

The New Testament vs. The Quran:

Americans' beliefs about the content of Muslim and Christian holy texts.

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Data, Code, and Materials are available:

https://osf.io/h2sbd/?view_only=9aea20b226d44e3fb9027ed4e21ab08b

Abstract

The stereotypes and biases that people have about various religions may not be applied to just the individuals who belong to those religions, but to the belief systems themselves. We hypothesized that non-Muslim and Muslim Americans would demonstrate biased estimates about the language content of the Quran and New Testament holding positive views towards their relative ingroup and negative views towards the outgroup text. We used two samples ($N_1 = 163$, $N_2 = 204$) of Americans and the Linguistic Inquiry Word Count Software (LIWC) to test our hypotheses. We determined the differences between the texts across language categories. Participants then rated the categories in terms of their relative frequency across the texts. We compared these ratings to the actual differences between the texts. As hypothesized, participants perceived the ingroup text as positive and the outgroup text as negative. We discuss whether biased beliefs about religious teachings may be separate from but aligned with biases against believers and further contribute to religious stereotypes.

Keywords

religion, prejudice, language, holy texts, social identity theory.

A substantial percent of non-Muslim Americans perceives Islam to be a violent (50%) and fanatical (58%) religion (Lipka, 2020). This is likely due to historical relationships between religions and biased media representations including coverage of Islamic extremists (Alibeli & Yaghi, 2012). However, these views are not supported by evidence and given that we are talking about a diverse group of people within a single religion, it may not make sense to argue Islam is more violent than any other religion (Alibeli & Yaghi, 2012). At best, the research is inconclusive in determining whether Muslims are more violent than other societal groups (Fox, 2003). Some research indicates that Muslim Americans are less violent than other Americans and notes that many other Muslim stereotypes lack sufficient statistical evidence (Mohamed & O'Brien, 2011). Other research indicates that Muslims may support Muslim military violence in the face of symbolic threat, but do not have intentions to be violent themselves (Tahir et al., 2019). Despite these mixed findings, negative views of Muslims persist (Wilkins, 2018). While the reasons for why such biases exist are likely many and complex — deeply ingrained sociocultural associations between Muslims and acts of violence, such as the 9/11 attacks, for example — a key set of beliefs about the fundamental content/teachings of the religion itself may serve to perpetuate such biases. That is, it may be the case that people have biased beliefs of Islam itself, at least compared to the teachings of Christianity or other mainstream religions.

Using modern text analysis methods, it is possible to empirically test these ideas. The goal of the current study, then, was to a) examine Americans' views regarding the language contained in the Quran compared to the New Testament, b) quantify the language content differences between two common English translations of the holy texts, and c) examine the differences between Americans' (non-Muslim and Muslim) views and the actual language content differences between two common English translations of the holy books.

Negative Perceptions of Islam and its Adherents

In the years following 9/11, Islamophobia significantly increased and both implicit and explicit discrimination against Muslims rose by 83% and 76%, respectively (Sheridan, 2006).

Resentment and reservations regarding Arab and Muslim Americans lingered in the years following despite people's low awareness of the basic tenets of Islam (Panagopoulos, 2006).

Only 60% of Americans were able to identify Mecca as an Islamic holy city that Muslims are obligated to visit on a pilgrimage and that Ramadan is an Islamic holy month (Pew, 2020).

Americans consistently report that they feel like they do not understand Muslim beliefs or traditions (Panagopoulos, 2006) — it is possible that this lack of understanding and the related negative perceptions of Islam will be reflected in beliefs about the Quran's language compared to the New Testament.

The extent to which prejudices toward Muslims stem from fear is readily seen in the political sphere. In the lead-up to the 2016 election, Donald Trump announced his intentions to enact a Muslim travel ban, in which Muslims would be barred from entering the US out of fear that Islamic extremists would conduct another attack against America in the near future (Diamond, 2015). Throughout Trump's political campaigns and presidential tenure, some of the best predictors for support of Donald Trump were fear of religious minorities, xenophobia, and islamophobia (Baker et al., 2020; Guth, 2019; Tucker et al., 2019; Whitehead et al., 2018). These findings coincide with prior research indicating that perceived threat and the feeling of general threat are among the strongest predictors of anti-Muslim sentiments (Ciftci, 2012). Fear has acted as one of the main driving forces behind negative stereotypes against Muslims. This fear may be explained by the stereotype content model.

The stereotype content model argues that beliefs about an outgroup and its members can be determined by their perceived warmth and competence (Fiske et al., 2002; King & Ahmad, 2010). Some groups will receive disrespect due to their perceived lack of competence (e.g., disabled people, elderly people) while others will elicit dislike due to their perceived lack of warmth (e.g., working women, Jews, Asians; Fiske et al., 2002). Muslims are rated as having middling warmth and competence compared to other groups but are also rated as significantly more competent than they are warm (Fiske et al., 2002). In a separate study, Grigoryev et al. (2019) found Muslims to be rated as low in both warmth and competence. Research conducted by King and Ahmad (2010) found that Muslim job applicants are viewed as being less warm which may cause discrimination in the workplace. Further, adjectives such as cruel, deceitful, and irrational are included in beliefs about Muslims and are congruent with a group perceived to be low in warmth (Al-Qatami et al., 2008; King & Ahmad, 2010).

We have discussed biases and stereotypes, specifically fear, as they relate to Muslim people based on group membership thus far. These anti-Muslim sentiments however are distinct from fear as it relates to the Islamic religion itself. Many researchers, when discussing prejudice against Muslims, refer to fear directed at both Muslims (people) and Islam (religion), making a distinction between the two (Kunst et al., 2016; Obaidi et al., 2018). Further, Uenal et al. (2021) found that Islamophobia is made up of multiple factors, with a clear distinction between Anti-Muslim beliefs (based on group membership) and Anti-Islamic beliefs (based on cultures, religions, institutions, and/or ideologies).

The work investigating the link between Islamophobia and fear related to Islam aligns with what some researchers call symbolic threats – those threats that are concerned with cultural differences (Landmann et al., 2019; Stephan & Renfro, 2002; Stephan & Stephan, 2000). Fearing

the loss of cultural homogeneity, national identity, and the values of an ingroup are expressions of symbolic threat (Davidov et al., 2020; Fetzer, 2000; Raijman et al., 2008; Raijman & Semyonov, 2004; Sniderman, et al., 2004). These symbolic threats are associated with negative attitudes toward refugees and migrants (Esses et al., 2017; Landmann et al., 2019; Riek et al., 2006; Stephan, 2014). Prejudice and intolerance of Islamic religious practices, such as headscarves, are associated (Helbling, 2014; Saroglou et al., 2009; Van der Noll, 2014; Van der Noll & Saroglou, 2015). These findings may indicate that features of the Islamic religion are seen as dangerous in themselves. People likely view Islamic teachings as one of the sources of the perceived negative and threatening worldviews they fear. The fears generated by the threat of the Islamic tradition (symbolic) lead to prejudice against Muslims (Esses et al., 2017; Landmann et al., 2019; Riek et al., 2006; Stephan, 2014). People likely view Islamic holy texts as the primary source of these religious teachings that serve as a source of fear.

Holy Texts and Prejudice

Throughout history, access to sacred texts has varied across time, geography, and religion. Most religions began with significant limitations to who could access these texts. Having multiple translations of texts was unheard of (Klocek et al., 2010). Over time, and after debate and conflict, access and translations have become much more prevalent allowing religion to spread (Klocek et al., 2010). With this spread came religious pluralism—the state of being in a religiously diverse society and being free to choose how to exist within it (Hick, 1987). Competition between religions across many social domains has expanded in this setting. Written forms of communication are not immune to this competition as they serve to promote ingroup conformity (e.g., emphasizing what makes one's religion distinct from the outgroup) and to

emphasize one religions' authenticity despite similarities between religions (Klocek et al., 2010). This is true of sacred texts like the Quran and the New Testament.

The Quran is the primary holy text in the religion of Islam. As such, it is the foundation on which the Islamic faith is built. It is because of this that it is likely this text is a primary target people view as feeding Islam's perceived negative and threatening worldviews. That is, if people feel that Islam is a dangerous religion, then its text is the source of dangerous ideas. In contrast, predominantly Christian societies, such as the United States of America, likely believe the New Testament is both more peaceful and moral. This bias is characteristic of Social Identity Theory (SIT) – Ingroup favoritism vs. outgroup bias (Tajfel, 1978, 1979). SIT is a theory of intergroup behavior that asserts that individuals will gain a portion of their identity through their group memberships. Individuals will hold positive biases towards those who also identify with the groups they belong to while holding negative biases towards those who identify with outgroups (Brown, 2020; Tajfel & Turner, 2004).

Several researchers have explored how SIT may apply to religious settings and suggest that the sacred nature of religious ingroups may provide a more significant ingroup identity leading to increased intergroup conflict (Ysseldyk et al., 2010). There is support in the literature for increased positive attitudes and perceptions toward those who share a religious identity (Swan et al., 2014) and increased negative attitudes and perceptions toward those who identify with a religious outgroup (Stewart et al., 2018). When looking specifically at Islam as a religious outgroup in western contexts, increased Christian Nationalism is predictive of antipathy towards Muslims and increased support for infringing on Muslim civil rights (Dahab & Omori, 2019; Shortle & Gaddie, 2015). The most important factor influencing Americans' views of Islam are perceptions of the distance or closeness of one's own religious identity to Islam (Penning, 2009).

In alignment with SIT and our contention that perceived religious outgroup worldviews are based on religious teachings, we would expect ingroup favoritism and outgroup derogation to be present in beliefs about the religious texts for both Christianity and Islam in samples of Americans as a result of cultural effects. We utilized language analysis techniques and software to explore this hypothesis.

