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Hygiene in the United States Brow Shaping Industry: A Benchmarking Report

Hygiene in the United States Brow Shaping Industry: A Benchmarking Report

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ABSTRACT

Purpose: To provide a current benchmark of hand hygiene and brow cleansing in the brow shaping industry across the United States of America.

Background: Brow abscesses have been linked to the microtrauma associated with brow shaping. This paper provides an understanding of normative standards of hand hygiene and brow cleansing in the brow shaping industry at both the regional and national levels.

Methods: This project involved a phone survey of 255 brow salons across the United States – 5 from the most populous city in every state and Washington, D.C. Uni- and multivariate associations between regional and national brow hygiene practices were explored using chi-square testing and multinomial logistic regression modeling.

Results: Of 255 brow salons included in this study, 137 performed waxing (54%), 72 performed threading (28%) and 46 performed both (18%). Hand hygiene was required at 97% of brow salons, most commonly using alcohol-based sanitizer (59%), hand washing (22%), or some combination of the two (16%). Brow cleansing was required at 80% of salons, with the vast majority using an alcohol-based cleanser (75%). Multinomial logistic regression analysis of hand and brow hygiene methods, including hand hygiene frequency and service type, failed to show regionally predictive differences. Hand hygiene was performed more routinely than brow hygiene nationwide ($p < 0.01$).

Conclusions: The brow shaping industry is performing hand hygiene nearly across the board, but would benefit from increased rates of brow cleansing.

Keywords: Waxing, hand hygiene, salon, eyebrow

INTRODUCTION

Eye-brow waxing salons fall under the umbrella of Personal Service Establishments. This term encompasses a broad range of businesses providing a number of aesthetic services such as waxing, tweezing, and threading, as well as hairstyling and manicuring/pedicuring. All businesses that provide these services are governed by their respective state's Cosmetology Board and those employees practicing within the businesses must be trained and licensed. However, the criteria for licensure and hygiene guidelines vary greatly from state to state.¹⁻³ It is not uncommon to experience skin abrasions, follicular trauma, and erythema after having waxing or threading performed.⁴ Physical damage from these techniques may compromise the skin's barrier and allow for the entry of pathogens. In a recent outbreak investigation by the National Collaborating Centre for Environmental Health, waxing salons were implicated in several bacterial and viral outbreaks due to poor infection control practices, including streptococcus pyogenes and herpes simplex.⁵ Between 2008 and 2015, nearly 23% of brow-related infections at the Massachusetts Eye and Ear Infirmary had a history remarkable for recent brow shaping.⁶ Culture results of these brow shaping-related infections found Methicillin-resistant Staphylococcus aureus (MRSA) in 50% of cases, for which reason the authors strongly encouraged individuals who practice cosmetic eyebrow grooming to consider hygiene practices in order to reduce the risk of infection.⁶ While there are no studies quantifying the incidence of infectious cases attributed to waxing/threading, it is a problem that may well grow in magnitude. A 2018 survey by the U.S. Census Bureau showed that 22.58 million Americans used a professional waxing service in the past six months and this number is predicted to be even higher in 2019.⁷

The authors hypothesized that brow and hand hygiene would be variable across salons and cities, and thus performed a phone-based cross-sectional survey of businesses in the most populous city of every state; this paper offers a benchmark of current national and regional hand and brow hygiene practices in the brow shaping industry.

METHODS

This cross-sectional study was approved by the Columbia University Irving Medical Center Institutional Review Board and adhered to the tenants of the Declaration of Helsinki. Population data from the U.S. Census Bureau was used to identify the most populous cities in the United States.⁸ Five businesses from the most populous city in each state, as well as Washington, D.C., were surveyed via phone interview on hygiene practices (Tables 1 and 2). This allowed for a total of 255 brow shaping salons. The businesses within the geographic coordinates of each city surveyed were chosen from a list of hair removal businesses

generated by Google. Businesses from this list were selected for interview at random via selection with eyes closed to control for any biases in how the list was ordered by Google's algorithm and to mitigate author selection bias as authors were not blinded. The shift manager was contacted and, if interested, consented for the study. If a manager declined to participate, another business was called at random until 5 businesses from each city were enrolled. Benchmarking trends were analyzed nationally, and were also divided into 4 regions based on the current region definition from the U.S. Census Bureau: Northeast, South, Midwest and West.⁹

Using the R software package,¹⁰ the frequency of each hygiene variable was calculated and chi-square testing was performed to assess for univariate frequency differences by region. Global comparisons of variable frequencies were also compared using chi-square testing. Multivariate analysis was performed using a multinomial logistic regression model.

