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Exploration of the mandative subjunctive in Pakistani English

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Abstract

The study at hand explores the alternation between the mandative subjunctive and its equivalent construction with the modal verb *should* in Pakistani English. The study enhances understanding of the alternation both by focusing on Pakistani English as a relatively under-researched postcolonial variety of English and by complementing the traditional syntactic variables that influence the choice of subjunctive with a sociolinguistic dimension in the form of the language user's gender. Using data from the SAVE and SAVE2020 corpora, we investigate the following research questions: What factors influence the mandative subjunctive/*should* alternation, is GENDER a significant influence on the choice and has the subjunctive choice changed over time? A multifactorial model was fitted on the 504 extracted data points with the following predictors: GENDER, LEXICAL DIVERSITY, LINKING WORD, NEGATION, NEWSPAPER, PRIMER, RANGE, READABILITY, SUBJECT NUMBER, SUBJECT PERSON, TIME, TRIGGER LEMMA, VOICE and WORD COUNT. The results show an effect of GENDER and TIME in interaction with several other variables. The interactions show significant diachronic adjustments to the constructional preferences of the individual subjunctive triggers and reveals that across these triggers, women are generally more likely to pick the subjunctive over its modal alternant than men.

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1 | INTRODUCTION

The study at hand is an exploration of the subjunctive alternation in Pakistani English. The choice between mandative subjunctive and its co-occurring modal alternative fits in seamlessly with other syntactic alternations, given that the choice of alternant relies largely on the linguistic context in which it occurs. However, due to the status of the alternation and the variety under inspection in the literature, we deem the combination of subjunctive alternation and Pakistani English particularly relevant. Both remain relatively under-researched—certainly in comparison to other syntactic alternations and other postcolonial varieties of English, respectively—and especially so in conjunction with each other. Additionally, the combination of the subjunctive and Pakistani English is a worthwhile one given Pakistan's socio-political constellation. Pakistan boasts one of the largest English-language speaker communities in South Asia and is in a unique position given its (also self-proclaimed) rise in political and economic influence, which is at conflict with its strained relationship with India as the region's major power. As a complex morphosyntactic choice context, the subjunctive seems ideally suited as a starting point of exploring this juxtaposition linguistically by taking a closer look at the embedded structures guiding the variety (to this end, see Section 2 for an overview of the research on this alternation in Indian and British English).

The first goal of this paper then is to explore this particular constellation in terms of its underlying norms. Although there is some idea of what patterns of (co-)occurrence may influence the subjunctive alternation (see especially Section 2.2), these may well assume different directions or even importances in Pakistani English. Additionally, we focus specifically on exploring the social dimensions of time and gender and their potential influence on the alternation in Pakistani use. To best achieve this focus, we employ a random forest, since in a multifactorial approach like this, we can have both the structural and sociolinguistic variables in complementation of each other.

The present paper is structured as follows. In Section 2.1, we will give an overview of the development and current status of English in Pakistan followed by a description of the previous research on the mandative subjunctive and the factors that have been found to influence it in Section 2.2. We proceed with a discussion of our methodology, specifically an overview of the data sources and the data extraction, disambiguation and annotation before detailing the statistical procedure employed in sections Section 3 and Section 3.1, respectively. We continue with a description of the most important results in Section 4 before discussing them in greater detail in Section 5. Finally, the paper ends with some concluding remarks on the conducted study and proposals for future research in Section 6.

2 | THEORY

2.1 | Pakistani English

Pakistan is one of several South Asian countries to whom English was introduced by British colonial efforts, albeit several centuries later than in India. Starting with Sindh, the British conquest of South Asia reached Pakistan in 1843. Nevertheless, as part of the British Raj, Pakistan was subject to the same British language policies as India, including the heightened status of English in the realm of education. Although Macaulay's influential *Minute on Education* decreeing English the language of education on the subcontinent came into effect in 1835 (Gargesh & Sailaja, 2017, p. 426), so effectively a decade before the British controlled any of the areas that make up Pakistan today, the English language quickly established itself as a dominant cultural force in Pakistan (see, e.g., Haidar and Manan [2022], pp. 242–243, for an overview). English-language education was not widely available, however, with limited access only for the affluent (Rahman, 2020, p. 130). Because of this marker as a language of power and given its usefulness as a lingua franca, English holds official status in Pakistan. Following politically troubled years between the Partition in 1947 and Bangladesh declaring its independence from Pakistan in 1973 after a drawn-out civil war, Pakistan introduced

a new constitution including a reworked language policy. This constitution intended large-scale changes in favour of Urdu, which is itself a minority language in terms of first-language speakers (e.g., Pakistan Bureau of Statistics, 2017). To implement these changes, Urdu was declared the *national* language and English, the official language, was provisioned to remain only as stand-in for Urdu where necessary for 15 years at most. In these 15 years, all administration, offices and so on, were supposed to switch operations to Urdu. However, this was never fully seen through and, in fact, in 2015, the Supreme Court of Pakistan renewed the order to transition Urdu to sole official language, this time within 3 months. This has not yet been implemented either (Rahman, 2020, p. 143) and so, at least officially, English and Urdu remain in something of a limbo in Pakistan. Not only is English ubiquitous in the administrative and official levels of Pakistan, it has also 'retained its position of importance in Pakistani society' (Baumgardner, 1993, p. 42).

The (socioeconomic) status of English in Pakistan is highly comparable to that in other South Asian countries. Estimates of the number of speakers of English in Pakistan vary. According to Bolton and Bacon-Shone, some are as conservative as 6 million speakers, which would be approximately 2.7% of the population at the time of publication in 2020, with yet others going as far as 110 million speakers or approximately half of the population (2020, pp. 56–57). While it is likely that the truth is somewhere in-between, especially given the methodological issue of what constitutes speakers of a language, the important notion is that this number is rapidly growing. The demand for English-medium education is continuously increasing (Rahman, 2020, pp. 134–135) and so more and more Pakistanis learn English to varying degrees. This trend is clearly linked to the aforementioned unchanging status of English as a marker of power (e.g., Haidar & Manan, 2022; Mahboob, 2022). While Rahman does caution against employing this narrative uncritically, particularly since both highly religious and nationalist elites disfavour English and since individual school districts often go back and forth on the language of education, English does prevail steadily in most elite schools (2020, p. 131). In fact, even in more accessible schools, English medium-instruction is by now available for most subjects other than local languages, Islam and Pakistan studies (Haidar & Manan, 2022, pp. 249–250). However, particularly in private schools, the degree of proficiency with which students finish their English education can vary wildly. Since the language is a highly sought-after commodity, English schools of all qualities can expect high enrolment numbers (Rahman, 2020, p. 136). So, while Pakistani speakers of English certainly grow in frequency, so do they differ in degree of proficiency.