Current Investigation

The words people use have long been considered the result of underlying emotions and thought patterns (Allport, 1942). According to the Lens model (Brunswik, 1956), we utilize the language others use as cues to make inferences about them. Accurate inferences result from utilizing valid cues correctly and ignoring invalid cues (Rodriguez et al., 2010). Modern language analysis technology now allows us to easily explore the emotional tone of language in writing samples (Boyd & Schwartz, 2021; Stachl et al., 2021; Vine et al., 2020). These techniques also allow us to utilize data sources that have been ignored in past psychological research (e.g., social media data; Stachl et al., 2021). Many studies use the Linguistic Inquiry Word Count software to analyze language content (LIWC: Pennebaker et al., 2015; Pennebaker et al., 2007; Pennebaker et al., 2001). LIWC counts and calculates the percentage of words that reflect various psychosocial dimensions of interest including emotions, thinking styles, social concerns, and parts of speech using pre-defined dictionaries (Pennebaker et al., 2015). We leveraged this software to look at the nature of religions as reflected by the language comprising their holy texts rather than specific beliefs espoused by their members, comparing these features against Americans' beliefs about those texts.

We investigated whether Americans inaccurately estimate the language content of the Quran compared to the New Testament, which may suggest an underlying belief regarding the teachings of the religions. We did so by examining the language content differences between the two texts. We used LIWC to code various types of language in each of the two texts, facilitating a comparison across several conceptual categories to determine any differences between the two books. We had no explicit hypotheses regarding differences between the texts across the categories.

Following this first step, we then asked two groups of participants about their beliefs about the two texts' content — specifically, the same content dimensions that we measured via LIWC. We then compared participant beliefs to the observed differences between the two holy text translations to determine their accuracy. This underutilized use of language analysis allows us to assess stereotypes by asking people how they perceive other groups' use of language. Consistent with the lens model (Brunswik, 1956), this technique allows us to assess how accurate or inaccurate American beliefs regarding these two sources of cues really are. We hypothesized that not only would participant predictions be exaggerated or otherwise inaccurate, but in the cases in which LIWC language categories were relevant, these inaccurate predictions show a negative bias against Islam and a positive bias toward Christianity among non-Muslim participants, especially regarding language categories indicative of warmth, and the opposite for Muslim participants. Specifically, we hypothesized the following:

Hypothesis 1a: Non-Muslim American participant beliefs when compared to the actual language differences between the two English translations will be exaggerated or otherwise inaccurate in the fashion that the Quran contains more negative and the New Testament contains more positive language.

Hypothesis 1b: Muslim American participant beliefs when compared to the actual language differences between the two English translations will be exaggerated or otherwise inaccurate in the fashion that the New Testament contains more negative and the Quran contains more positive language.

All data and R code can be accessed through the Open Science Framework:

https://osf.io/h2sbd/?view_only=9aea20b226d44e3fb9027ed4e21ab08b.

Studies 1A and 1B

Methods

Participants & Procedures. We collected two samples. Two hundred and seven participants (107 male) from Amazon's Mechanical Turk participated in Study 1A. Two hundred and four participants (80 male) from Prolific and a southern university in the United States participated in Study 1B. Study 1A was further restricted to include only those who did not identify as Muslim resulting in a final sample of 163 (79 male). We ran additional analyses on the Christian and non-Christian subsamples and included them in our supplemental materials. Study 1A was expected to take four minutes while Study 1B was expected to take five minutes. In return for participating, Study 1A participants received \$0.75, and Study 1B participants received either \$1.00 or .5 research credits required for their classes as compensation upon completion of the survey. Though these were small rates it was based on a reasonable hourly rate of \$11.25 and \$10.84 respectively. Both study's participants were eligible if they were 18 years or older, residents of the US, and had an approval rating of 80% or above. Participants of Study 1B were required to identify as Muslim. Ages ranged from 19 to 69 ($M = 34.70$, $SD = 10.57$) for Study 1A and 18 to 73 ($M = 27.63$, $SD = 10.60$) for Study 1B. The majority of Study 1A identified as

Christian (54.6%) followed by Religious, but no religion (21.5%), Other (17.2%), Buddhist (4.3%), Jewish (1.8%), and Hindu (0.1%). These results reflect the growing trend that Americans identify with a religious or spiritual belief, but do not engage with religious institutions (Lipka & Gecewicz, 2020). The racial makeup of Study 1A was made up of primarily White individuals (76.1%), followed by Black (11.0%), Hispanic (6.1%), and Asian/Pacific Islander (3.7%) participants. Study 1B participants primarily identified as White (50.0%), followed by Latinx (27.0%), Hispanic (13.7%), Asian/Pacific Islander (11.3%), and Black (2.5%). Each participant read that we were interested in testing people's beliefs regarding different religions and that they were to indicate whether a target language concept was more often used in the New Testament or the Quran, followed by a demographic questionnaire.

Materials

Computerized Scoring of Texts. To analyze the 2 holy texts, we used the LIWC2015 software (Pennebaker et al., 2015). We specifically selected LIWC because it is a well-established dictionary-based language analysis method. LIWC was designed to count and calculate the percentage score of words in a text sample that reflect different dimensions of interest (i.e., emotions, thinking styles, social concerns, and parts of speech) using pre-defined dictionaries. We used English translations of both religious texts. These included the King James Version (2022) of the New Testament and the Marmaduke Pickthall translation of the Quran (2022). We selected these two translations due to their overall popularity. We utilized the New Testament because, of the two Testaments, it is often lauded as the peaceful books of the Bible. The Old Testament is primary in the Jewish religion while the New Testament is primary in the Christian tradition. Including the Old Testament would add an additional layer to our initial question. We

used English translations as we were interested in American beliefs about both texts. Using LIWC software, we split both texts into 100 roughly equal segments resulting in a final sample of 200 (100 samples from each religious text). The average word count per segment for the New Testament was 1,895.79 and 1,629.52 for the Quran. We then ran the texts through LIWC to compute the percentage of words used for the 40 dimensions of interest.

Holy Book Language Belief Questions. To measure participants' beliefs about the language used in both holy texts for both Studies 1A and 1B, participants indicated which holy book a series of 40 concepts (e.g., emotion, anger, sexuality) are a more common theme. The language dimensions were based on those used in the LIWC2015 dictionary we deemed most relevant to study. The participants were shown a title term for each of the language dimensions of interest with no further explanation. We wanted to limit any further bias and rely on the participants' interpretation of each term. Participants assessed each of the dimensions on a sliding scale with the holy books representing each extreme. The default position of the slider on each scale was located at the neutral position directly between the two poles. As a counterbalancing measure, half of the sample received sliding scales with the New Testament as the left pole and the Quran as the right pole, while the other half received the opposite. Scores ranged from -10 to +10 with the neutral point of 0 indicating no difference between the books. We did not utilize attention-check questions for this study. Attention-check questions can have unwanted effects on participants (Hauser et al., 2018; Hauser & Schwarz, 2015).

Demographic Questionnaire. Standard demographic questions regarding age, gender, and ethnicity made up the demographic questionnaire. Additionally, we included questions regarding religious affiliation and God beliefs in the demographic questionnaire.

Results

We investigated the language content differences between the Quran and the New Testament and whether Americans have exaggerated views of these differences in two sets of analyses. First, we ran 40 independent samples *t*-tests to assess the differences in LIWC-quantified language content between the holy books (See Figures 1a-1d and Table 1). Second, we divided the scores for each LIWC category for the holy books by a factor of 10 to get them on the same scale as participant beliefs regarding the two texts and subtracted the New Testament scores from the Quran scores, creating difference scores for each category. A positive difference score means that the language category is more frequent in the Quran than in the New Testament and vice versa for negative scores. We then turned our attention to the belief scores. Positive scores mean that participants believe that the word category is more frequent in the Quran than in the New Testament, and vice versa for negative scores. We ran 40 independent sample *t*-tests comparing belief scores for both American non-Muslims and Muslims to the observed language content difference scores for the holy books (see Figure 2a-2d, Table 2, and Table 3). We report the findings for each of the analyses for the specific lower-order language categories (e.g., negative emotion, positive emotion, anxiety, anger, and sadness) in the context of their higher-order language categories (e.g., Emotion Processes). We report both the *p*-value and the adjusted *p*-value for all analyses using the Holm adjustment.

----- Insert Table 1 and Figures 1a-1d about here -----

Emotional Processes

Each of the 5 emotional processes language categories differs in frequency between the holy books, as does the higher-order emotion processes category. In all cases, emotional processes language is more frequent in the Quran. Therefore, the Quran overall contains both more positive and negative emotion-related language than the New Testament.

We also hypothesized that not only would non-Muslim and Muslim Americans exaggerate or inaccurately predict language differences between the books, but that non-Muslims would do so in a way that was biased toward negative categories being more frequent in the Quran than in the New Testament and vice versa for Muslims. Our hypotheses were partially supported. While the Quran contains more overall emotion and positive emotion language than the New Testament, non-Muslims predicted the opposite for both. Muslim participants significantly exaggerated both of these differences. While the Quran contains more anger-related, anxiety-related, and negative emotional language, non-Muslim predictions exaggerated these differences in a significant way and Muslim participants significantly predicted the opposite. Only the results for anxiety in the non-Muslim sample did not hold after adjusting the p -values. Non-Muslims and Muslims held more positive biases toward their ingroup and negative biases against their outgroup for emotion related language.

Social Processes

Each of the 4 social processes language categories differs in frequency between the holy books, as does the higher-order social processes category. The Quran contains significantly more social processes language than the New Testament. The Quran contains more friend (e.g., “neighbor”), but less family (e.g., “father”), female (e.g., “her”), and male (e.g. “him”) language than the New

Testament. After adjusting for multiple tests, the friend and female results were no longer statistically significant. The Quran seemingly focuses more on broader social processes, while the New Testament focuses more on specific relationships.

