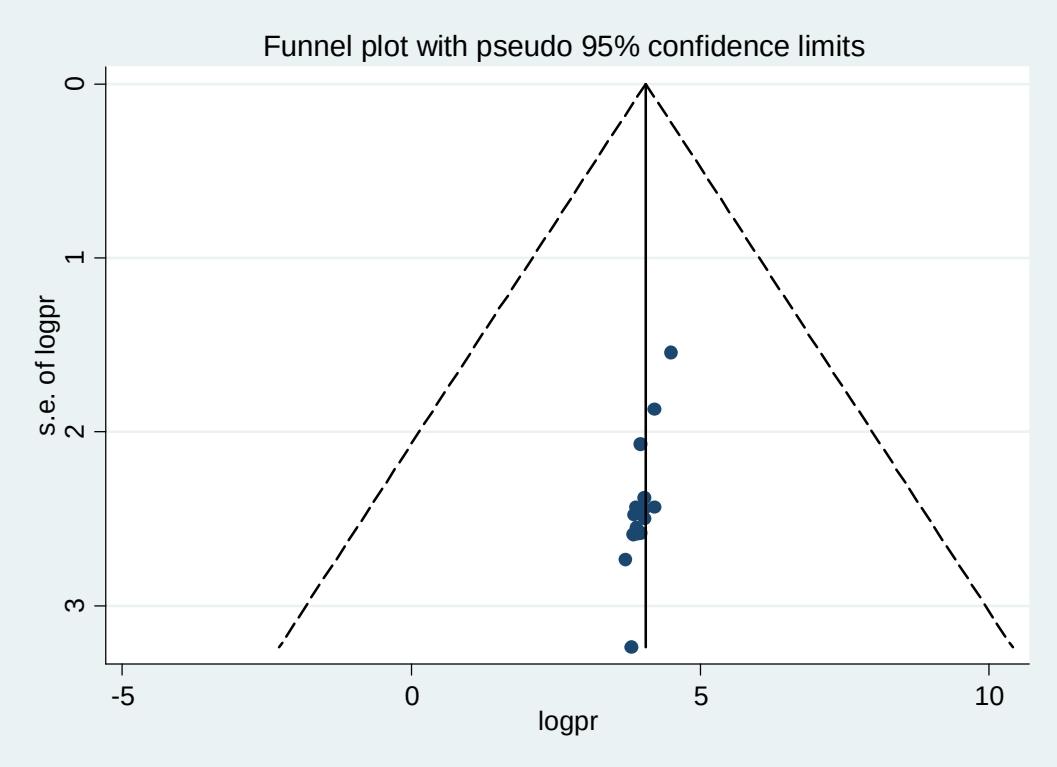
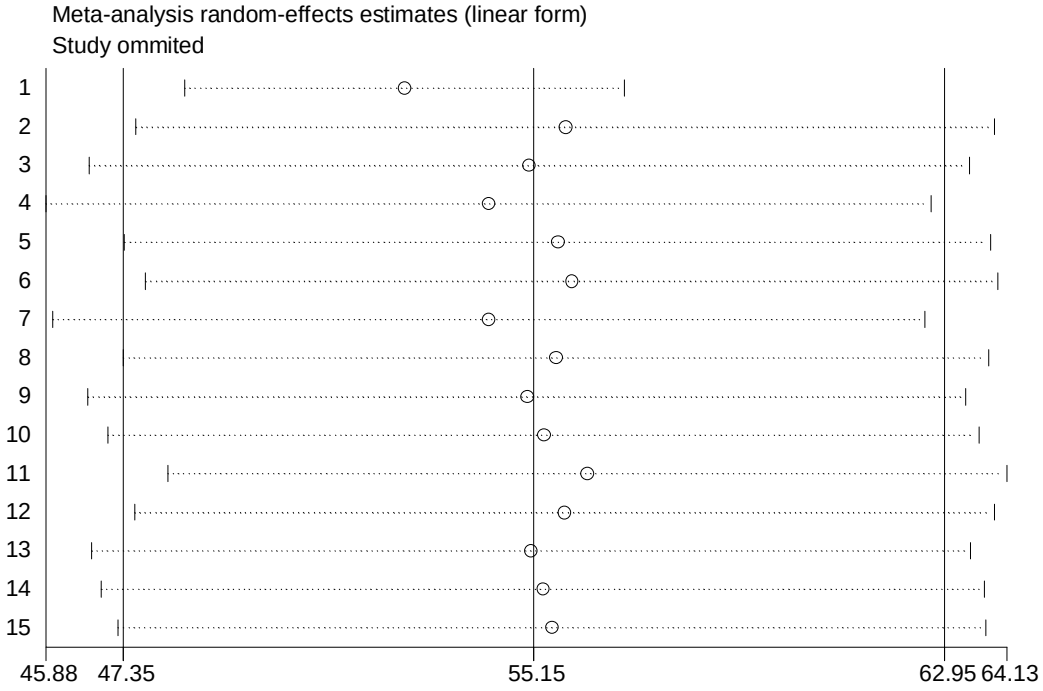