RESULTS

Five-hundred and fifty-six brow shaping salons were contacted in order to fulfill study requirements Figure 1 section A. Of the expected 255 brow salons included in this study, 137 performed waxing (54%), 72 performed threading (28%) and 46 performed both (18%).

Two hundred and forty seven of 255 brow shaping businesses require employees to clean their hands prior to seeing each customer (97%). The most common forms of hand hygiene required were the use of alcohol-based sanitizer (59%), hand washing (22%), or some combination of the two (16%) Figure 2 section A. 57% of brow shaping salons in the U.S. require employees to carry out hand cleaning procedures before each customer visit only, while 40% require hand hygiene before and after each customer visit Figure 3 section A.

80% of businesses surveyed require cleansing of the skin of the eyebrow before waxing, threading, or tweezing, with the vast majority using an alcohol-based cleanser (94%), and 6% using non-alcohol-based cleansers such as soap and water, astringent, or witch hazel Figure 4 section A.

Hand hygiene was performed more routinely than eyebrow hygiene in the Northeast ($p < 0.01$), the South ($p < 0.01$), and the Midwest ($p < 0.01$); a strong trend toward significance ($p = 0.08$) was noted in the West. This was also true nationwide ($p < 0.01$).

Multinomial logistic regression analysis of hand and brow hygiene methods, including hand hygiene frequency and service type, failed to show regionally predictive differences Figures 2, 3 and 4 sections B.

DISCUSSION

This cross-sectional study summarizes hand hygiene and brow cleansing techniques and timing across the United States. Though 97% of businesses surveyed do attest to hand hygiene, the frequency and methodology of hand cleansing is highly variable. Only 80% of businesses perform any kind of brow hygiene, and again the methodology is variable. Only 30% of businesses surveyed perform hand hygiene before and after each customer visit as well as cleanse the eyebrow with soap-and-water or an alcohol-based cleanser. When these guidelines are restricted to businesses that use alcohol-based cleansers, which is likely more effective as a form of hand and brow hygiene than soap and water,¹¹ that percentage falls to only 21%.

Hand and eyebrow hygiene regulation in the salon industry is overseen by each state's cosmetology board, whose sanitation requirements often vary and whose inspectors are grossly outnumbered by the businesses that they must oversee. As of 2015, the state of Texas had over 35,000 aesthetic service businesses but only 29 inspectors.¹² This lack of oversight helps us understand why we see less than ideal hygiene practices in brow shaping businesses nationwide, potentially putting millions of people at a greater risk for infection. Waxing and threading have been shown to cause skin abrasion and mild follicular trauma, providing an entry point for bacteria.¹³ As resistant bacteria such as MRSA are increasingly present in the community,¹⁴ the relevance of hand and brow hygiene rises. A recent retroactive case series found 62% of patients referred for periocular abscesses following brow epilation to have MRSA-related abscesses (n=26).¹⁵ This study has several limitations. Randomized choices from a Google search engine may not deliver the most highly frequented or representative eyebrow shaping businesses in any given city. Phone surveys require manager consent, and as such, salons with highly irregular practices may have declined to participate. Conversely, the participating salons may deliver higher standards of hygiene care. Finally, phone-driven answers may provide an optimal version of events, rather than a more realistic daily reality. This makes the less-than-ideal hygiene practices found in this study even more concerning, as the true frequency of hand and brow cleansing is potentially lower than that shown. Another limitation in this study is that while we focused on major sources of infection, hand and brow cleansing, there are other potential sources of infection, such as tweezer cleaning procedures and wax temperature guidelines, that may benefit from future studies and microbial culturing. Glove use was not queried, but as disposable boxed gloves are not sterile, they could not be assumed to be pathogen-free.¹¹

In this benchmarking study, there was a clear difference between the rates of hand hygiene and brow hygiene across the United States. While hand hygiene is far more routine, it, too, is not a guaranteed event. With MRSA-dominant brow abscesses well documented and brow waxing a growing practice, one can expect a higher incidence of orbital cellulitis and brow abscesses unless businesses begin to practice better

hygiene practices. It is the opinion of the authors that the best practice to minimize the risk of infection is aesthetician hand hygiene with soap or alcohol-containing sanitizer before and after each customer, and cleansing of the brow before and after brow shaping with an antimicrobial agent.¹⁶ Brow hygiene customers and their treating physicians should advocate personally and regionally for more robust hygiene guidelines and consistent guideline application; the authors hope this study helps support these efforts.