We hypothesized that Americans would exaggerate or otherwise inaccurately predict social processes language differences. We did not have specific predictions about direction. While the Quran contains more social processes language than the New Testament, non-Muslim participants predicted the opposite to a significant degree. The non-Muslim participants also either exaggerated the differences or inaccurately believed the differences for 3 (family, friends, female) of the 4 other social processes' categories to be more common in the New Testament. The Muslim participants had the opposite results for both the broader social processes language and these 3 categories. While the Quran contains fewer male references than the New Testament, all participants predicted the opposite. This may be due to stereotypic beliefs about sexism in Islam (Hasan, 2012).

Cognitive Processes

Four of the 6 cognitive processes language categories significantly differ in frequency between the holy books, as does the higher-order cognitive processes category. The Quran contains more cognitive processes language than the New Testament. The Quran also contains more insight (e.g., "think"), causation (e.g., "because"), and tentativeness (e.g., "perhaps") language, but less certainty (e.g., "always") language than the New Testament. The results for both cognitive processes and certainty did not hold after adjusting for multiple tests. The Quran appears to be more tentative and contemplative than the New Testament.

We hypothesized that American participants would exaggerate or otherwise inaccurately predict cognitive processes language differences between the books. We did not have specific predictions about direction. Muslim predictions of each of the cognitive processing language categories (cognitive processing, insight, cause, tentativeness, certainty, differentiation) significantly favored the Quran. Non-Muslim participants showed significant bias in favor of the New Testament for the cognitive processes, insight, and certainty categories with only insight remaining significant after adjusting the p -values.

Perceptual Processes

Two of the perceptual processes' language categories and the higher-order perceptual processes category differed in frequency between the holy books. The New Testament contains significantly more perceptual processes language than the Quran. The New Testament contains more seeing (e.g., "seen") and hearing (e.g., "listen") language than the Quran. When comparing these results to the cognitive processes results, it seems that the New Testament focuses more on what can be externally sensed, while the Quran focuses more on internal contemplation.

We hypothesized that American participants would exaggerate or otherwise inaccurately predict perceptual processes language differences between the books, however, we did not have any directional hypotheses. Non-Muslims favored the New Testament and Muslims favored the Quran for the higher-order and lower-order perceptual processes language categories (perception, seeing, hearing, feeling). Only the results for the perception category among non-Muslims lost significance after accounting for multiple tests.

Biological Processes

Each of the 3 biological processes language categories differs in frequency between the holy books, as does the higher-order biological processes category. The New Testament contains significantly more biological processes language than the Quran. The New Testament contains more body (e.g., “hands”), health (e.g., “sick”), and sexual (e.g., “love”) language than the Quran. Neither the health nor sexual categories held significance after adjusting their p -values. Contrasting these results with the cognitive processes categories, it would seem that the New Testament is more embodied than the Quran.

We hypothesized that American participants would exaggerate or otherwise inaccurately predict biological processes language differences between the books. We did not however have any directional hypotheses for these categories. Non-Muslims significantly overestimated the differences in the amount of health, body, and sexuality language in the New Testament compared to the Quran, while Muslims inaccurately believed biology, body, and health to be more frequently used in the Quran. The results for both body and sexuality among non-Muslims did not remain significant after adjusting for multiple tests.

Motivational Processes

Three of the 4 motivational processes language categories differ in frequency between the holy books, though the higher-order motivational processes category did not. The Quran contains significantly more risk (e.g., “danger”) and affiliation (e.g., “ally”) language than the New Testament. The New Testament contains more power (e.g., “superior”) language than the Quran. It would seem, then, that the Quran is more achievement oriented, while the New Testament is more power oriented.

We hypothesized that not only would Americans exaggerate or otherwise inaccurately predict motivational process language differences between the books, but that non-Muslims would do so in a way that was biased toward negative categories being more frequent in the Quran than in the New Testament and vice versa for Muslims. Our hypotheses were partially supported. While the New Testament contains more motivation and power language, non-Muslims predicted the opposite. While the Quran contains more risk-related language, non-Muslims exaggerated these differences significantly. Each of these results was not significant after controlling for multiple tests. Muslims believed motivation, affiliation, and power to be more frequently used in the Quran.

Time Orientations

Each of the 3 time orientation language categories differs in frequency between the holy books, though the higher-order category of time did not. The Quran contains more language aligned with a focus on the present (e.g., “today”) and focus on the future (e.g., “soon”) compared to the New Testament. The New Testament contains more language aligned with a focus on the past (e.g., “ago”) compared to the Quran. Focusing on the past did not maintain its significance after adjusting for multiple tests. It would seem that the Quran is more present- and future-oriented while the New Testament puts a greater emphasis on a historical perspective.

We hypothesized that American participants would exaggerate or otherwise inaccurately predict time orientation language differences between the books. We did not have specific predictions about direction. While the Quran contains more present- and future-oriented language, non-Muslims predicted the opposite to a significant degree and Muslims overestimated the difference in favor of the Quran. The broader category of time was inaccurately thought to be

more frequently found in the New Testament by non-Muslims and more frequently found in the Quran by Muslims.

Personal Concerns

Four of the 6 personal concerns language categories differ in frequency between the holy books. The New Testament contains more work (e.g., “job”) and death (e.g., “coffin”) language than the Quran. The Quran contains more money (e.g., “owe”) and leisure (e.g., “cook”) language. Work and money did not remain significant after adjusting for multiple tests. These findings may indicate a different emphasis on personal concerns for each religion with the New Testament focusing on death and vocation and the Quran focusing on money and pleasure.

We hypothesized that American participants would exaggerate or otherwise inaccurately predict personal concerns language differences between the books, however, we did not have any directional hypotheses. Non-Muslims’ beliefs significantly differed from the texts for the work, leisure, home, and money language categories indicating greater use in the New Testament, while Muslims believed work, home, money, religion, and death all to be more represented in the Quran. Work, leisure, and money did not remain significant for non-Muslims after adjusting the p -values, nor did money for the Muslims.

Informal Speech

In regards to informal speech, the two texts significantly differed in how frequently they used swear words (e.g., “damn”). These words were more frequent in the Quran compared to the New Testament but this result was no longer significant after adjusting the p -value.

We hypothesized that Americans would inaccurately predict informal language differences between the books, but we did not have specific directional predictions. Non-Muslims significantly overestimated the differences in the amount of swearing in the Quran compared to the New Testament. This may be due to a general negative bias against the Quran. The adjusted p -value did not remain significant.

-----Insert Tables 2 and 3 as well as Figures 2a-2d about here-----

General Discussion

We hypothesized that American participants would exaggerate or be otherwise inaccurate in their predictions regarding the language content of the two primary holy texts of Christianity (New Testament) and Islam (Quran). We had no specific hypotheses regarding the differences between the two books, as this analysis was exploratory. We did find several differences. The Quran tended to contain more emotion, social, and cognitive processes language than the New Testament, as well as more motivational language regarding affiliation, achievement, and risk. The Quran's language tends to be more present- and future-oriented than the New Testament. The New Testament has more perceptual and biological processes language, as well as more power- and death-related language than the Quran. The New Testament's language also tends to be more past-oriented than the Quran.

We also found support for our hypothesis that Americans would exaggerate and be otherwise inaccurate in their predictions of the language differences in the holy books. Non-Muslim participants tended to predict that the Quran contained more anger, male-centric, power, and past-oriented language than the New Testament. Further, they also predicted that the New Testament would contain more positive emotion, family, friend, and future-oriented language than the Quran. These assumptions were inaccurate and in the wrong direction. Non-Muslim

participants also exaggerated the amount of negative emotion language in the Quran. Similarly, Muslim participants tended to believe that the New Testament contains more negative emotion, anxiety, and anger language than the Quran. They predicted that the Quran would contain more positive emotion, family, friend, health, and present and future-oriented language. These results clearly show that participants' beliefs regarding the two texts were biased such that non-Muslims viewed the New Testament more positively and the Quran more negatively while Muslims were the opposite. This may be indicative of a negative outgroup bias toward the outgroup religious text based on the principles of Social Identity Theory (SIT; Tajfel, 1978, 1979).

Our results may reflect important psychological biases towards the religion of Islam (rather than Muslims) when compared to Christianity among non-Muslim Americans. These biases, as reflected in public sentiment in western countries, paint a picture of Islam as a religion defined by negative attributes such as aggression and the need for power. Williams et al. (2017) found similar biases when priming participants to believe an individual is either Christian or Muslim. Muslim Americans held opposite biases against Christianity (rather than Christians). These biases align with SIT's suggestion that prejudice is the result of ingroup favoritism and outgroup bias (Tajfel & Turner, 2004). The results for non-Muslims are more indicative of outgroup derogation than ingroup favoritism—as non-Muslims do not make up a cohesive ingroup—while the results for Muslims may be due to both ingroup favoritism and outgroup derogation; however, further research is needed for this specific theory.

Fear of the outgroup religion and the symbolic threat it represents has been well-established in the literature (Esses et al., 2017; Landmann et al., 2019; Riek et al., 2006; Stephan, 2014). The fear individuals likely have regarding the symbolic threat posed by Islam itself leads to fear of Muslim people. Americans make inferences about the religious teachings of Islam,

which they believe are fundamentally negative regardless of whether these views are supported by sources such as holy texts. This would explain why beliefs about the Quran included several negative attributes as compared to the New Testament among non-Muslim Americans.

The stereotype content model may also explain these biases. Muslims are perceived as being low in warmth and low in competence which aligns with several of the biased beliefs regarding the language categories (e.g., anger, power, biology). American stereotypes for Muslims across these two dimensions extend past the religious person to the religious texts themselves. This suggests that Americans may believe Islam itself lacks warmth (i.e., emotional processes and social processes) and is low in competence (i.e., cognitive processes and perceptual processes). This would explain why beliefs about the Quran include the negative attributes present in the current study.

