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# Trust, Perceptions and Effects of News Sources and Social Media: A Data Driven Study of the Recent Unrest in Kashmir

It is a combined effort of scholars from CLAWS and Carnegie Mellon University, namely **AS Chonker** and **Chirag Nagpal**.

## Preface

A national seminar on "Mapping of Perceptions—the Way Forward" was conducted by CLAWS on August 18, 2018. A questionnaire was prepared by Tata Institute of Social Sciences and data was collected from the College-going students in the Kashmir Valley and analysed for the same, and is available on open source on CLAWS website in the Seminar report. A detailed presentation was given on the data by Professor Sujata Sriram in the Seminar on August 18, 2018. In the quest for utilising Artificial Intelligence for deciphering the underlying trends in the data collected an effort has been made by the writer under the aegis of CLAWS along with Chirag Nagpal, an Indian scholar in the Carnegie Mellon University. The detailed analysis through Artificial Intelligence of some of the aspects of the data, as a purely academic exercise to show a path to all future endeavours, is presented through this Issue brief.

## Abstract

In recent times, the Kashmir Valley in India has seen a resurgence of mass protests and separatist violence. Experts believe that the new wave of separatism has its roots in social media which provides a fertile platform to catalyse mass protests. While the penetration of Internet is fairly even throughout the Kashmir Valley, certain regions and subdivisions have been affected more adversely by the recent

## *Key Points*

1. In recent times, the Kashmir Valley in India has seen a resurgence of mass protests and separatist violence. Experts believe that the new wave of separatism has its roots in Social Media which provides a fertile platform to catalyse mass protests.
2. While the penetration of Internet is fairly even throughout the Kashmir Valley, certain regions and subdivisions have been affected more adversely by the recent unrests. We seek to model these dichotomies in both the demographic factors along with regional effects, and external factors like the influence of both Social and Traditional Media in the form of Television Broadcasting and Print.
3. We further tried to model the impact of Social Media and Traditional Sources of News towards the rising separatist movement based on this definition and exploited a Hierarchical Latent Variable Model, in order to better understand how these effects vary with the demography and determine separatism. We also establish that as opposed to popular belief there seems to be an overall increasing trend in separatism with age.
4. We established that as opposed to popular belief there seems to be an overall increasing trend in separatism with age. The effects of Social Media and Traditional News sources, as captured by the latent variables, seems to increase with age across all regions of the valley. While one would expect this to be the case for electronic and print media, the fact that social media's influence on separatism seems to increase with age is an interesting discovery.
5. The moot question which needs further study is why this is happening. Is it due to a sense of alienation and despondency that increases with age, or it is the effect of a toxic environment in schools and colleges of the Valley which needs to be addressed.

# Trust, Perceptions and Effects of News Sources ...

unrests. We** seek to model these dichotomies in both the demographic factors along with regional effects, and external factors like the influence of both Social and Traditional Media in the form of Television Broadcasting and Print. To this end, we describe a data driven approach to model the propensity of Kashmiri youth to secessionism based on an extensive survey that includes basic demographic data and their use, belief in social and news media, and uncover some interesting patterns of activity with regard to the Kashmir Valley.

## Introduction

The Indian state of Jammu and Kashmir has remained relatively peaceful since 2005. Inhabitants of the region have been participating in elections, both at the local level as well as in the national elections. In recent times, however, this has changed, with renewed support of violent separatism especially from the youth in Kashmir. The recent unrests between the period of 2015-17 have resulted in 4,799 number of "Stone Pelting"[1] incidents and also in deaths of 273 individuals,[2] which includes security forces and the civilian population in militant violence, which is a spike from previous years.

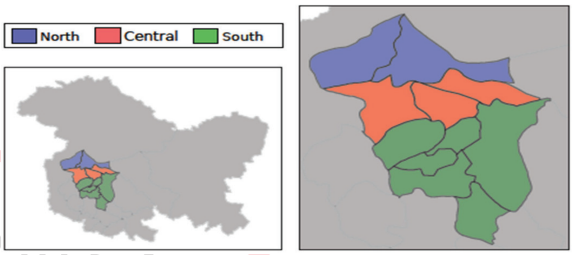
While there is no clear consensus as to what lead tothe deterioration of the situation in recent times, experts generally attribute it to a combination of factors including the lost opportunity by successive governments at the Centre and the state level to provide a semblance of positive peace when there was a near rejection of external insurgency by the people of Kashmir, the inability of the state to provide meaningful Governance at a very critical time between 2004 and 2010, as well as Pakistan's renewed and vigorous support to fuel terrorism in the state and finally the elimination of a poster boy of separatist militancy in 2016. While such incidents are not unusual to Kashmir, owing to its long history of dealing with violence, in the recent surge, Social Media is believed to have played a big role in the organisation of such protests and violent strikes. This hypothesis is further strengthened by the fact that the militant in question was a popular face on many social media platforms, with the individual's videos and pictures organising and inciting the Kashmiri masses being shared across platforms like Facebook, Twitter and WhatsApp.