Beyond education, English also remains the language of choice in other important sectors. In Pakistan, most (written) administration happens in English and the language dominates the corporate sector so much that proficiency in English is a prerequisite for government positions (Haidar & Manan, 2022, pp. 250–251). Additionally, English serves as a tool of emigration in Pakistan so that a considerable number of truly fluent Pakistani English speakers capitalise on their language knowledge by accepting job offers or university admission abroad (Mahboob, 2022, p. 85). Coupled with the fact that it is only in private schools for the affluent that the language is taught in a way that meets international standards, it is no surprise that 'English is a divisive force in the country. It controls social mobility and is not equitably distributed across different strata of society' (Haidar & Manan, 2022, p. 252). Mahboob (2022) problematises this even more explicitly:

> '[s]uccessive governments in Pakistan have continued to maintain the dominance of English. This is partly done by establishing policies and practices that require the masses to learn English to be 'successful'. In doing so, the government also retain their own power and prestige. In addition, by maintaining the English language […], the elites of Pakistan continue the colonial policy of suppressing Indigenous ways of knowing, being and doing and replace these with English'. (2022, p. 83)

He argues that English thus remains a tool of colonial power in Pakistan. From a socio-political perspective, English is caught in a bind in Pakistan. On the one hand, it serves as a lingua franca and currently seems somewhat irreplaceable in the inner (administrative) workings of the country. Knowing English offers invaluable socioeconomic opportunities in this way. On the other hand, it is not just a marker of social mobility but clearly also the barrier between social classes and has not overcome its colonial associations (entirely). From a structural linguistics standpoint, however, the

most important notion is clearly that English in Pakistan is undoubtedly there to stay: '[a] belief that English is essential for success will lead to a stronger drive for English. People will do what they can to learn English, even at the cost of abandoning their own language' (Mahboob, 2022, p. 86).

Despite its growing socioeconomic importance, Pakistani English remains relatively overlooked in linguistic research, particularly of course in comparison to the large body of research on its neighbouring variety, Indian English. There are, of course, some (recent) notable exceptions like Shakir (2020) on register variation in Pakistani English and Haidar and Manan (2022) with a structural and sociolinguistic overview of the variety, as well as a sizeable body of research from the country itself, mostly dedicating itself to multidimensional analyses like Ali and Shehzad (2019). Most of the studies employing multifactorial statistics that include Pakistani English, however, are dedicated to large-scale comparisons of South Asian Englishes and so do not put any particular focus on Pakistan (e.g., Götz, 2017). Consequently, to the best of our knowledge, this lack of research manifests itself in a lack of classification of Pakistani English in terms of Schneider's *Dynamic Model* (Schneider, 2007) or comparable frameworks.

2.2 | The mandative subjunctive

The subjunctive alternation, as the name suggests, relates to a specific realisation of the subjunctive. In present-day English, the subjunctive retains only some of its original multifunctionality (Aarts, 2012, p. 2; Collins, 2015, p. 25) and has displayed shifting frequencies over the last few centuries (Auer & González-Díaz, 2005, pp. 320–323). However, having seen a resurgence in the 20th century (Collins, 2015, p. 25), two distinct subjunctive forms remain in the English language. Next to the hypothetical subjunctive,[1] the object of interest of this study is the so-called *mandative subjunctive*, which 'occurs only in object complement clauses after suasive verbs, nouns and emotive adjectives' (Hoffmann, 1997, p. 6). On a theoretical note, there is some debate as to the grammatical nature of the mandative subjunctive, with some arguing that the term describes the entire type of subordinate clause (e.g., Aarts, 2012, p. 12) and, perhaps the majority, considering it a grammatical mood (e.g., Collins et al., 2014, p. 262). However, this plays little role for the alternation as both alternants to be considered are realisations of this subjunctive-construction, regardless of whether that itself is a clause or whether the clause is set in the subjunctive mood. Somewhat counterintuitively named but in line with the literature, the first alternant to be considered here is the *subjunctive*, also sometimes referred to as bare subjunctive or bare alternant: as in (1), the deontic use of *insist* to trigger the subordinate clause. As per Hoffmann's definition, such a trigger (verb) is a necessary criterion for any subjunctive phrase (1997, p. 6).

(1) However, they insisted that he call her sister (SAVE Pakistan: PK_DT_2002-05-11_c_010).

Johansson and Norheim describe this variant as 'identical to the base form of the verb. There is no concord with the subject, no backshifting of tense depending upon the superordinate verb […], and no do periphrasis in negative constructions' (1988, p. 27). The second variant is similarly regulated but adds a modal verb to the base form of the verb. Although this is generally possible with a number of modal verbs as illustrated in (2), frequencies of all modals other than *should* have been found to be negligible, at least in British and American English (Crawford, 2009). While to our knowledge this has not been confirmed yet for Outer Circle varieties of English, since this allows for greater comparison with existing research, we shall also only consider what will henceforth be called the *should*-subjunctive.

(2) They demanded that the government **[must/might/could]** should withdraw its decision (SAVE Pakistan: PK_DA_2003-03-20_c_099; additional modal verbs inserted).

Johansson and Norheim argue that *should* 'can normally be inserted [into the bare verb phrase], with no appreciable difference in meaning' (1988, p. 28). Similarly, Anderson argues that where the base form of the verb is the

synthetic realisation of the subjunctive, *should* is a distinct analytic marker of the same phenomenon and consequently has 'distinctive semantics from other uses of *should*' (2001, p. 163).