The biases displayed by our sample indicate a Christian worldview may be seen as more normative, or possibly more familiar, compared to Islam within this western context. This is critical as we look specifically at American cultural effects rather than Christian cultural effects. We suggest that all Americans are influenced by the predominantly Judeo-Christian culture (e.g., protestant work ethic) to hold these biases. The normative perception of Christianity in the US would lead to more positive beliefs while the inverse is true for Islam (Norenzayan & Gervais, 2013). Those groups that do not share the same characteristics as the normative group are likely to be the target of prejudice and outgroup derogation. This is especially true when the group's identities are centered on such core beliefs and values as those found in religious contexts (Hunsberger & Jackson, 2005) and align with SIT (Tajfel & Turner, 2004).

We also would like to address the implications this research has regarding stereotype accuracy. The stereotype accuracy literature holds that some stereotypes about specific groups

reflect actual differences between groups (Jussim et al., 2015). However, to the extent that some stereotypes are accurate they may be exaggerated or applied too liberally (Jussim et al., 2015). The current results suggest that participants believed there to be several differences between the two texts across several language categories in the wrong direction across both non-Muslim (i.e., emotion, positive emotion, power) and Muslim (i.e., negative emotion, anger, power) participants. This suggests that some negative stereotypes do not reflect true differences when comparing beliefs to actual language differences. It is possible this is due to biased understandings of the religions. Further, some beliefs were in the right direction but inaccurate in terms of magnitude, which then may be a fuel to religious prejudice. When considering the lens model, our results indicate that participants may be utilizing inaccurate cues based on their biased and stereotyped beliefs regarding the texts to make assumptions about the target groups. This theory should be tested more directly in future studies.

We found the results regarding the time orientation categories of LIWC to be particularly interesting. Both the non-Muslim and Muslim participants biasedly believed the ingroup text to contain more present- and future-oriented words compared to the outgroup text, while non-Muslims also biasedly believed the Quran to have more past-oriented language. These results suggest several interesting implications. Individuals with a present orientation are more impulsive and interested in aesthetics and fantasy (Shipp & Aeon, 2019). Present orientation leads to higher life satisfaction, but it may also lead to risky behaviors (Shipp & Aeon, 2019). Future-oriented individuals tend to be more liberal and more practical with little interest in abstract matters and a greater focus on achievement (Park et al., 2017; Robinson et al., 2015; Shipp & Aeon, 2019). Further, past orientations are related to conservatism (Robinson et al., 2015) and may be maladaptive as they are related to several types of emotional distress such as

neuroticism and trait anxiety (Shipp et al., 2009; Zacher, 2014; Zimbardo & Boyd, 1999). The current results suggest that not only are present and future orientations more beneficial to the individual, but they may be perceived as being more acceptable as well, while past orientations are both more negative for the individual and perceived as more negative.

We wanted to briefly discuss a few unique elements of our methods. Linguistic coding methods have been used throughout different fields of psychology as an implicit measure to bypass issues with self-report (Pennebaker et al., 2015; Pennebaker et al., 2003; Robinson & Clore, 2002). Stereotype researchers have even outlined procedures for developing new dictionaries that include stereotype content model dictionaries for warmth and competence language (Nicolas et al., 2021). Little research, however, has compared *beliefs* about language to the actual use of language. This investigation extends these techniques to religious texts as a means of examining religious tenets from what we consider to be a primary source. By comparing the language as it appears in the text directly, we get a clearer picture of where these two texts are similar and different. This direct comparison reveals the linguistic differences across several categories that may reveal stylistic, historical, theological, or moral differences between the two religions.

Furthermore, by comparing these primary sources to beliefs about the language in the sources themselves, we gain a deeper insight into the basic understandings, or lack thereof, of both the religions overall and their texts. This often-overlooked use of language analysis techniques allows us to not only look at language in use to determine biases but also to examine how people believe language is used by others. We hope that researchers find our methods useful in their own research regarding topics with primary sources similar to those in religious research.

We believe it may complement other strategies in this area with room for others to expand on our techniques.

Additional Considerations and Future Directions

Our findings provide some evidence for how Americans view different religious texts and the accuracy of those beliefs. Several aspects of the current project however must be considered as potential limitations. One limitation is our linguistic analysis technique. The LIWC category labels may be difficult to understand. For example, the feeling category relates to one of the five senses rather than emotional states. We did not provide further explanation to clarify any of the categories which may have led to confusion on the part of the participants, though we did not provide explanations as to avoid biasing the participants in any way. Further, LIWC codes for the frequency of words with no regard to context. This means that although one language dimension may be more frequent in one of the texts, we do not know how it is being used. The New Testament used words related to power more frequently, but it could be that they emphasize the giving up of power rather than seeking power. By missing the context in which these words are used we are unable to determine exactly how these two religions may think about these concepts. This is also an important strength of the method as it removes additional subjectivity that comes with interpreting intent (Tausczik & Pennebaker, 2010). Though it does not allow for a contextual understanding of the language, it does allow for a more objective evaluation of the language and the identification of general themes (e.g. even if focusing on limiting power, the theme is still focused on the concept of power). Translational issues further prevent a purely objective evaluation.

To expand on this last point, further consideration should be given to the use of holy text translations and the specific translations themselves. The translation process subjects the text to a degree of bias. The bias presented in the translation process could alter the outcome of the desired analyses. We selected the translations used for this project based on popularity and availability. Future linguistic researchers may benefit from opting to use texts written in their original language or selecting translations that best align with their research questions. The current research, however, was interested in comparing American beliefs to the texts themselves. Therefore, it made sense to use popular English translations rather than translations most faithful to the original texts as these are the most accessible to the average American. Those researchers most interested in historical accuracy may select different translations across different languages than those utilized in the current study. Future researchers may even compare multiple translations of the same text to examine the consistency between translations. This application of LIWC to examine religious texts has many opportunities for novel research.

Future research should also look at Christian versus non-Christian rather than American or western cultural beliefs regarding the two holy texts. It may be that Christians hold negative biases against the Quran, but one could also suggest dual-hypotheses as some atheists are just as Islamophobic as Christians (Mitchell, 2022). In fact, Protestants and Catholics rate their feelings towards Muslims as being slightly warmer compared to their feelings towards atheists, while atheists rate Muslims slightly lower than Muslims' average rating (Mitchell, 2022). Christian and atheist ratings of Muslims are comparable ranging between 44 and 49 out of 100. This would suggest that non-Christians may be as discriminatory as Christians.

There are several possible mechanisms behind what leads to biased beliefs and ingroup favoritism that future research ought to explore. Biases such as those observed in our results


align with Intergroup Threat Theory's suggestion that prejudice is the result of the perceived threat from an opposing group (Stephan et al., 2016). One of the possible mechanisms for the bias displayed by our sample is a perceived threat from the Muslim faith as it was viewed to be angrier, more male-centric, more risk-taking, and more power-hungry. Said differently, non-Muslim participants may have viewed Islam in a more threatening manner than Christianity. Publicized examples of Islamic extremism have likely contributed to the increased perceived threat of Muslims overall regardless of their specific beliefs. Our research adds to this discussion by having participants record their beliefs about the faith at its most primary level. Instead of asking about the followers of a religion, we are asking about the religion itself. Despite removing the believer from the equation, our results show that the religion itself is perceived negatively. The current study cannot however determine whether these biases have to do with the texts, the text's believers, or the regions of the world associated with each. Future research should look at how these misconceptions shape stereotypes and how stereotypes shape misconceptions. This work adds to our current understanding of religious prejudice by suggesting that such prejudice is driven by diverse sources of bias. It could be that beliefs regarding language may lead to feelings of threat and prejudice toward different religions. Our research did not evaluate perceived threats directly, but we believe this area may be a fruitful direction for future research.


Conclusion


Both parts of the current study showed that the language present in Christianity and Islam's holy books differed, but Americans' beliefs about these differences were biased and inaccurate. Some of these inaccuracies were a matter of exaggerating the magnitude of the differences between the two texts, but others were a matter of incorrectly perceiving one text to contain more of a

particular language category when the opposite was true. We theorize that this is a function of Social Identity Theory with participants showing favoritism towards the ingroup and bias towards the outgroup. This research suggests that religious prejudice is constituted by diverse sources of bias beyond the people directly. We hope the linguistic methods used in this research emphasizing the use of primary sources and examining stereotypes by assessing how participants believe other groups use language is explored by other researchers for their questions, especially in the field of religious intolerance and prejudice.

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Declaration of Conflicting Interests

We have no conflicts of interest to disclose.

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Table 1. Means, Standard Deviations, and Independent Samples t-test of each Category for the Quran and New Testament LIWC Analysis.