1 https://en.wikipedia.org/wiki/Stone_pelting_in_Kashmir

2 Indian Parliament, Rajya Sabha, Unstarred Question 556

**Figure 1: The Kashmir Valley (coloured regions), within the larger state of J&K. This study primarily focused on the regions in the Valley, most affected by separatist violence.**




It is interesting to note that while the Valley is somewhat homogeneous with respect to factors like culture, language and other demography, certain regions especially in the Southern and Central parts of Kashmir seem to be more adversely affected by the recent violence. This also stands to contrast with the fact that other social indicators, including levels of literacy, Internet penetration, etc., also seem fairly homogeneous across various different regions of Kashmir.

In the light of such unobvious dichotomies we conducted a large survey amongst the youth population of Kashmir enrolled in Higher Education programmes from ten districts in the Kashmir valley, a region of the state of Jammu and Kashmir depicted in colour in Figure 1. The respondents were asked certain basic questions representative of their predisposition to the Republic of India along with demographic information and certain questions reflective of their propensity to be influenced by social and traditional media. Our contributions in this paper can be summarised as follows:

- We present results of the Anonymous survey in Kashmir, and determine the relationship between the disposition of the Kashmiri population towards India and various Instruments of the Indian State.
- We further propose a Latent Variable model to incorporate regional dissimilarities and isolate effects of Social Media and Traditional News Sources including Electronic and Print Media on the respondents' predispositions.
- We determine relations between these Latent Effects and determine if such effects are correlated across individuals, as well as other basic demographic variables in the different regions of the Valley.

Through this study, we aim to model these propensities in order to understand the reasons for rising separatism, to better support decision making by policymakers.

## Related Work

There has been considerable research effort in detection of rumour and events from social media. (Shao et al., 2017; Vosoughi, 2015; Shu et al., 2017; Zubiaga et al., 2018)

describe Machine Learning based approaches along with relevant Feature Extraction pipelines in order to detect Microblogs suggestive of Rumours and Fake News. Most of these directions have employed Supervised Learning models in order to train their models.

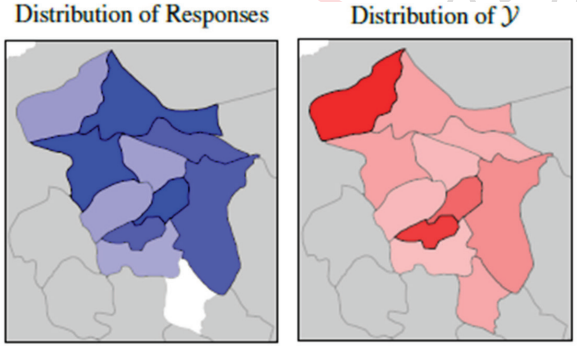
Quantifying the effect of Social Media on mass political movements and uprisings and natural calamities is another popular research area. The community has attempted to research social media posts and its impact on events like the Boston Marathon Bombings (Starbird et al., 2014), Hurricane Sandy (Kogan, Palen, and Anderson, 2015) and the BP Oil Spill (Starbird et al., 2015).

The use of Latent Variable models for Computational Social Science is gaining popularity and widespread acceptability. (Abebe et al., 2018) describe topic-modelling of search queries for modelling health-care needs in Africa, while (Jo et al., 2017) describe a Graphical Model to Model Human Dialogue and Discourse. (De-Arteaga and Dubrawski, 2017) describe an anomaly detection approach to extract patterns of Sexual Violence in El Salvador.

The research of religious extremism and its political ramifications in other parts of the subcontinent has also been studied in social science literature. In a series of papers (Blair et al., 2013; Shapiro and Fair, 2010; Fair, Malhotra, and Shapiro, 2012), explored the impact of religion and poverty on extremist tendencies in Pakistan. Their analysis was however limited to linear models, and they did not consider the effect of Social and Traditional Media as a possible confounders.