Previous research on this alternation tends to centre around American and British English. Particularly towards the end of the 20th century, there was an observed divide between American English, generally preferring the subjunctive, and British English, generally leaning towards the periphrastic alternant (e.g., Algeo, 1988; Johansson & Norheim, 1988). However, more recent multifactorial studies show that this varietal difference is not as pronounced as previously believed (e.g., Deshors & Gries, 2020, p. 235). Although the subjunctive is reported as the dominant choice in American English, for example, Hundt finds that it is also much more frequent in British English than has been previously assumed (2018, p. 234). Within the field of world Englishes, the subjunctive alternation is particularly underrepresented, especially when it comes to multifactorial research. Considering South Asia, Indian English is the only variety to have been included and somewhat unsurprisingly, it has been shown to pattern in a similar manner to British English. Both Hundt (2018) and Deshors and Gries (2020) show Indian English's relative preference of the *should*-subjunctive over its bare counterpart, although Deshors and Gries emphasise that this varietal preference depends strongly on the deontic constituent or trigger introducing the subordinate clause (2020, p. 227).

In the following, we will briefly highlight those factors that have been discussed before as potential determiners of the given alternation, largely based on Berg et al. (2020), Deshors & Gries (2020) and Hundt (2018) as these are multifactorial studies and the latter two include a large number of varieties. The fact that the choice of trigger is hugely influential on any varietal preferences as illustrated above is unsurprising, given that the particular subjunctive trigger has been shown to be among the strongest factors influencing the alternation (e.g., Berg et al., 2020; Deshors, 2020): Strongly deontic verbs like *request*, *demand* and *require* display a clear preference of the subjunctive across varieties, whereas *insist*, *propose* and *suggest* pattern more towards the *should*-subjunctive (Deshors, 2020, p. 227). Another important contextual factor potentially driving the alternation is the voice of the verb in the subordinate clause. Although Deshors (2020) only find a weak effect, they do report that particularly the passive voice is linked to the subjunctive (2020, p. 231). Additionally, Hundt finds that 'the subjunctive strongly disprefers negative contexts' (2018, p. 231) although this is not discussed much beyond these descriptive findings as NEGATION does not play an overly important role in her final model. Deshors and Gries combine PERSON OF SUBJECT and NUMBER OF SUBJECT into one factor. In its interaction with TRIGGER, this amalgamated PERSON only shows a somewhat steady effect for first-person singular combinations, which almost always show a relatively high(er) tendency towards the subjunctive (2020, pp. 231–233). Next, the absence or presence of a linking word, usually *that*—see examples (1) and (2)—paints a similar picture in that it only appears in the interaction with TRIGGER in Deshors and Gries (2020). Most of the trigger verbs included in their study are not affected by a linking word, but they show that *recommend* and *order* prefer the subjunctive much more strongly when there is a linking word and that *ask* shows the opposite tendency (2020, p. 229). Lastly in terms of contextual factors, we also include the range or distance between the triggering constituent, contextualised as TRIGGER LEMMA, and the verb of the subordinate clause in line with Berg et al. who show that the probability of the *should*-subjunctive increases as RANGE increases (2020, p. 247). Studies of the subjunctive alternation tend to rely almost exclusively on contextual factors like this with the obvious exception being VARIETY, which does not play a role for us given out monovarietal data (although see Section 5). We will, however, add the sociolinguistic factors GENDER and TIME to this. Given the fluctuating frequencies of the subjunctive in English over the last centuries and the persisting argument of the bare subjunctive thriving in American and disappearing in British English (but see, e.g., Deshors's [2020] contrary conclusion), there is reason enough to hypothesise that the subjunctive alternation is currently undergoing a process of language change. Additionally, Pakistani English's status as a postcolonial variety that is gaining both in number of speakers and in socioeconomic importance prompts us to investigate the possibility of a gender effect in the alternation since previous research has linked gender differences to such processes of change numerous times (e.g., Bernaisch, 2021). After an overview of the data, Section 3.1 will go into further detail as to how these variables were annotated as well as what controls they were complemented with.

3 | METHODS

3.1 | Data preparation

We draw our data from the *South Asian Varieties of English* (SAVE; Bernaisch et al., 2011) corpus and its 2020 update (SAVE2020; Bernaisch et al., 2021). SAVE and its update are newspaper corpora of six South Asian Englishes. We use the Pakistani component which combines data from the *Dawn* and the *Daily Star*, two of the largest English-language newspapers in Pakistan. Most of the articles featured in SAVE were published in 2005, whereas the updated version centres around articles from 2019, thus allowing for a short-term diachronic exploration. Note that one might argue that newspaper data may not be ideal for some aspects of sociolinguistic research as their highly standardised nature may not be an accurate reflection of language in use across different societal division. However, we follow Hundt (2006) who argues that in Outer Circle varieties of English, English is strongly associated with the written medium, which makes newspaper language the ideal basis for research. Additionally, since there are no large-scale corpora of Pakistani English spanning different media, we use newspaper data as a proxy for the national standard in Pakistan. We proceed with these corpora, rendering the results highly comparable to potential follow-up studies conducted on the other SAVE and SAVE2020 components. We employed no initial sampling of the newspaper texts due to the relative rareness of the subjunctive but did only retain those instances for which we had author information since we are particularly interested in the effect of GENDER.

Extraction of (*should*-) subjunctives relies on the extraction of possible triggers, that is, those deontic constituents in the main clause that require a mandative clause, as highlighted in bold in (3).

(3) He **demanded** WAPDA pay Punjab profits on seven hydropower projects (SAVE Pakistan: PK_DT_2003-10-23_c_037).

There are several more or less comprehensive lists of possible subjunctive triggers available in previous research (e.g., Crawford, 2009; Waller, 2017). In line with Deshors (2020) and for practical reasons, we have chosen to limit ourselves to the nine most frequent trigger verbs as per Hoffmann (1997). We automatically extracted all occurrences of *ask*, *demand*, *insist*, *order*, *propose*, *recommend*, *request*, *require* and *suggest* in all their forms using R (R Core Team, 2023). These triggers were lemmatised for, in regression terms, the regressor TRIGGER.LEMMA. As Hundt points out, '[e]xtensive manual post-editing of the concordances is necessary to include only true subjunctives' (2018, p. 224). This is because extracted would-be triggers are of course not necessarily deontic in all contexts (see (4)) and because they can also be followed by constructions other than a mandative clause (see (5)).

(4) […] conservation experts insist that not curbing the global wildlife consumption will result in extinction and pandemics (SAVE2020 Pakistan: 4655937).
(5) If a ten-year-old asked you about 'McDonaldisation', you would have to explain what it means (SAVE2020 Pakistan: 4668576).