Concepts	Quran		New Testament		<i>t</i>	<i>df</i>	<i>p</i> -value	Cohen's	95% Confidence		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					D	Interval	
										Lower	Upper
Emotional Processes											
Emotion	5.68	0.87	4.01	1.45	9.80	161.72	<.001 (<.001)	1.39	1.33	1.99	
Negative Emotion	2.42	0.59	1.45	0.53	12.14	195.38	<.001 (<.001)	1.72	0.81	1.12	
Positive Emotion	3.24	0.64	2.54	1.14	5.34	156.54	<.001 (<.001)	0.76	0.44	0.96	
Anxiety	0.33	0.20	0.20	0.15	5.24	182.29	<.001 (<.001)	0.74	0.08	0.18	
Anger	0.52	0.28	0.35	0.22	4.73	189.15	<.001 (<.001)	0.67	0.10	0.24	
Sadness	0.49	0.21	0.33	0.20	5.74	197.27	<.001 (<.001)	0.81	0.11	0.22	
Social Processes											
Social	17.91	2.28	15.88	3.44	4.91	171.98	<.001 (<.001)	0.69	1.21	2.84	
Family	0.35	0.47	0.88	0.63	-6.75	183.79	<.001 (<.001)	0.95	-0.68	-0.37	
Friends	0.16	0.14	0.11	0.13	2.38	195.67	.018 (.203)	0.34	0.01	0.08	
Female	0.32	0.49	0.51	0.57	-2.52	193.50	.012 (.162)	0.36	-0.34	-0.04	
Male	3.29	1.14	5.26	1.97	-8.69	158.40	<.001 (<.001)	1.23	-2.42	-1.53	
Cognitive Processes											

Cognitive Processes	8.96	1.30	8.23	2.44	2.64	150.95	.009 (.137)	0.37	0.18	1.27
Insight	1.92	0.52	1.35	0.52	7.73	197.97	<.001 (<.001)	1.09	0.42	0.71
Cause	1.32	0.38	1.11	0.41	3.68	197.31	<.001 (.006)	0.52	0.10	0.31
Tentativeness	1.51	0.50	1.23	0.64	3.43	187.10	<.001 (.014)	0.49	0.12	0.44
Certainty	1.27	0.34	1.40	0.54	-2.01	166.14	.046 (.323)	0.28	-0.25	-0.002
Differentiation	3.33	0.76	3.26	1.45	0.44	149.66	.659 (1.000)	0.06	-0.25	0.40
Perceptual Processes										
Perception	2.42	0.70	3.20	1.33	-5.16	150.32	<.001 (<.001)	0.73	-1.07	-0.48
Seeing	0.68	0.31	0.87	0.44	-3.54	179.94	<.001 (.010)	0.50	-0.30	-0.08
Hearing	1.22	0.63	1.86	0.98	-5.53	168.86	<.001 (<.001)	0.78	-0.87	-0.41
Feeling	0.40	0.20	0.35	0.23	1.84	193.21	.067 (.400)	0.26	-0.004	-0.12
Biological Processes										
Biology	1.13	0.45	1.89	0.77	-8.53	160.23	<.001 (<.001)	1.21	-0.93	-0.58
The Body	0.48	0.26	0.89	0.48	-7.55	151.55	<.001 (<.001)	1.07	-0.52	-0.30
Health	0.32	0.16	0.40	0.26	-2.59	162.46	.010 (.145)	0.37	-0.14	-0.02
Sexuality	0.05	0.06	0.07	0.10	-2.33	158.80	.021 (.203)	0.33	-0.05	-0.004
Motivational Processes										
Motivations	0.30	1.18	0.43	2.08	1.85	156.22	.067 (.400)	0.26	-0.03	0.91
Affiliation	2.40	0.94	1.77	1.36	3.80	176.04	<.001 (.004)	0.54	0.30	0.95
Power	2.90	0.59	3.73	0.94	-7.46	166.35	<.001 (<.001)	1.05	-1.04	-0.61

Risk	0.79	0.32	0.22	0.15	16.03	142.42	<.001 (<.001)	2.27	0.50	0.64
Time Orientation										
Time	3.19	0.69	3.35	0.88	-1.48	187.92	.141 (.565)	0.21	-0.39	0.06
Focusing on the past	3.25	1.20	5.65	2.51	-8.61	142.09	<.001 (<.001)	1.22	-2.95	-1.85
Focusing on the future	2.24	0.48	1.93	0.84	3.24	156.96	.001 (.025)	0.46	0.12	0.50
Focusing on the present	8.10	1.17	7.56	2.17	2.19	152.46	.030 (.243)	0.31	0.05	1.03
Personal Concerns										
Work	0.64	0.28	0.77	0.48	-2.39	160.09	.018 (.203)	0.34	-0.25	-0.02
Leisure	0.31	0.19	0.17	0.17	5.42	193.73	<.001 (<.001)	0.77	0.09	0.19
Home	0.23	0.17	0.23	0.21	0.05	189.66	.963 (1.000)	0.01	-0.05	0.05
Money	0.40	0.32	0.28	0.23	2.89	179.12	.004 (.068)	0.41	0.04	0.19
Religion	4.28	1.22	4.16	1.46	0.66	192.04	.510 (1.000)	0.09	-0.25	0.50
Death	0.30	0.19	0.48	0.34	-4.71	155.51	<.001 (<.001)	0.67	-0.26	-0.11
Informal Speech										
Swears	0.07	0.07	0.05	0.07	2.41	196.77	.017 (.203)	0.34	0.004	0.04

Note. This table depicts *t*-tests examining the language differences between the Quran and New Testament across several LIWC categories. Quran and New Testament scores are in percentages. Adjusted *p*-values are reported within the parentheses and used the Holm adjustment method.

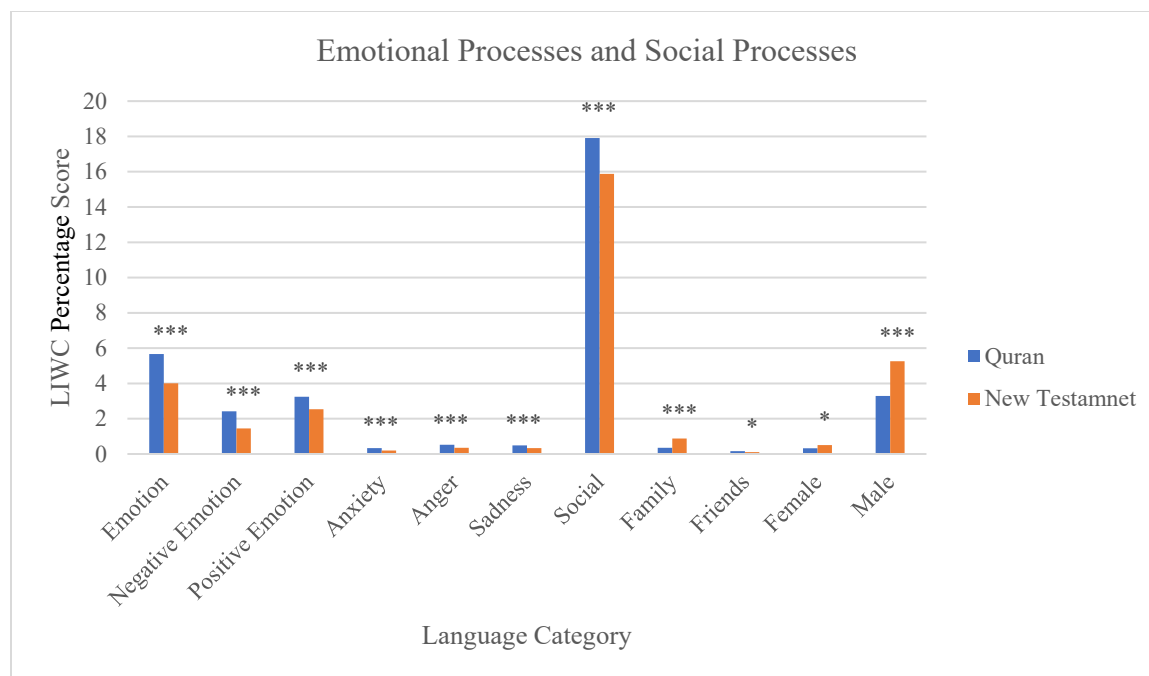


Figure 1a. LIWC percentage scores comparisons for the New Testament and Quran for Emotional Processes and Social Processes categories.

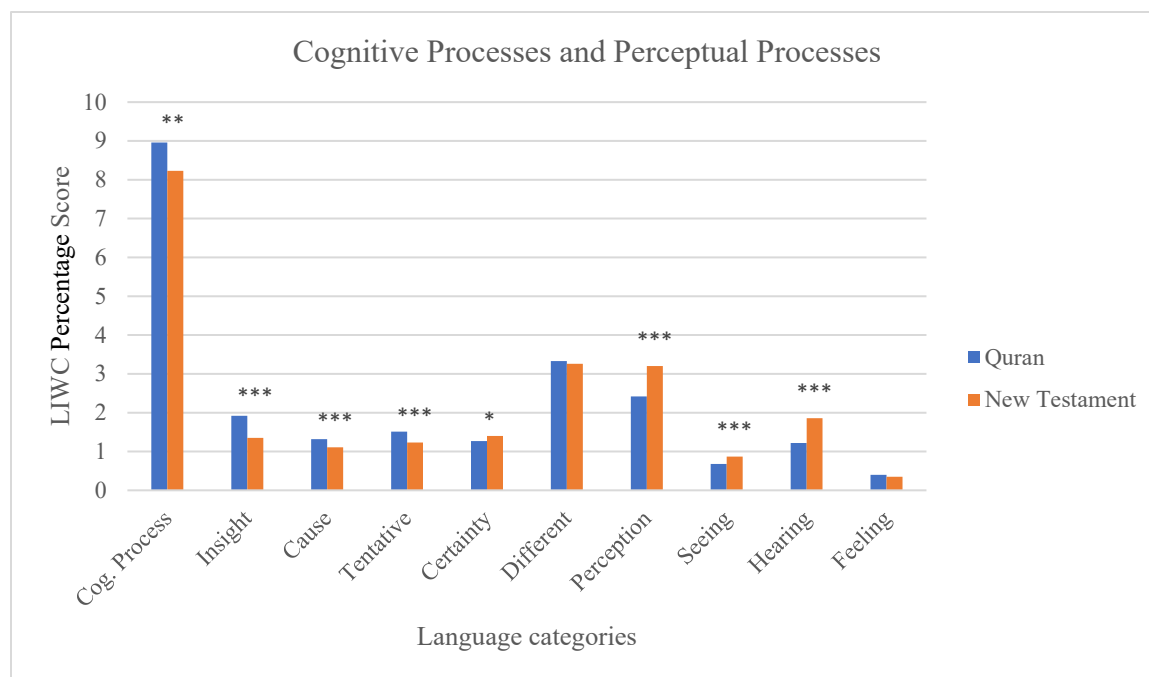


Figure 1b. LIWC percentage scores comparisons for the New Testament and Quran for Cognitive Processes and Perceptual Processes categories.