Appendix

Table 1 Survey Questions Administered to Brow Salon Managers.

Survey Question
Does this business perform brow waxing?
Does this business perform brow threading?
Does this business perform any other kind of brow shaping? If so, what method is used?
Is the brow cleansed before brow shaping? If so, what method is used?
Are employees asked to either wash their hands or use hand sanitizer prior to seeing customers? If so, what method is used?
(If yes to question 5) How often are hands clean

Table 2 List of Cities Included. Cities are listed according to state.

Alabama: Birmingham	Louisiana: New Orleans	North Dakota: Fargo
Alaska: Anchorage	Maine: Portland	Ohio: Columbus
Arizona: Phoenix	Maryland: Baltimore	Oklahoma: Oklahoma City
Arkansas: Little Rock	Massachusetts: Boston	Oregon: Portland
California: Los Angeles	Michigan: Detroit	Pennsylvania: Philadelphia
Colorado: Denver	Minnesota: Minneapolis	Rhode Island: Providence
Connecticut: Bridgeport	Mississippi: Jackson	South Carolina: Charleston
Delaware: Wilmington	Missouri: Kansas City	South Dakota: Sioux Falls
Florida: Jacksonville	Missouri: Kansas City	Tennessee: Nashville
Georgia: Atlanta	Montana: Billings	Texas: Houston
Hawaii: Honolulu	Nebraska: Omaha	Utah: Salt Lake City
Idaho: Boise	Nevada: Las Vegas	Vermont: Burlington
Illinois: Chicago	New Hampshire: Manchester	Virginia: Virginia Beach
Indiana: Indianapolis	New Jersey: Newark	Washington, District of Columbia
Iowa: Des Moines	New Mexico: Albuquerque	Washington: Seattle
Kansas: Wichita	New York: New York	West Virginia: Charleston
Kentucky: Louisville	North Carolina: Charlotte	Wisconsin: Milwaukee
		Wyoming: Cheyenne

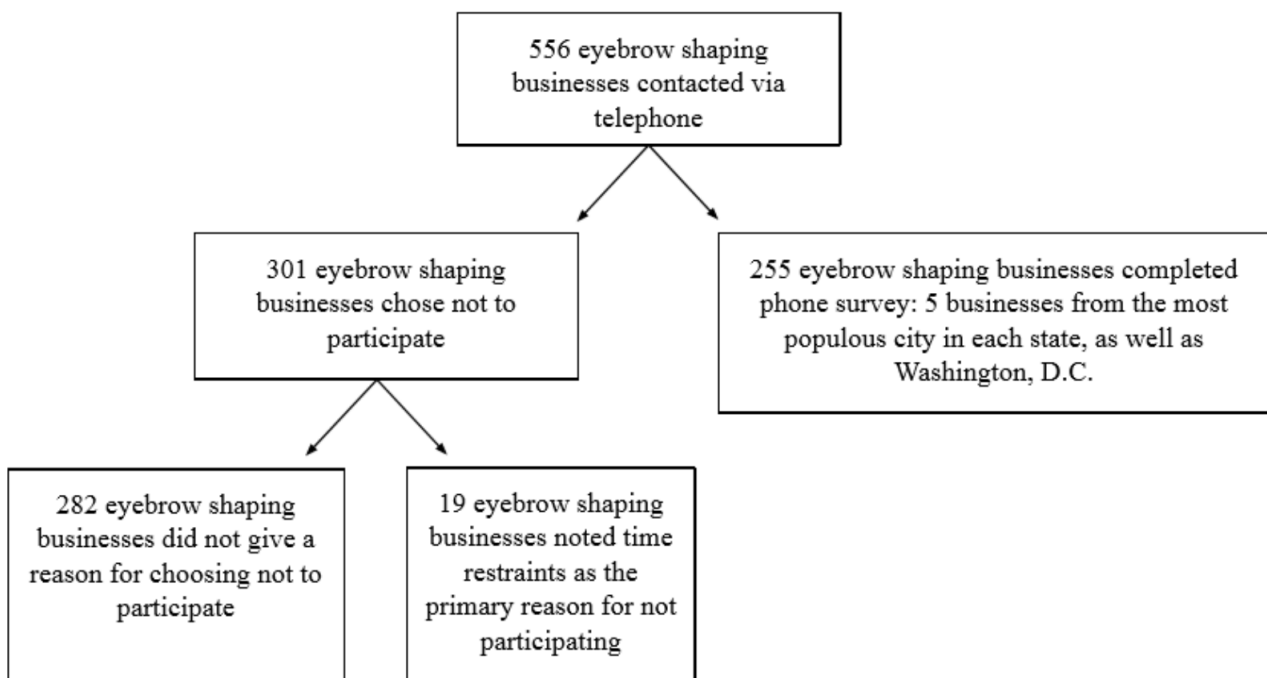


Figure 1 Flowchart of Phone Survey. Of the 556 business contacted, 255 were surveyed. This allowed for 5 salons per most populated city in every state, as well as 5 from Washington, D.C.