Additionally, there is the added complication that because the subjunctive takes the base form of the verb, optionally supplemented with the modal, there are relatively few contexts in which a subjunctive is clearly distinguishable as such. The subjunctive is distinctive in the following contexts only:

- in the third-person singular;
- when the verb in the subordinate clause is *be*;
- when the verb in the subordinate clause backshifts tense in accordance with the trigger;
- when the verb in the subordinate clause is negated (Waller, 2017, p. 83).

TABLE 1 Overview of the variables included in the study.

Variable	Variable levels
CONSTRUCTION	*should, subjunctive*
LEXICAL DIVERSITY	numerical
NEWSPAPER	*Daily Times, Dawn*
PRIMER	*none, should, subjunctive*
READABILITY	numerical
WORD COUNT	numerical
GENDER	*male, female*
LINKING WORD	*absent, present*
NEGATION	*absent, present*
SUBJECT NUMBER	*singular, plural*
SUBJECT PERSON	*first, second, third*
RANGE	numerical
TIME	*2005, 2019*
TRIGGER	*ask, demand, insist, order, propose, recommend, request, require, suggest*
VOICE	*active, passive*

In all other contexts, as exemplified in (6), it is unclear, grammatically speaking, whether the verb displays the indicative mood or subjunctive mood/clause type.

(6) These regulations demand that such facilities and individuals adhere to specific biosecurity procedures (SAVE Pakistan: PK_DT_2004-01-10_c).

Although some studies opt to separate distinct from non-distinct subjunctives (e.g., Peters, 1998), some even going so far as to only include those *should*-subjunctives where the alternant would be a distinctive subjunctive (e.g., Hundt, 2018), we have instead chosen to include all possible (*should*-) subjunctives, once again for maximal comparability with Deshors (2020), and because we argue that in cases like (6), the deonticity of the trigger suffices as a necessary criterion for the alternation. Regardless of whether the subordinate clause is technically a subjunctive or an indicative, the writer would have had the choice between bare and modal alternant. The resulting dataset was annotated for the variables as summarised in Table 1. In addition to the main predictors discussed in Section 2.2, we have also included several additional variables to control for idiosyncrasies of the data. These are aggregate measures of LEXICAL DIVERSITY and READABILITY, respectively, both of which serve to control for differences in cognitive effort when writing the text, as well as the newspaper that provided the respective data point, WORD COUNT to account for the length of each featured newspaper text and PRIMER as a proxy for any cognitive priming effect.

In order to determine the lexical diversity and readability of each newspaper text included in the corpora under investigation, we calculated all of the measures included in the *quanteda.textstats* package in R (see Benoit et al., 2018). To arrive at a single variable, we then applied a principal component analysis to each group of measures, respectively, using the *stats*::*princomp* function. The resulting LEXICAL DIVERSITY variable accounts for 93.23% of the variance, and the final READABILITY variable accounts for 87.44% of the variance in all calculated measures, respectively. A cognitive primer was considered present if the (*should*-) subjunctive under scrutiny was preceded by another (*should*-) subjunctive within 750 alpha-numeric characters. In this case, we annotated PRIMER using the construction of the preceding subjunctive (*should* or *subjunctive*). If the subjunctive was not preceded by another subjunctive within 750 alpha-numeric characters in the newspaper text, we marked PRIMER as *none*. For the annotation of PRIMER, we did

TABLE 2 Distribution of GENDER across CONSTRUCTION.

GENDER/CONSTRUCTION	*should*	*subjunctive*	*sum*
Female	11 (25%)	33 (75%)	44 (100%)
Male	184 (37.7%)	304 (62.3%)	488 (100%)

TABLE 3 Distribution of TIME across CONSTRUCTION.

TIME/CONSTRUCTION	*should*	*subjunctive*	*sum*
2005	91 (33.46%)	181 (66.54%)	272 (100%)
2019	104 (40%)	156 (60%)	260 (100%)

not limit ourselves to the nine trigger lemmas mentioned above but manually checked for any mandative subjunctive initiated by a deontic trigger.

With the resulting data, we hope to answer the following research questions:

- What factors influence the alternation between the *subjunctive* and the *should*-subjunctive in Pakistani English?
- Are there indicators of short-term diachronic change to or a gender-influence on the subjunctive paradigm in Pakistani English?

3.2 | Statistical analysis

In preparation for the statistical analysis, we transformed several of the above-mentioned variables. We conflated the *first* and *second* person levels of SUBJECT PERSON, from here on SUBJ.PERSON, due to data sparsity in those two levels. This resulted in a binary variable with the levels *first.second* and *third*. We furthermore calculated the natural logarithms of the variables RANGE and WORD COUNT, to match the variable names used in the model henceforth WORD.COUNT, as they were both strongly skewed to the right with very few, very high values. This transformation created the regressors RANGE.LOG and WORD.COUNT.LOG. Following Gries (2020), we explicitly included interaction variables of the two sociolinguistic variables under investigation, namely GENDER and TIME, with each of the other variables. In order to compute interactions of the numeric variables, we fit decision trees on each of them using the *tree::tree* function in R (see Ripley, 2023). We then cut those numeric variables at the thresholds suggested by those trees which resulted in the variables RANGE.LOG.CAT with the levels *low*, that is, RANGE.LOG $\leq$ 2.602, and *high*, that is, RANGE.LOG $>$ 2.602, and READABILITY.CAT with the levels *low*, that is, READABILITY ≤ -297.18, and *high*, that is, READABILITY > -297.18. The trees did not suggest any splits for LEXICAL DIVERSITY, from now LEXDIV, and WORD.COUNT.LOG and, therefore, they do not feature in the interaction terms of the model. The resulting dataset includes 532 subjunctives in total, 195 *should*-subjunctives and 337 (bare) subjunctives, which are distributed across GENDER and TIME as shown in Tables 2 and 3.

The distribution of GENDER across CONSTRUCTION in Table 2 highlights that female authors are strongly underrepresented in the data and favour the *subjunctive* more strongly, namely, in 75% of the cases, than their male counterparts, namely, in 62.3% of the cases. In Table 3, a similar preference for the *subjunctive* can be observed which is more pronounced in *2005* (66.54%) than it is in *2019* (60%).