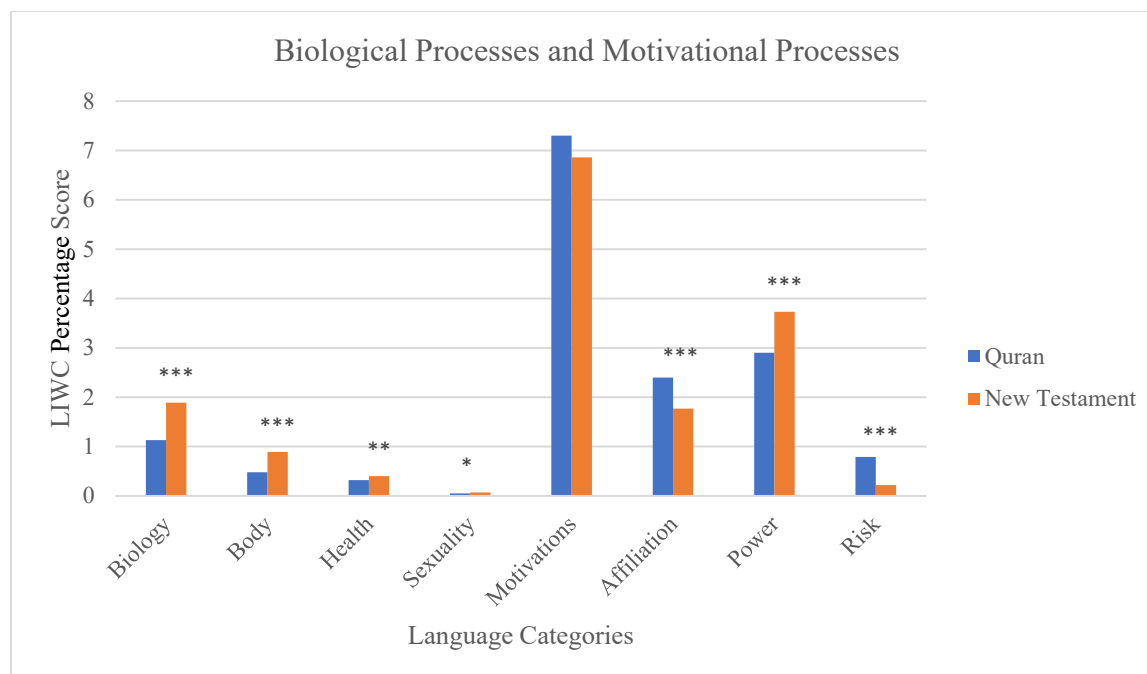


Figure 1c. LIWC percentage scores comparisons for the New Testament and Quran for Biological Processes and Motivational Processes.

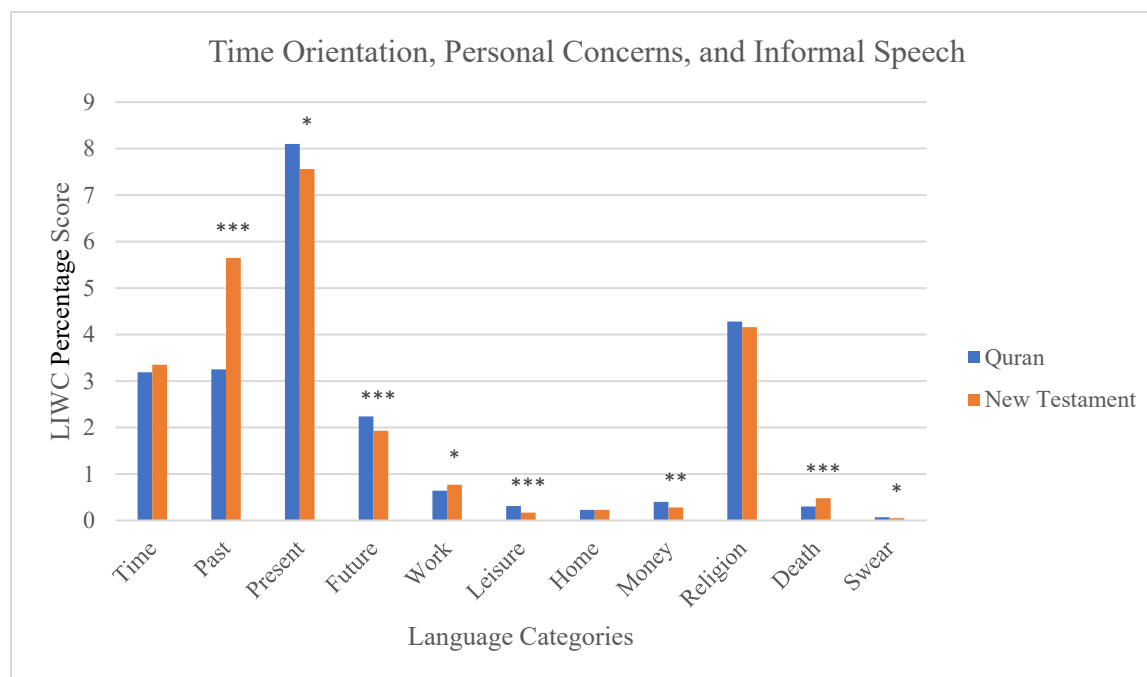


Figure 1d. LIWC percentage scores comparisons for the New Testament and Quran for Time Orientation, Personal Concerns, and Informal Speech categories.

Note. Each figure is titled as the language categories headings. LIWC percentage scores indicate what percentage each language category is within each holy text. Significance indicates if there is a difference between each category's percentage score between the two books. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2. Means, Standard Deviations, and Independent samples t-test of each Category Comparing Beliefs and Actual language for Non-Muslims.

Categories	Non-Muslim		Actual Text	<i>t</i> (162)	<i>p</i> -value	Cohen's	95%		
	Beliefs		Differences			D	Confidence		
							Interval		
	<i>M</i>	<i>SD</i>	<i>M</i>				Lower	Upper	
Emotional Processes									
Emotion	-1.15	4.54	0.17	-3.71	<.001 (.007)	0.29	-1.86	-0.45	
Negative Emotion	2.13	4.63	0.10	5.61	<.001 (<.001)	0.44	1.41	2.84	
Positive Emotion	-2.37	4.19	0.07	-7.44	<.001 (<.001)	0.58	-3.02	-1.72	
Anxiety	0.87	4.45	0.01	2.44	.016 (.266)	0.17	0.18	1.55	
Anger	2.21	4.80	0.02	5.83	<.001 (<.001)	0.46	1.47	2.95	
Sadness	0.21	4.43	0.02	0.55	.581 (1.000)	0.04	-0.48	0.89	
Social Processes									
Social	-1.48	4.36	0.20	-4.94	<.001 (<.001)	0.39	-2.16	-0.81	
Family	-2.16	4.60	-0.05	-5.86	<.001 (<.001)	0.46	-2.87	-1.45	
Friends	-2.44	4.26	0.004	-7.31	<.001 (<.001)	0.57	-3.09	-1.78	
Female	-2.22	4.63	-0.02	-6.08	<.001 (<.001)	0.48	-2.94	-1.51	
Male	1.61	5.36	-0.20	4.30	<.001 (.001)	0.34	0.78	2.44	
Cognitive Processes									
Cognitive processes	-0.72	4.10	0.07	-2.48	.014 (.256)	0.19	-1.36	-0.09	
Insight	-1.60	4.43	0.06	-4.76	<.001 (<.001)	0.37	-2.28	-0.91	
Cause	-0.19	4.28	0.02	-0.63	.531 (1.000)	0.05	-0.85	0.47	
Tentativeness	-0.29	3.76	0.03	-1.07	.285 (1.000)	0.08	-0.87	0.29	
Certainty	-0.79	4.48	-0.01	-2.22	.028 (.419)	0.17	-1.48	-0.10	
Differentiation	0.28	4.06	0.01	0.86	.389 (1.000)	0.07	-0.35	0.91	
Perceptual Processes									

Perception	-0.88	4.27	-0.08	-2.41	.017 (.273)	0.19	-1.54	-0.22
Seeing	-1.60	3.97	-0.02	-5.07	<.001 (<.001)	0.40	-2.21	-0.98
Hearing	-1.88	4.00	-0.06	-5.80	<.001 (<.001)	0.45	-2.50	-1.26
Feeling	-1.44	4.38	0.01	-4.20	<.001 (.001)	0.33	-2.11	-0.76
Biological Processes								
Biology	-0.50	4.10	-0.08	-1.33	.185 (1.000)	0.10	-1.14	0.13
The Body	-0.81	4.80	-0.04	-2.05	.042 (.466)	0.16	-1.55	-0.07
Health	-1.19	4.17	-0.01	-3.62	<.001 (.010)	0.28	-1.84	-0.54
Sexuality	-0.84	4.83	-0.003	-2.21	.028 (.419)	0.17	-1.59	-0.09
Motivational Processes								
Motivations	-0.84	4.37	0.04	-2.58	.011 (.202)	0.20	-1.52	-0.16
Affiliation	0.00	4.57	0.06	-0.18	.861 (1.000)	0.01	-0.71	0.71
Power	1.01	5.18	-0.08	2.69	.008 (.176)	0.21	0.21	1.81
Risk	0.74	4.07	0.06	2.13	.035 (.432)	0.17	0.11	1.37
Time Orientation								
Time	-1.54	3.72	-0.02	-5.23	<.001 (<.001)	0.41	-2.12	-0.96
Focusing on the past	0.51	4.89	-0.24	1.95	.052(.472)	0.15	-0.25	1.27
Focusing on the future	-1.32	4.57	0.03	-3.78	<.001 (.006)	0.30	-2.03	-0.61
Focusing on the present	-0.91	3.72	0.05	-3.30	.001 (.027)	0.26	-1.48	-0.33
Personal Concerns								
Work	-1.01	4.76	-0.02	-2.67	.008 (.176)	0.21	-1.75	-0.28
Leisure	-0.74	4.46	0.01	-2.15	.033 (.432)	0.17	-1.43	-0.05
Home	-1.47	4.15	0.0001	-4.53	<.001 (<.001)	0.36	-2.11	-0.83
Money	-0.85	4.21	0.01	-2.62	.010 (.193)	0.21	-1.50	-0.20
Religion	0.06	4.66	0.01	0.12	.907 (1.000)	0.01	-0.67	0.78
Death	0.12	4.82	-0.02	0.37	.710 (1.000)	0.03	-0.62	0.87