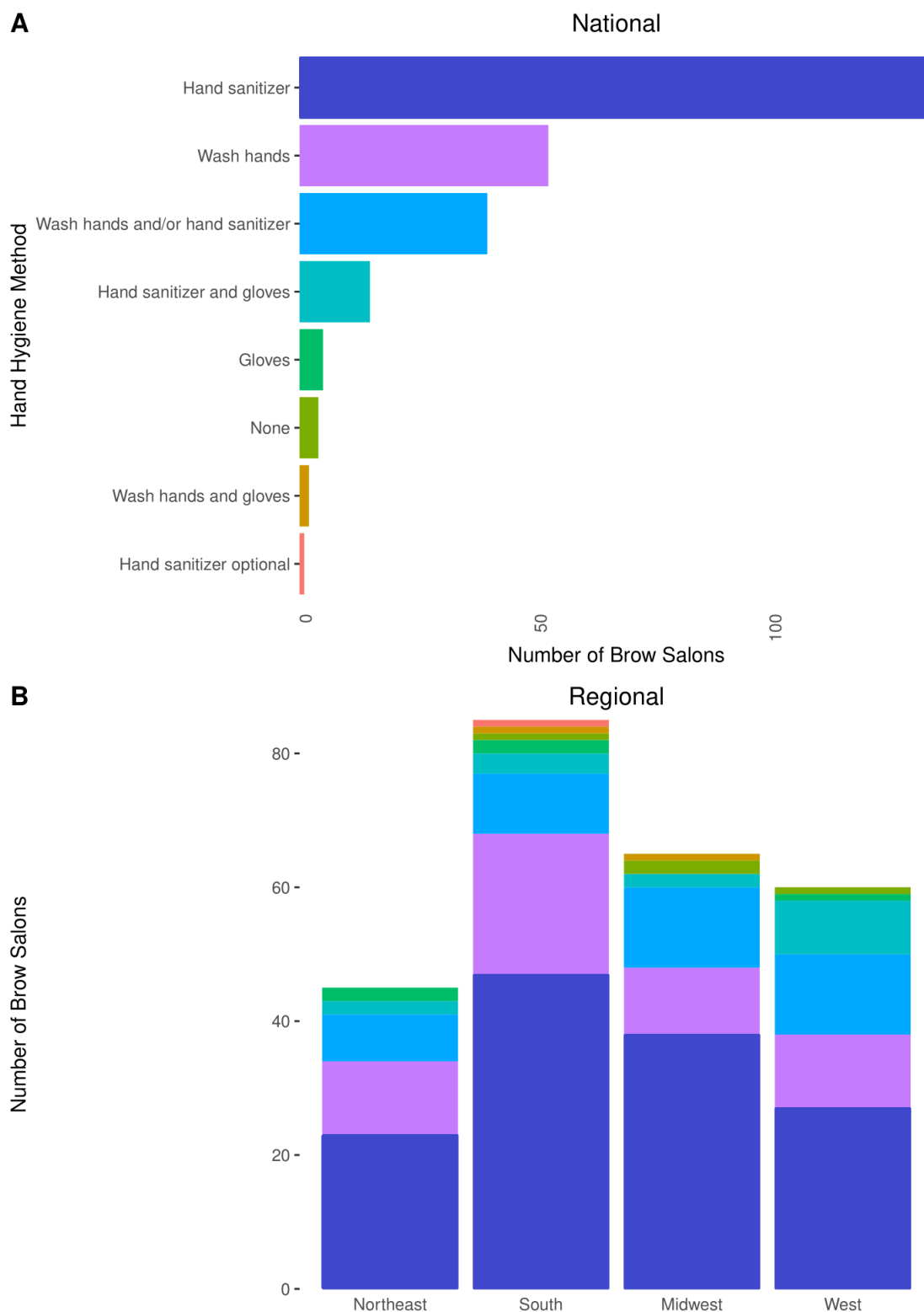


Figure 2 National Summary and Regional Division of Hand Hygiene Methods. Panel A shows a national summary of hand hygiene methods. The most common forms of hand hygiene required were the use of alcohol-based sanitizer (59%), handwashing (22%), or some combination of the two (16%). Panel B shows regional summaries of hand hygiene methods. Multinomiallogistic regression analysis failed to show regionally predictive differences.