Including the above-listed variables and the computed interaction terms with GENDER and TIME, we fit a random forest using the *randomForest::randomForest* function (see Liaw & Wiener, 2002) in R. In order to arrive at ideal hyperparameters for this function, we looped over several different combinations of numbers of trees to grow and numbers of randomly sampled variables at each split. We then compared all of the out-of-bag error rates for these different

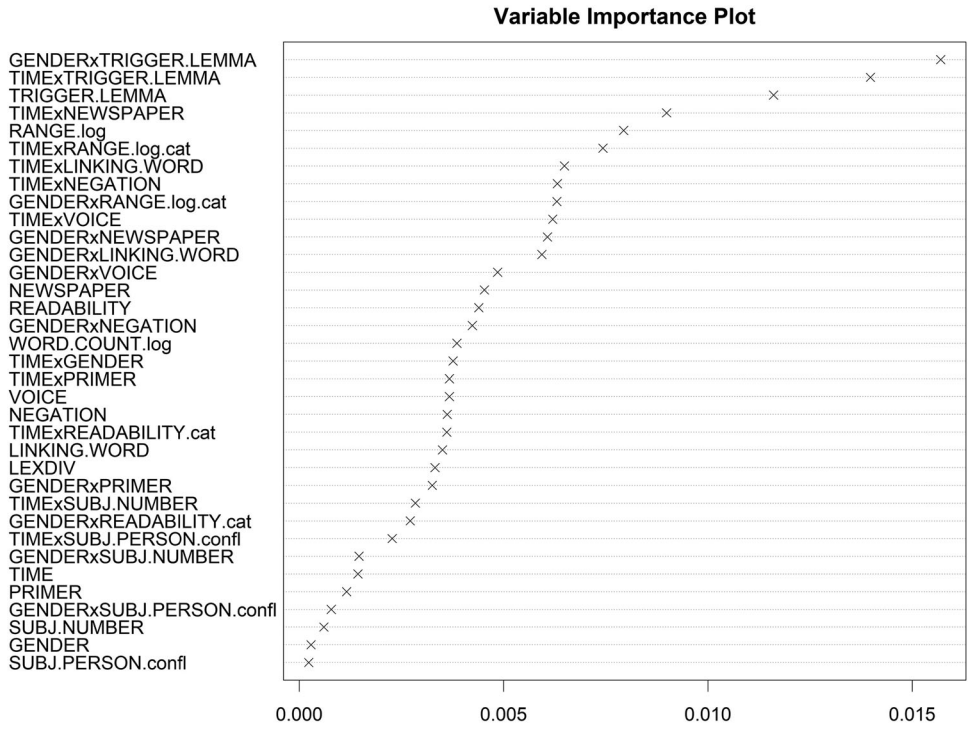

FIGURE 1 Variable importance plot.

forests and chose the setting that resulted in the lowest possible error rate. The resulting random forest grows 1500 trees and randomly samples three variables at each split.

4 | RESULTS

The random forest that was fit in the previous section obtained a classification accuracy of 73.87%. A null model that always predicts the more frequent construction, that is, *subjunctive*, provides the baseline accuracy of 63.35%. The accuracy of the fitted model is significantly higher than that baseline accuracy ($p < 0.0001$). The model predicts the *subjunctive* with a precision of 76.61% and a recall of 84.57%, while the predictions of the *should*-subjunctive only obtain a precision of 67.5% and a recall of 55.38%.

Figure 1 shows that the variable importance scores measured in mean decrease in accuracy. While the main effects of GENDER and TIME rank among the least important variables, the plot highlights the high importance of many of the interaction effects for the model's accuracy. Especially the interaction effects of GENDERxTRIGGER.LEMMA and TIMExTRIGGER.LEMMA turn out to be the most important variables in the random forest followed by the overall effect of TRIGGER.LEMMA and the interaction of TIMExNEWSPAPER.

We will now first show the most important effects in the model before discussing them in Section 5. Because every variable importance score in Figure 1 is made up of the main effect of that variable and all its interactions with other variables, these terms on their own do not hold a lot of meaning. Therefore, we will take a closer look at the three most important interactions explicitly added to the model and not discuss the main effects of TRIGGER.LEMMA and RANGE.LOG.

The effect of the most important interaction variable, namely, GENDERxTRIGGER.LEMMA is shown in Figure 2. Each trigger lemma is plotted on the *x*-axis with the predicted probabilities of *subjunctive* on the *y*-axis. Probabilities for

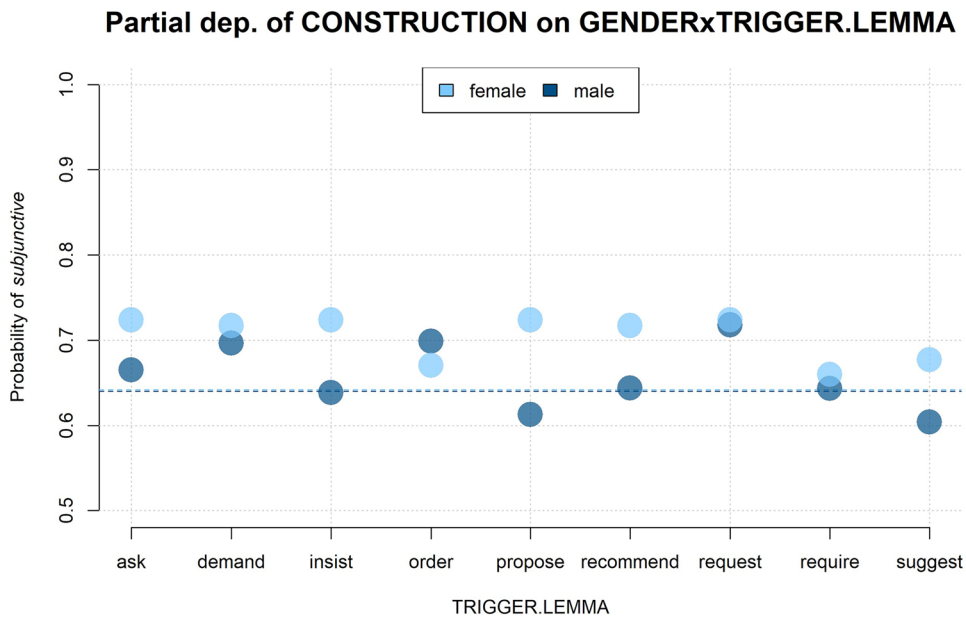

FIGURE 2 Partial dependence plot of GENDERxTRIGGER.LEMMA. [Colour figure can be viewed at wileyonlinelibrary.com]