Informal Language

Swears	0.65	4.11	0.002	2.01	.046 (.466)	0.16	0.01	1.29
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Note. Text differences were calculated by first dividing LIWC percentage scores for each holy text by a factor of 10 in order to get scores on the same scale as perception scores. LIWC percentage scores for the New Testament were subtracted from percentage scores for the Quran. For text differences (actual) and mean non-Muslim beliefs (beliefs), positive scores indicate greater use in the Quran and negative scores indicate greater use in the New Testament. Adjusted *p*-values are reported within the parentheses and used the Holm adjustment method.

Table 3. Means, Standard Deviations, and Independent samples t-test of each Category Comparing Beliefs and Actual language For Muslims.

Categories	Muslim Beliefs		Actual Text Differences	<i>t</i> (203)	<i>p</i> -value	Cohen's D	95% Confidence Interval	
	<i>M</i>	<i>SD</i>	<i>M</i>				Lower	Upper
Emotional Processes								
Emotion	2.89	4.44	0.17	8.76	<.001 (<.001)	0.61	2.27	3.50
Negative Emotion	-1.78	4.18	0.10	-4.44	<.001 (<.001)	0.31	-1.78	-0.62
Positive Emotion	3.47	4.17	0.07	11.64	<.001 (<.001)	0.82	2.89	4.04
Anxiety	-1.13	4.42	0.01	-3.70	<.001 (.002)	0.29	-1.74	-0.52
Anger	-1.57	4.48	0.02	-5.05	<.001 (<.001)	0.35	-2.19	-0.95
Sadness	-0.18	4.36	0.02	-0.65	.517 (1.000)	0.05	-0.78	0.42
Social Processes								
Social	2.14	4.50	0.20	6.14	<.001 (<.001)	0.43	1.52	2.76
Family	4.64	4.19	-0.05	16.00	<.001 (<.001)	1.12	4.06	5.22
Friends	2.08	4.55	0.004	6.53	<.001 (<.001)	0.46	1.46	2.71
Female	2.97	4.57	-0.02	9.32	<.001 (<.001)	0.65	2.33	3.60
Male	1.75	4.35	-0.20	6.38	<.001 (<.001)	0.45	1.14	2.45
Cognitive Processes								
Cognitive processes	2.52	4.16	0.07	8.44	<.001 (<.001)	0.59	1.96	3.12
Insight	3.71	4.28	0.06	12.19	<.001 (<.001)	0.85	3.12	4.30
Cause	2.63	4.33	0.02	8.62	<.001 (<.001)	0.60	2.03	3.23
Tentativeness	1.04	4.36	0.03	3.33	.001 (.008)	0.23	0.44	1.65
Certainty	4.38	4.39	-0.01	14.27	<.001 (<.001)	1.00	3.77	4.98
Differentiation	1.74	4.52	0.01	5.47	<.001(<.001)	0.38	1.11	2.36
Perceptual Processes								

Perception	2.90	4.01	-0.08	10.62	<.001 (<.001)	0.74	2.35	3.46
Seeing	2.94	4.27	-0.02	9.89	<.001 (<.001)	0.69	2.35	3.53
Hearing	3.15	4.28	-0.06	10.72	<.001 (<.001)	0.75	2.56	3.74
Feeling	2.76	4.29	0.01	9.19	<.001 (<.001)	0.64	2.17	3.36
Biological Processes								
Biology	3.34	4.75	-0.08	10.27	<.001 (<.001)	0.72	2.68	3.99
The Body	3.52	4.68	-0.04	10.87	<.001 (<.001)	0.76	2.87	4.17
Health	4.07	4.02	-0.01	14.49	<.001 (<.001)	1.01	3.51	4.62
Sexuality	0.36	4.69	-0.003	1.10	.274 (1.000)	0.08	-0.29	1.01
Motivational Processes								
Motivations	3.59	4.13	0.04	12.26	<.001 (<.001)	0.86	3.02	4.16
Affiliation	2.29	4.35	0.06	7.33	<.001 (<.001)	0.51	1.69	2.89
Power	2.69	4.87	-0.08	8.12	<.001 (<.001)	0.57	2.01	3.36
Risk	-0.08	4.28	0.06	-0.45	.651 (1.000)	0.03	-0.67	0.51
Time Orientations								
Time	3.44	4.39	-0.02	11.26	<.001 (<.001)	0.79	2.84	4.05
Focusing on the past	0.10	4.58	-0.24	1.09	.279(1.000)	0.08	-0.52	0.74
Focusing on the future	3.01	4.37	0.03	9.75	<.001 (<.001)	0.68	2.41	3.62
Focusing on the present	2.67	4.15	0.05	9.00	<.001 (<.001)	0.63	2.09	3.24
Personal Concerns								
Work	1.58	4.37	-0.02	5.22	<.001 (<.001)	0.37	0.98	2.19
Leisure	-0.01	4.28	0.01	-0.10	.924 (1.000)	0.01	-0.61	0.58
Home	3.01	4.12	0.0001	10.46	<.001 (<.001)	0.73	2.45	3.58
Money	0.79	4.54	0.01	2.46	.015 (.103)	0.17	0.17	1.42
Religion	4.29	4.31	0.01	14.19	<.001 (<.001)	0.99	3.69	4.88
Death	3.60	5.00	-0.02	10.35	<.001 (<.001)	0.72	2.91	4.29

Informal Speech

Swears	-0.58	4.82	0.002	-1.71	.087 (.523)	0.12	-1.24	0.09
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Note. Text differences were calculated by first dividing LIWC percentage scores for each holy text by a factor of 10 in order to get scores on the same scale as perception scores. LIWC percentage scores for the New Testament were subtracted from percentage scores for the Quran. For text differences (actual) and mean Muslim beliefs (beliefs), positive scores indicate greater use in the Quran and negative scores indicate greater use in the New Testament. Adjusted *p*-values are reported within the parentheses and used the Holm adjustment method.

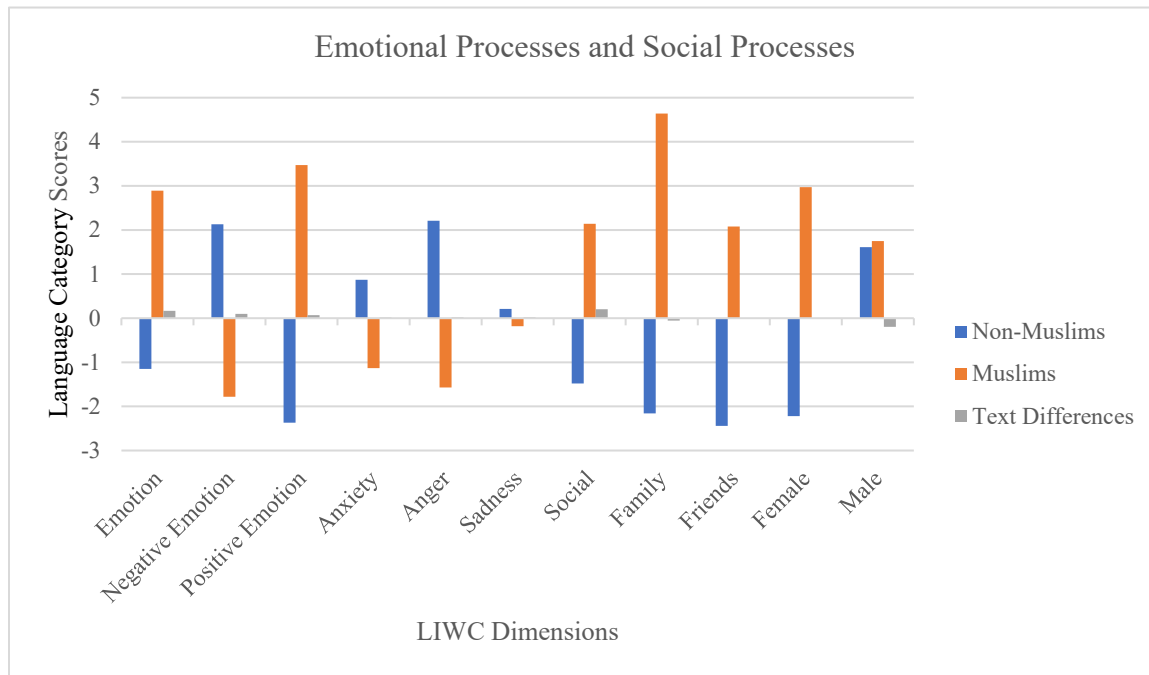


Figure 2a. Non-Muslim beliefs, Muslim Beliefs, and actual language difference scores on the two holy texts for Emotional Processes and Social Processes categories.