Figure 3: Subgroup analysis by regions on the rate of patient satisfaction with nursing care





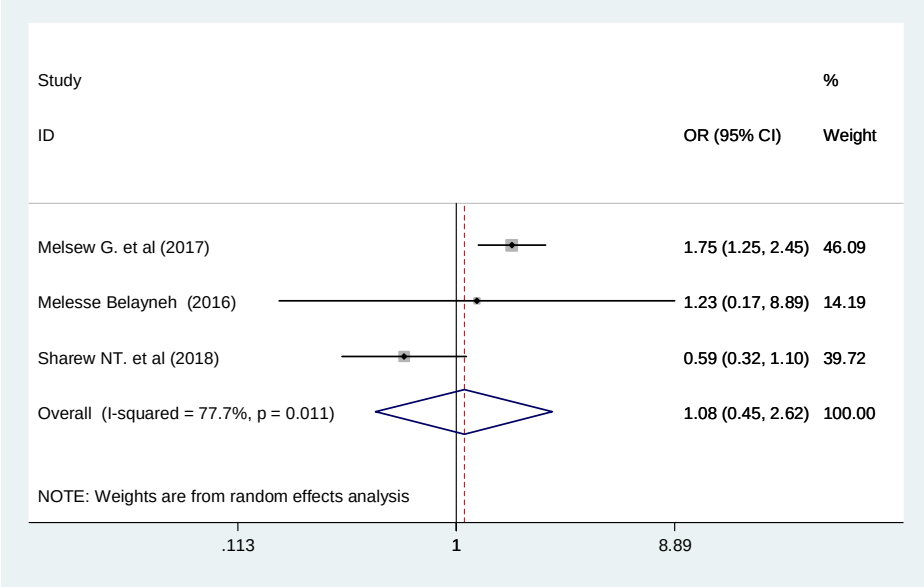


Figure 6: Forest plot showing the association between patient satisfaction and availability of assigned nurse in charge

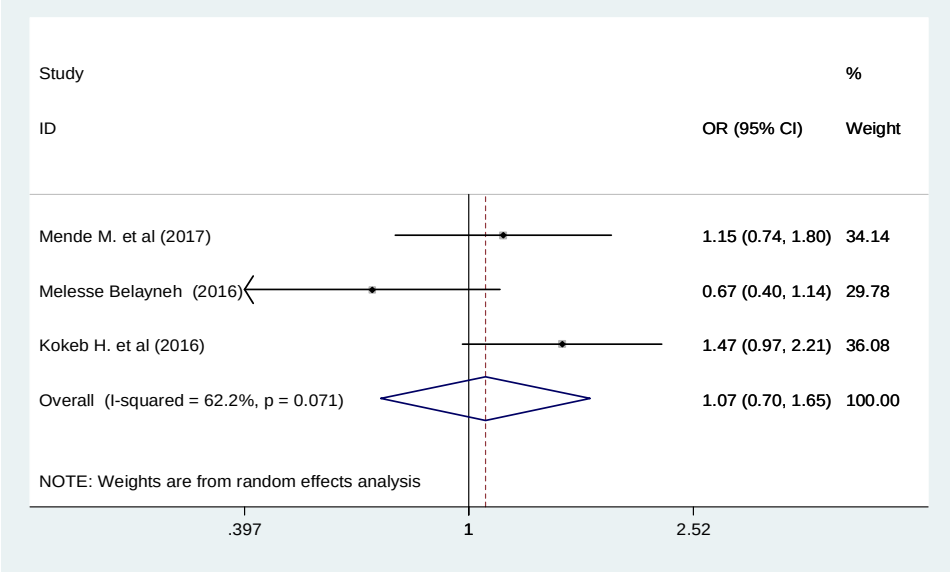


Figure 7: Forest plot showing the association between patient satisfaction and residence