female and male authors are plotted in light blue and dark blue, respectively. The two dashed lines represent the main effect of GENDER again in light and dark blue, respectively. While almost no difference in GENDER can be found looking at its main effect, most trigger lemmas show a clear difference between female and male authors. While both male and female speakers are in general more likely to choose the *subjunctive* over the *should*-subjunctive, Figure 2 highlights that for eight of the nine different trigger lemmas, female speakers show a higher probability of choosing the *subjunctive* over the *should*-subjunctive. The largest difference in probabilities can be seen for the trigger lemma *propose*, as in (7). Only if the lemma is *order*, do men exhibit a higher probability of choosing the *subjunctive* than women, as shown in (8). The lowest predicted probability can be observed for male authors using the trigger lemma *suggest* (60.36%) or *propose* (61.27%), as in (9), while the highest probability of a *subjunctive* being used (72.35%) is shown by four different levels of GENDERxTRIGGER.LEMMA, namely, *female:ask*, *female:insist*, *female:propose* and *female:request*.

(7) […] the party which **proposed** that the government hold the APC, […] (SAVE Pakistan: PK_DT_2005-11-16_c_021).
(8) […] the court **ordered** that the accounts be attached for a period of 30 days (SAVE2020 Pakistan: 4418592).
(9) […] Intelligence agencies **suggested** in their reports that the school management should hire a private security agency. (SAVE Pakistan: PK_DT_2004-08-31_c_063).

The second most important effect in the present random forest is that of TIMExTRIGGER.LEMMA. The partial dependence plot of this effect in Figure 3 again shows each trigger lemma on the *x*-axis. Prediction probabilities of the *subjunctive* in 2005 are marked in light blue, while those for 2019 are marked in dark blue. In contrast to GENDERxTRIGGER.LEMMA, TIMExTRIGGER.LEMMA does not show a clear trend of one time period exhibiting higher prediction probabilities of the *subjunctive* across all nine trigger lemmas. In this case, the probability of a *subjunctive* being chosen over a *should*-subjunctive is lowest for *suggest* in 2019, namely, 60.99%, as exhibited in (10), while it is highest for *request* in 2005, namely, 72.69%, as in (11). For the trigger lemmas *demand*, *order* and *recommend*, the probability of a *subjunctive* being chosen has become higher in the time span under scrutiny. For the trigger lemmas *ask*, *propose*,

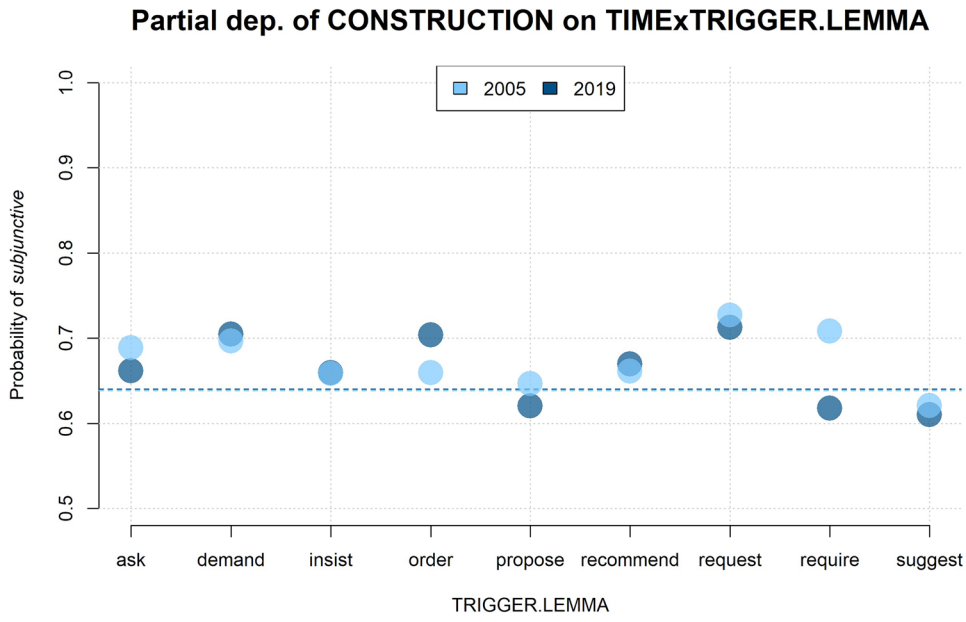

FIGURE 3 Partial dependence plot of TIMExTRIGGER.LEMMA. [Colour figure can be viewed at wileyonlinelibrary.com]

request, *require* and *suggest*, the probability has gone down with *require* exhibiting the largest shift, that is, from 70.8% in 2005 to 61.74% in 2019. *Insist* is the only trigger lemma for which only a very marginal difference between 2005 (65.85%) and 2019 (65.9%) can be observed.

(10) They **suggested** that the Sindh government should set up special clinics […] (SAVE2020 Pakistan: 4697170)
(11) APTMA therefore **requested** the federal government allow a duty drawback […] (SAVE Pakistan: PK_DT_2002-07-11_c_034)

The third most important interaction effect in the random forest is TIMExNEWSPAPER. Figure 4 shows the 2 years represented in *SAVE* and *SAVE2020*, namely, 2005 and 2020. The two newspapers are plotted in light blue (*Daily Times*) and dark blue (*Dawn*). Similar to the previous plots, the *y*-axis shows the predicted probability of a *subjunctive* being chosen over a *should*-subjunctive. The plot highlights a bigger difference in *subjunctive* use across newspapers in 2019 than in 2005. This bigger difference is caused both by a higher predicted probability of the *subjunctive* in *Dawn* (59.36% in 2005 and 64.24% in 2019) and a lower predicted probability of the *subjunctive* in *Daily Times* (66.2% in 2005 and 60.64% in 2019).