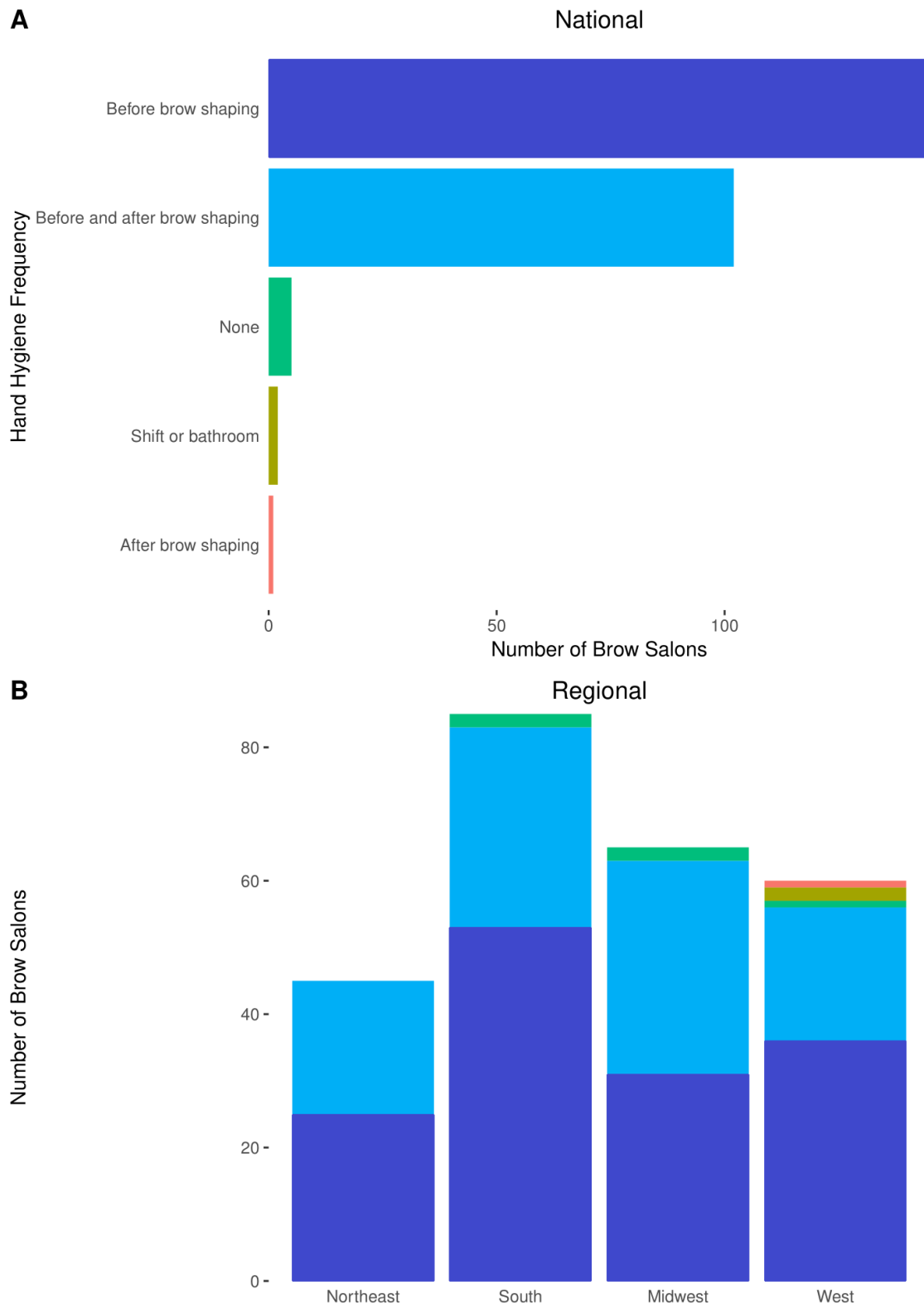


Figure 3 National Summary and Regional Division of Hand Hygiene Frequency. Panel A visually demonstrates 57% of browshaping salons in the U.S. require employees to carry out hand cleaning procedures before each customer visit only, while 40% require hand hygiene before and after each customer visit. Panel B shows regional summaries of hand hygiene frequency. Multinomial logistic regression analysis of hand hygiene frequency failed to show regionally predictive differences.