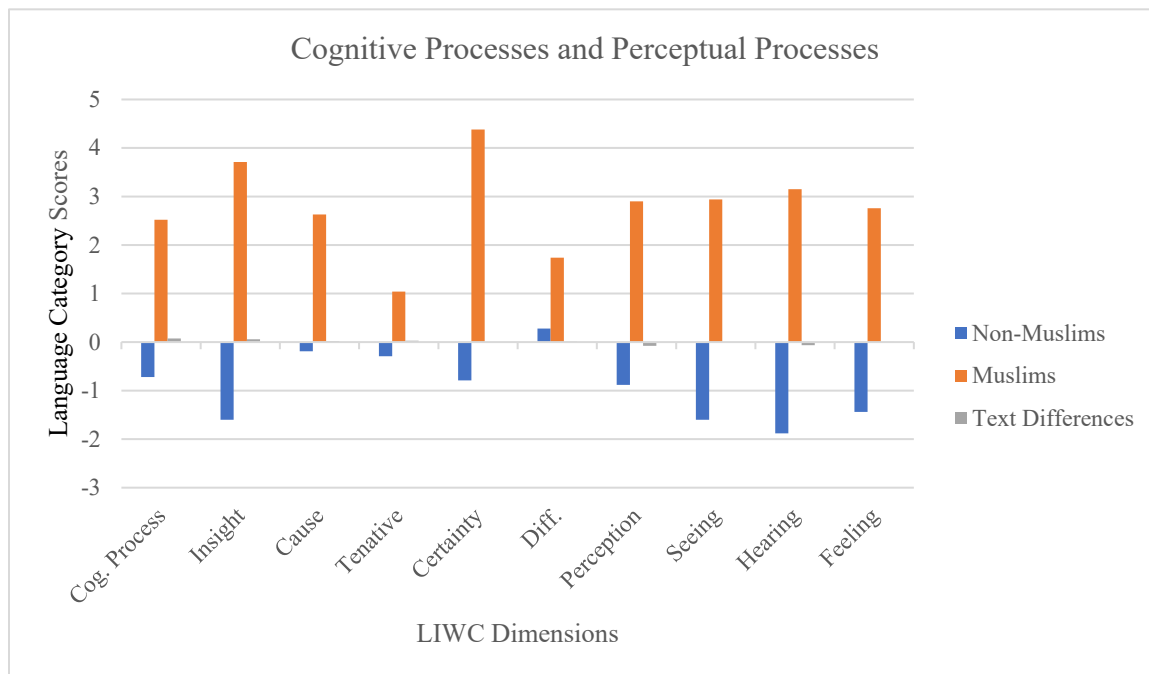


Figure 2b. Non-Muslim beliefs, Muslim Beliefs, and actual language difference scores on the two holy texts for Cognitive Processes and Perceptual Processes categories.

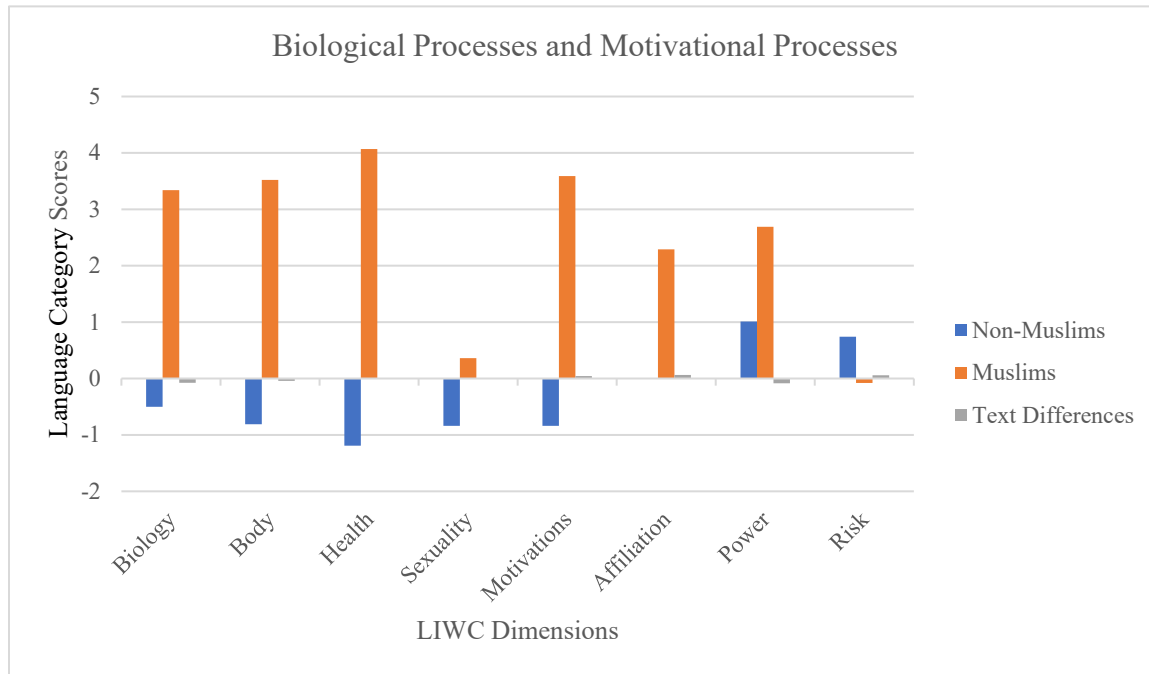


Figure 2c. Non-Muslim beliefs, Muslim Beliefs, and actual language difference scores on the two holy texts for Biological Processes and Motivational Processes.

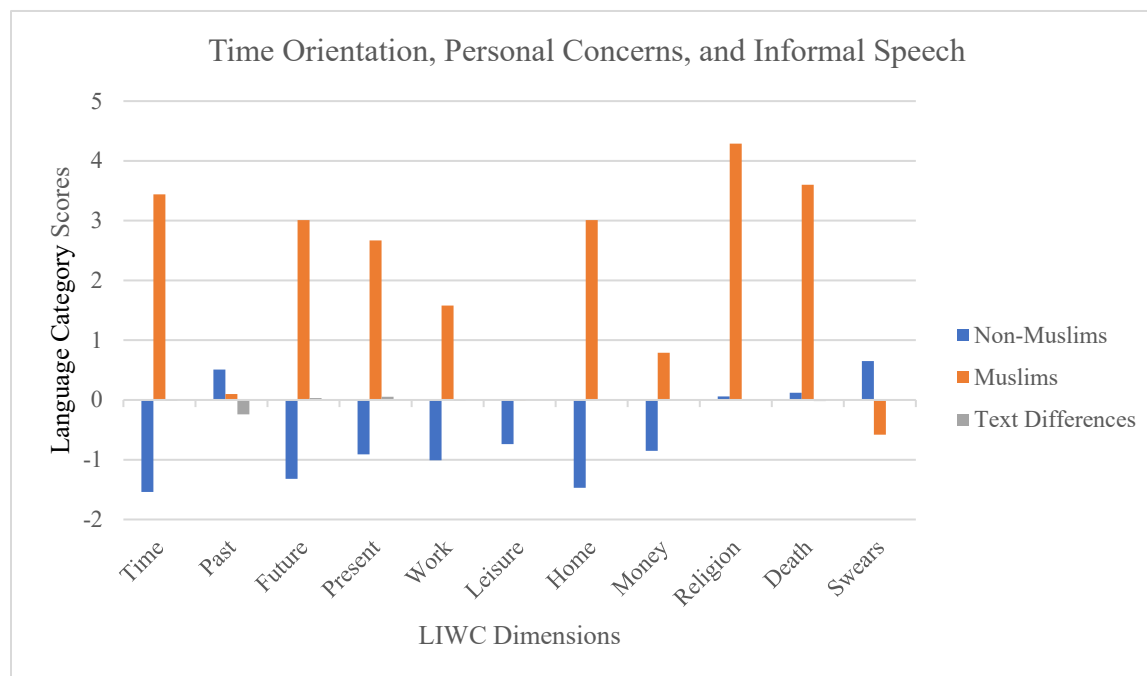


Figure 2d. Non-Muslim beliefs, Muslim Beliefs, and actual language difference scores on the two holy texts for Time Orientation, Personal Concerns, and Informal Speech.

Note. Each figure is titled as the language categories headings. For non-Muslims and Muslims, positive scores indicate greater believed use in the Quran and negative scores indicate greater believed use in the New Testament. Text differences indicate difference scores between the two texts for each category after dividing LIWC percentage scores by a factor of 10 to make them the same scale as scores for non-Muslims and Muslims. Positive scores indicate greater actual use in the Quran and negative scores indicate greater actual use in the New Testament.

Authors' Biographies

Eriksen P. Ravey is a graduate student working towards his doctorate in social psychology at the University of Houston. His research focuses on investigating meaning, belief, intellectual humility, prejudice, morality, and language.

Ryan L. Boyd (Ph.D., The University of Texas at Austin, 2017) is a behavioral scientist at the Obelus Institute in Washington, D. C. His research uses computational social science methods to understand how verbal behavior provides clues to how we think, feel, and behave. Dr. Boyd's research spans topics ranging from personality to society, mental health, human sexuality, and storytelling. He has authored dozens of free, open-source text analysis applications for social scientists and is one of the scholars behind the Linguistic Inquiry and Word Count software.

Adam K. Fetterman is an assistant professor of psychology at the University of Houston. Using methods from personality, social, and cognitive psychology, including language analysis, he investigates the social cognitive, and personality processes involved in identity, understanding, and belief. Some specific topics include metaphor, nostalgia, intellectual humility, science denial, and religious cognition. He also serves on the editorial boards of *Social Psychology* and the *Journal of Research in Personality*.