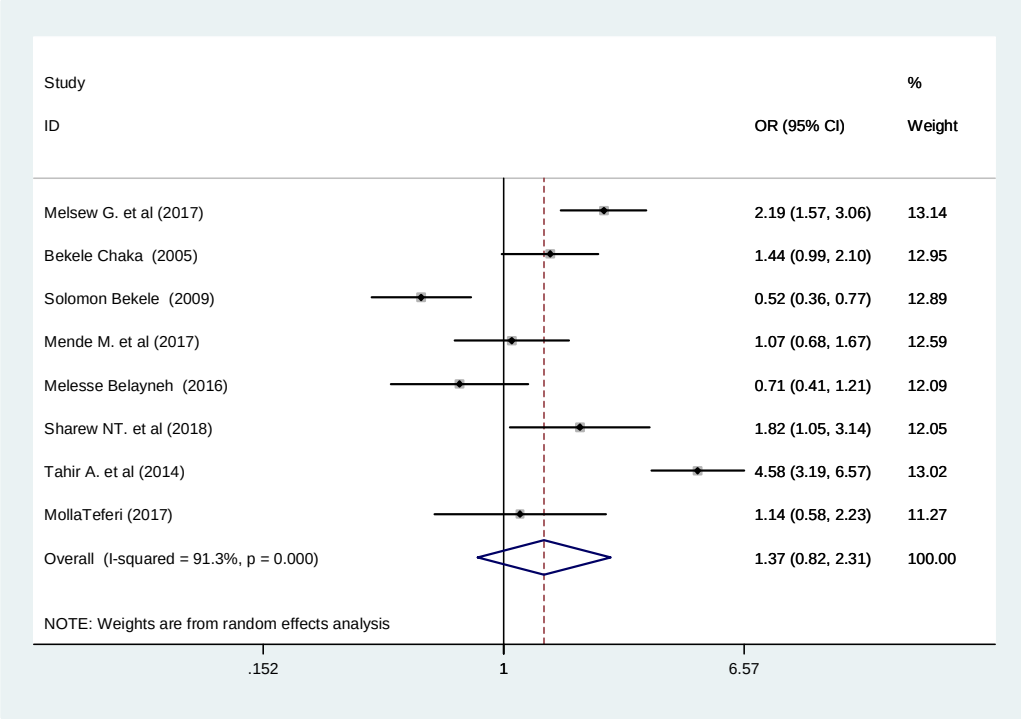


Figure 8: Forest plot showing the association between patient satisfaction and history of admission

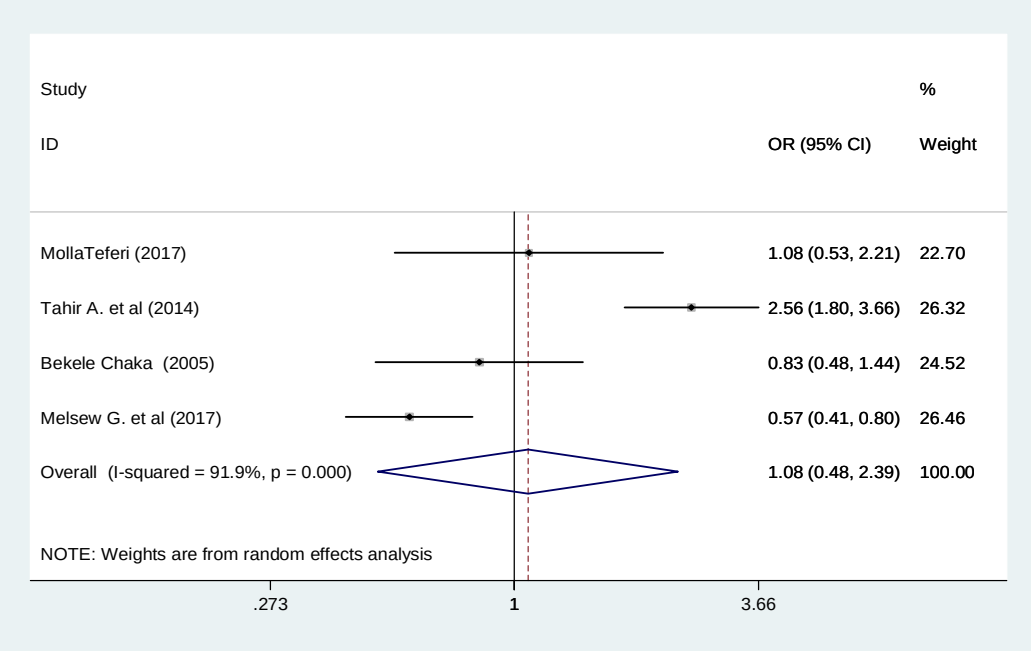


Figure 9: Forest plot showing the association between patient satisfaction and presence of other diseases