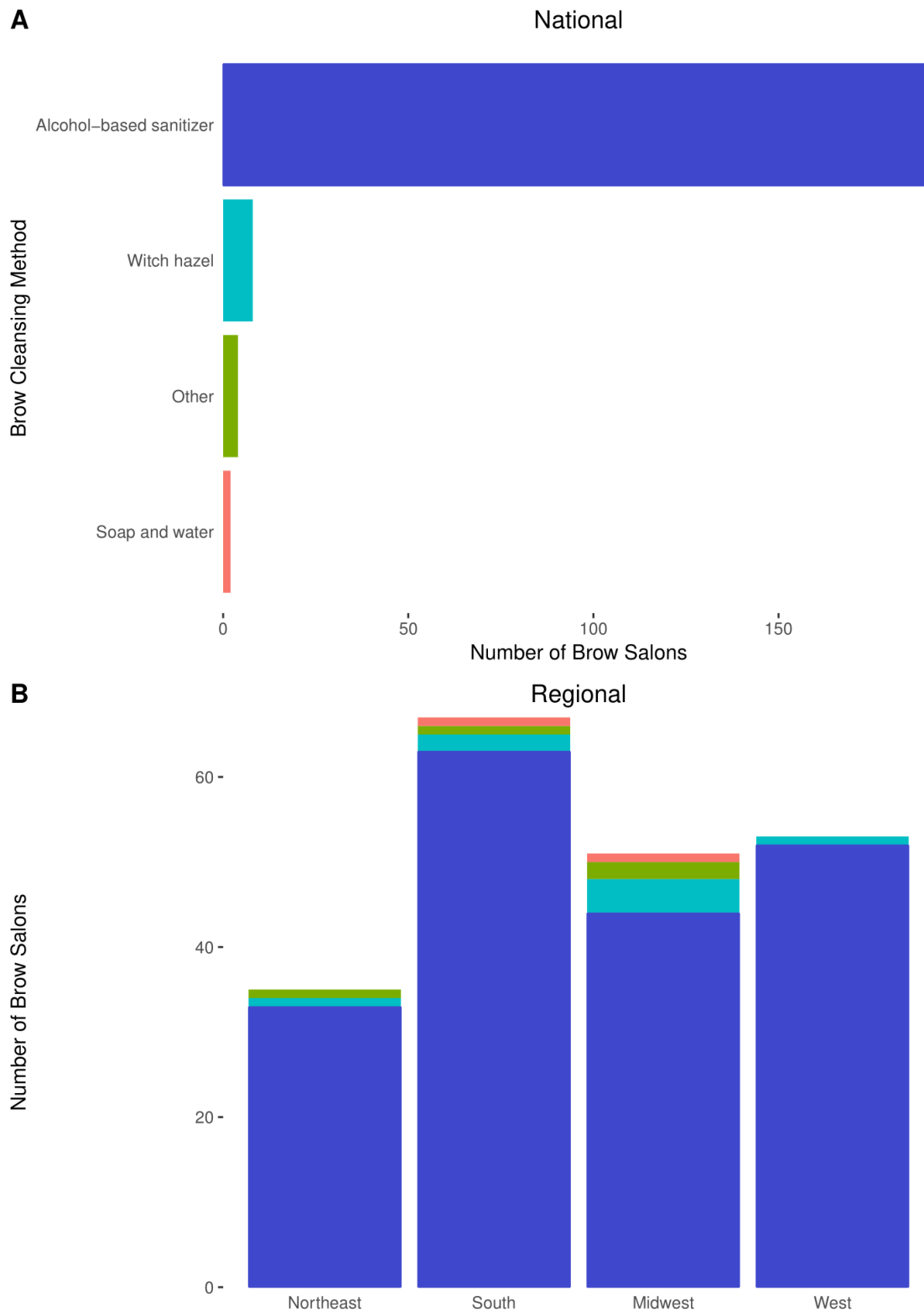


Figure 4 National Summary and Regional Division of Brow Cleansing Methods. Panel A demonstrates a national summary of eyebrow cleansing methods. The great majority of brow shaping businesses preferred alcohol-based cleansers with few businesses using witch hazel, soap and water, or other non-alcohol-based cleansers. Panel B shows regional summaries of eyebrow cleansing methods. Multinomial logistic regression analysis of brow cleansing method failed to show regionally predictive differences.

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