(Pandita, 2013) describes various print media houses in Kashmir, while (Gul and others, 2013) describe how traditional Kashmiri print and electronic media have embraced social media. To the best of our knowledge, this is the first study that combines Hierarchical Bayesian modelling in order to explicitly understand the impact of social media and traditional media along with regional idiosyncrasies specifically in the case of the Indian administered Kashmir Valley.

**Figure 2: Heat maps depicting the number of responders and the extent of separatism,Y across various districts of the Valley.**




## Survey Description

A large survey of the Kashmiri youth enrolled in higher educational institutes was conducted across ten Districts from the Valley. The responders were asked questions about their level of education, age and some other questions indicative of their preferences of use of Social Media and Traditional News Sources. Table 1 and Table 2 present some basic statistics about the responders and the questions that the responders were asked, respectively.

## Determining Separatism, the Variable Y

It is true that alienation and separatism amongst the Kashmiri population lies on a spectrum rather than a strict binary. Separatist sympathies tend to increase around certain times and events. In times of peace, a large number of the people take part in democratic elections and seek employment in both the local and federal government, while this is not the case in the event of a recent public outrage. Under such circumstances, it is arguable as to what a correct definition of separatism is. For the purposes of this experiment we use a combination of responses to the following three questions on the survey in order to determine a proxy label for separatism.

We assigned all individuals who responded with Yes as Positive (+ve) for the variable Y, and the ones who responded with a No as a Negative (-ve) for Y. A large number of respondents responded with Can't Say for whom we resorted to the next question in order to determine a label. Table 3 presents the Spearman Rank Correlation across each for each individual to Q1 versus their response to Q2. Most responders who responded with a No to the Q1, also had low mean scores for this question, although the distribution for the Can't Say and Yes was fairly more even.

Trust on the Indian Armed Forces, deployed in Kashmir seems to be most highly positively correlated with the sense of being Indian, across all the three major geographical regions of the Kashmir Valley. This is expected, since the Indian Army has played an active role in fighting armed militancy and has also undertaken numerous civic action programmes aimed at Human Development in the region through the "Sadbhavana" (Goodwill) programme. This campaign has included setting up of co-educational Junior and High Schools, Vocational training centres and Health-care and Medical Camps.[3]

**Table 1: Survey Statistics**

| | |
|---|---|
| # of Participants | 503 |
| # of Males | 324 |
| # of Females | 179 |
| Age Group (Min, Max) | 18–36 |
| Age Group (25th-75th) %ile | 21–24 |
| Home Districts | 10 |

**Table 2: Questions that the Responders were asked, along with the Answer Options**

| | Sense of Separatism and belonging to India |
|---|---|
| Q1 | Do you consider yourself Indian?<br>(a) Yes, (b) No, (c) Can't Say |
| Q2 | Trust on Various Instruments of the State<br>We asked the responders to report their level of trust on the following Instruments of the Indian Union:<br>(a) Local Government, (b) Central Government, (c) Local Law Enforcement, (d) Local Administration, (e) Armed Forces, (f) Central Law Enforcement and (g) Judiciary on a 4-Point Scale, ranging from No Trust (-2), Can't Say (0), Some |
| | Use of Social Media |
| Q S1 | Do you actively use Social Networks?<br>(a) Yes, (b) No |
| Q S2 | If Yes, what do you use it primarily for?<br>(a) Connecting with Friends, (b) Joining Groups, (c) Following Celebrities, (d) Expressing Political |
| Q S3 | Opinion, (e) Others, (f) Never use it<br>Do you trust what you see on Social Media?<br>(a) Yes, (b) Sometimes, (c) Can't Say and (d) Not Very Truthful |
| | Use of Traditional Media |
| Q T1 | Do you read newspapers daily?<br>The responders were asked to choose between (a) Daily, (b) Sometimes or (c) Never |
| Q T2 | If Yes, What Kind?<br>(a) National Daily, (b) Local Newspaper, (c) No |
| Q T3 | Preference or (d) Don't Read<br>What kind of newspapers reports Kashmiri news most accurately? (a) Delhi and other Indian Newspapers, (b) Local Newspapers from Kashmir, (c) Newspapers from Pakistan, (d) Other |
| Q T4 | What News Channels do you watch on TV?<br>(a) Private English News Channels, (b) Private Hindi News Channels, (c) Government Funded News Channels (d) Local News Channels (e) Pakistani News |

The questions were selected in order to estimate the responders' propensity to Separatism along with their preferences to Social Media and Traditional sources of News in the form of Print and Electronic Media.