5 | DISCUSSION

Firstly, our results highlight once again the methodological importance of including interaction terms, perhaps particularly in studies with a focus on sociolinguistic predictors. As discussed in Section 4, neither GENDER nor TIME's main effect makes a large contribution to the random forest's accuracy. It is only in their interactions with other predictors that we can see what effects the sociolinguistic variables have on the response. It stands to reason that this is particularly true for the combination of sociolinguistic variables with *contextual* predictors, considering that the influence of these has been discussed at length in previous studies on the subjunctive and given the fact that the interaction

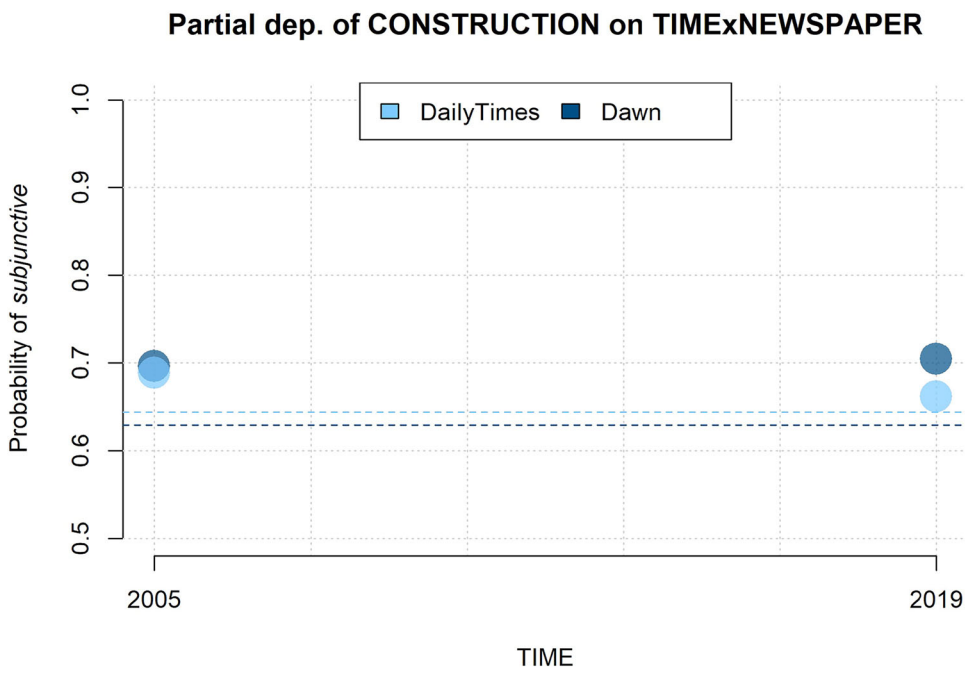

FIGURE 4 Partial dependence plot of TIMExNEWSPAPER. [Colour figure can be viewed at wileyonlinelibrary.com]

between the sociolinguistic variables TIMExGENDER does not rank highly in terms of variable importance either. In light of our first research question, that is, which factors influence the subjunctive alternation in Pakistani English, we can thus say that our results mostly hold steady with previous research on other varieties. It is somewhat difficult to make direct comparisons given our sociolinguistic focus in the interaction terms, but we do observe relatively high importance scores for the most commonly discussed predictors either in aforementioned interactions or even as main effects (see Figure 1 but also consider the methodological note on the composition of main effect importance scores in random forests discussed in Section 4). Naturally, this is particularly evident for TRIGGER.LEMMA but also holds true for predictors like NEGATION or VOICE. Although not further discussed here, we would also like to point out that our results support Berg et al.'s (2020) notion to include some sort of range measure in studies on the subjunctive given its high importance in our final model, as well.

Let us now discuss the sociolinguistic effects we can observe in order to answer our second research question on potential effects of TIME and GENDER. We start with TIME, where we can see some diachronic adjustments even in the relatively short 15-year-span under investigation. Across the two newspapers, one potential explanation might be a change in editorial policies. In fact, at *Dawn*, the editor changed in 2010, so fairly in-between the two datasets available to us, to Zaffar Abbas, who still holds the position at the time of writing in 2023 (Reuters, n.d.). The *Daily Times* made at least two changes to the editor position in 2017 and 2019, respectively (Journalism Pakistan, 2019). Additionally, the newspaper *Daily Times* is a relatively new one. It was established in 2002, meaning that the SAVE-data sampled some of its first years in existence. This could, of course, mean that any adjustments in the editing of the *Daily Times* articles is an effect of the newspaper still finding its voice and conduct. That being said, there is no conclusive evidence that a change in editor does affect structures as ingrained as the subjunctive alternation. While a plausible explanation, the observed effect could be due to a number of other factors, potentially also in interaction with each other including, of course, author idiosyncrasies.

Perhaps more interesting are the diachronic adjustments across the different triggers, which could speak towards the alternation generally being in flux in Pakistani English. Since Pakistani English displays a general preference

towards the subjunctive in both time periods and regardless of trigger lemma, we, of course, cannot replicate Deshors and Gries's (2020) findings for the subjunctive choice of each included trigger. However, we also see differences in the general tendencies. There is no uniform trend towards a stronger subjunctive preference in the strongly deontic verbs in our data—*request* and particularly *require* display a (steep) drop in preference and move towards higher acceptance of the modal variant between 2005 and 2019. On the other side of the coin, we have the less deontic triggers. While *insist* has not undergone any diachronic change, we do see a decrease in subjunctive preference for *propose* and *suggest*, which does conform with Deshors and Gries (2020). Noticeably, there is no uniform trend towards either increased subjunctive preference or higher acceptability of the *should*-subjunctive across all trigger verbs. In other words, the diachronic changes in preference move in different directions depending on the trigger lemma. Given these diachronic developments, it seems most prudent to proceed with general conclusions instead of specific hypotheses on how these linguistic changes might relate to social changes in Pakistan. Thus, we propose to keep the first learnings from this study at a relatively basal level and put forward the general notion that the subjunctive alternation has indeed been susceptible to language change in Pakistani English between 2005 and 2019. This is particularly interesting given the fact that these diachronic developments are visible even in the relatively rigid framework of newspaper language, suggesting that the Pakistani standard might indeed be adjusting.