Interestingly, Trust on the Local Governments in these regions also seems to be Positively correlated with belonging to India, for both North and South Kashmir, whereas that is not so in the Central Region. We also found that Trust on Local and Police agencies seems to not be correlated with this sense, suggesting an opportunity for the Local Police to take up similar civic action programmes to reach out and play a more active role in creating a nationalistic and democratic sense of belonging to the Union of India.

Based on these scores, we proceeded to train a Logistic Regression with an `2 penalty in order to predict their response to Q1 based on responses to Q2. We tuned the strength of the regularisation parameter by performing grid search and cross validation. For all the responders who responded with "Can't Say" to Q1, we deferred to this classifier in order to obtain a label, by deploying it at a fixed threshold of False Positive and False Negative Rates. Thus, for all the following experiments this combination of the responses, Y was used as a label determining separatism for each responder.

**Table 3: Spearman Rank Correlation (_) between the Response to Q1 and Score Assigned to each instrument in Q2 **Indicates p-value <0.05**

| Instrument | All Regions | Central | South | North |
|---|---|---|---|---|
| Armed Forces | 0.50** | 0.40** | 0.53** | 0.58** |
| Central Govt | 0.43** | 0.34** | 0.50** | 0.41** |
| Central Police | 0.42** | 0.37** | 0.42** | 0.39** |
| Local Admin | 0.40** | 0.28** | 0.53** | 0.32** |
| Local Govt | 0.35** | 0.17 | 0.39** | 0.39** |
| Judiciary | 0.32** | 0.24** | 0.35** | 0.24** |
| Local Police | 0.23** | 0.11 | 0.42** | 0.08 |

**Table 4: Spearman Rank Correlation (_) between the Response to Q2 and Score Assigned to each instrument in Q2 **Indicates p-value <0.05**

| | Response | All | Central | South | North |
|---|---|---|---|---|---|
| S2 | Connect w. friends | -0.21** | 0.08 | -0.40** | -0.13 |
| S2 | Express opinions | 0.23** | -0.02 | 0.34** | 0.24** |
| S3 | Trust-Score - | 0.11** | 0.03 | 0.25** | 0.12 |
| | | | | | |

3 https://economictimes.indiatimes.com/news/defence/operationsadbhavana-7800-jammu-and-kashmir-youths-went-oneducational-trips-in-three-years/articleshow/50271238.cms

**Table 5: Spearman Rank Corelation (*p*) between the Response to Q2 and Score Assigned to each instrument Q2** Indicates p-value<0.05**

| | Response | All | Central | South | North |
|---|---|---|---|---|---|
| T1 | tm_use | -0.18** | 0.23** | -0.38** | -0.05 |
| T2 | Don't Read | 0.12** | -0.03 | 0.19** | 0.1 |
| T2 | No Preference | -0.22** | -0.04 | -0.2** | -0.27** |
| T3 | Eng/Hindi (Delhi) | 0.22** | 0.18 | 0.26** | 0.18** |
| T3 | Local Urdu | 0.14** | 0.02 | 0.16** | 0.1 |
| T3 | No newspaper | -0.26** | -0.11 | -0.32** | -0.19** |
| T4 | International | -0.16** | -0.0 | -0.21** | -0.07 |
| T4 | Pakistani | -0.15** | -0.14 | -0.09 | -0.25** |
| T4 | Private Hinidi | 0.22** | 0.21** | 0.15** | 0.22** |

## Effects of Social Media, the Variable S

Table 4 presented the statistically significant correlations between responses to QS 1-3 and our definition of separatism, Y. Interestingly we found that, a large number

of participants who responded that their primary purpose of Social Media was to express opinions, a political dialogue also had a positive disposition towards the Indian Union. This suggests that Social Media, although infamous for its deleterious effects in the Valley, does provide a platform for the youth to engage in political discourse, encouraging state instruments to play a more active role on Social Media in positively engaging the population through these media.