We now turn to gender as the second point of interest in our study. Before we go into detail, however, we would like to point out, as evident from Table 1, that the gender data available to us come in a male–female binary, which the following discussion will, therefore, employ as well. As discussed above, the general trend is that women prefer the subjunctive more strongly than men, everything else being equal except for when TRIGGER.LEMMA is *order*. Clearly, no argument of different degrees of deonticity interacting differently with GENDER holds here. Even when taking the degree of difference between male and female speakers into account, there is no clearly visible relation between deonticity of the trigger verb and writer gender. Instead, we might turn to the well-discussed notion of linguistic conservativism in conjunction with speaker gender in that women are more likely to use standardised language (e.g., Fuchs, 2021, pp. 60–61 on Indian English). Baumgardner (1995) notes this specifically in relation to Pakistani English and reports this precise effect (1995), albeit with the caveat that his data are composed of acceptability ratings and were collected in the 1990s. One might still tentatively propose that our findings reflect the relatively more precarious standing of women in male-dominated professional fields. One could argue that in a framework as rigid as newspaper language, women would have to adhere to its standards more strictly than men do as they are relatively more likely to incur some sort of social penalty for differing language. In addition, Pakistani education does display a certain degree of differentiation between genders. Firstly, women face significantly more hurdles than men do in gaining access to higher education (e.g., SABER Country Report, 2017), which means that any woman with a degree who holds a journalist position or a comparable job that affords her the ability to contribute to a newspaper would be in a somewhat unique position as evidenced by the underrepresentation of women in our data (see Table 2). Secondly, there remains a degree of separation between men and women in Pakistani (tertiary) education. Actual physical separation in the form of women's colleges aside, Hinduja et al. (2023) report, even for urban areas, that educators in Pakistan in the majority hold what they call 'conventional gender role beliefs' resulting in women being discouraged from pursuing higher education or pushed towards teaching, which is considered a 'feminine' endeavour. This means that even those women who do make it as a journalist will likely have been socialised and educated very differently, which might well express itself in linguistic choice-making, as well.

We did not initially discuss it due to its relatively low ranking in terms of variable importance, but the interaction between TIME and GENDER might offer additional insight, particularly given our overall focus on both of these social factors. While we find negligible diachronic adjustments for the male data at a change from 63.53% to 64.04%, there is a somewhat more noticeable difference in the subjunctive paradigm for women over time. In 2005, the predicted probabilities for women picking a subjunctive were 67.1%, going down, that is, moving towards the men by 63.63% in 2019. Although we once again caution against placing too much importance on this interaction given its low impact on the forest's accuracy, the general tendency does seem to be in line with our reasoning. It supports the notion that the bare subjunctive is indeed (subconsciously) branded the more standardised alternant of the two as evidenced

by women's delayed growing acceptance of the 'non-standard' modal alternant. Taken to the extreme, it seems that one could argue that the subjunctive paradigm is a (presumably one of many) linguistic expression of some sort of societal divide between genders chiefly characterised by women's comparatively less secure role in the professional realm. Generally speaking, and with regard to our second research question, suffice it to say that aside from diachronic changes, we can also report an effect of GENDER for the subjunctive paradigm in Pakistani English. Although we would need a larger scale study with more room for a qualitative post hoc assessment to offer a more fine-grained integration of our findings into the sociolinguistic landscape of Pakistani English, we do think it warranted to say that the subjunctive alternation in the variety is in part subject to the socioeconomically motivated influences of language change over time and to the gender of the language user.

Although not part of our research question, we would also like to make brief mention of the potential importance of the language variety for our research. While we concede that without comparative data this is a purely speculation-based notion, we do find it interesting that our Pakistani data display a steady preference for the bare subjunctive over the modal alternant (with some movement towards the latter across some trigger verbs, of course, as per Figure 3). This is decidedly non-British and non-Indian behaviour but much more in line with American English (e.g., Deshors & Gries, 2020). Ordinarily, one would turn to the possibility of this being a transfer effect here and the national language Urdu does have a subjunctive. However, it seems closer to the hypothetical than the mandative subjunctive and is realised via inflection (Butt, 2003). Additionally, we do not have any information on whether Urdu, a minority language, is in fact the first or an influential language for the respective authors in our data. Another possible approach could be to take a closer look at the data in terms of the newspaper articles' topics. Shaheen et al. (2021) argue that the Pakistani English press relies on and even overrepresents narratives from American English. In that case, it would stand to reason that the language of these narratives also has an influential role on the reports in the *Dawn* and *Daily Times*. However, this would require an in-depth exploration not only of the data at hand but of its potential predecessor in American media, which is not feasible here. What remains, then, is just a cautionary note against overstating the importance of British English or Indian English as the target norm for Pakistani English.

6 | CONCLUSION

The study at hand has focused on the subjunctive-alternation in Pakistani English. Drawing on newspaper language, the study has shown two important things. Firstly, it has highlighted the underlying norms of the alternation in a hitherto unexplored variety in terms of the subjunctive. The multifactorial modelling including explicit interaction terms has highlighted both the importance of said interactions as well as of structural factors, chief among them TRIGGER.LEMMA. Secondly, we have devoted special attention to diachronic and gender-related changes to the subjunctive paradigm. Although we feel it necessary to caution that our results and particularly any explanatory hypotheses remain but a first tentative step in exploring the subjunctive-alternation specifically and Pakistani English syntax generally, our model has shown the significant role that TIME and GENDER play. The choice between the *should*-subjunctive and the bare alternant has been and likely still is undergoing adjustments over the course of 15 years and there seem to be clear, gender-based trends in the role of the trigger verb. To conclude the discussion, we have also highlighted the importance of results such as these in the complicated interplay between varieties particularly as they show the need for further research.

So, in light of these findings, we propose two avenues for further research. Firstly, this kind of research would greatly benefit from a much-needed corpus of spoken Pakistani English with sufficient metadata so that future research can avoid the potential pitfalls of generalising findings from standardised newspaper language to the general population. This could also be particularly insightful to see whether our results are replicated when the data source is less skewed towards male speakers. Secondly, and given the potentially high degree of similarity between the South Asian varieties, our knowledge of the subjunctive would greatly benefit from other studies of the paradigm in these other varieties. It goes without saying that the last avenue for future research to be mentioned is, of course, the further exploration of Pakistani English (syntax) in general to elevate it from its status as an under-researched variety.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

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NOTE

[1] In addition, English also retains formulaic subjunctive expressions as in *Long live the King*. These are no longer productive, however (Quirk et al., 1985, pp. 156–158).

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