### Effects of Print and Electronic News, T

We would further like to quantify the impact and relationship the International, National and Local press has to this alienation. This includes both the Print Media in the form of the Newspapers as well as Electronic Media like Television News Channels. Table 5 lists some significant correlations between responses to QT1-4. Notice that from the responses it is clear that individuals actively engaging in reading newspapers have positive correlations with Y. On the contrary individuals not actively reading or having strong preferences for Newspapers, tend to be negatively correlated with Y; suggesting a more negative disposition towards the Indian State. This suggests an interesting similarity of the use of Print Media with that of Social Media.

For Electronic Media, the results were somewhat less surprising, consumption of India based Hindi News is positively correlated with Y, while consumption of Pakistani and International News is negatively correlated with Y. We thus hypothesise that amongst the population with a general lack of trust on the Indian State and its instruments, such mistrust extends to even other Non-State Instruments, including the Private Electronic Media.

### Demographic Covariates, X

Apart from just the responses to the Questions involving use of Print Electronic and Social Media, we also include additional covariates, suggestive of certain basic Demographic information. We hypothesise that the additional of these covariates would help better adjust our models for confounding. The variables include the responders Gender, their Home District, Place of Study, Age and Educational Level, that is, whether they are enrolled in Undergraduate, Masters or Graduate Programmes in the Sciences or Humanities. In the case of the proposed model, these factors are represented as an observed variable x in Figure 3.

### Modelling Effects with Latent Variables

We propose a Latent Variable Hierarchical Model (Figure 3) in order to model our dataset and better understand how Social Media impact and regional differences impact the propensity to separatism.

### Regional Differences

We hypothesise that in general owing to similar circumstances, Kashmiri youth have similar reasons for predisposition towards separatism. It is however clear from survey responses (Tables 4 and 5), as well as commonly believed by domain experts and policymakers that there are important regional differences which cannot be ignored. In order to incorporate these regional differences into our model, we adopt a Hierarchical Graphical model. Not only does the use of the hierarchical model help better model the regional differences, it also helps alleviate the challenges of working with the relatively small dataset we are working with (n < 500).

### Latent News and Social Media Effects, s and T

We further hypothesise that the impact or influence of Social Media on an individual, is can be thought of Binary Variable that indicates, whether the user is negatively influences, or motivated by separatist ideologies. We further assume that this binary variable can be characterised by a log linear parameterisation of the individuals responses to **QS1-S3 and QT1-T4**.

### The Generative Story

1. We first draw the set of parameters, w; ‘; _

(This corresponds to an `2 penalty)

w _ Norm(w0; _0); ‘ _ Norm(‘0; _0); _ _ Norm(_0; _0)w0 = 0; ‘0 = 0;

2. For each region r 2 R, we draw the parameters, _r,_r j (w; _) _ Normal(w; _)

3. We draw the latent zi, conditioned on ‘ and si as zi j (‘; si) _ Bernoulli(_(‘>si))

and the latent _i, conditioned on _ and ti as

_i j (_; ti) _ Bernoulli(_(_>ti))

4. The final output, yi conditioned on r; _ and xi ,zi is

y j (xi; _; ri; zi; _i) _ Bernoulli(_(_> r [xi; zi; _i]))

Here, _(:) is the sigmoid function

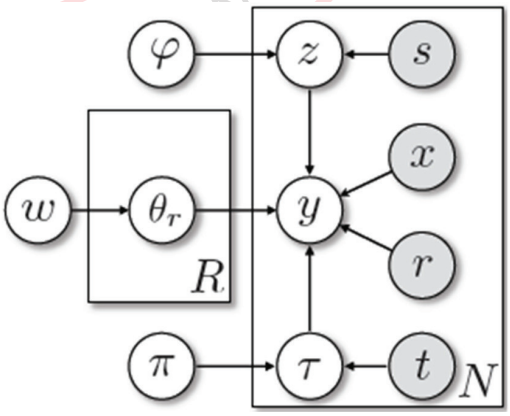


Figure 3: The Proposed Latent Variable Model. x is the observed Demographic Features, r represents the region the individual is drawn, s and t are the responses to questions about use of social and traditional media, while z and Ø are the Latent Effects of the mediums. Ø is the set of parameters that determine the outcome y.

## Inference

0Let the observed data fxi; si; ti; ri; yigNi=1 be representedby D. We denote the set of all parameters,fw; '; f_r; _r; 'rgRr =1; g as _. We would like to maximise the joint probability of the dataset under our model.

Our first attempt at performing inference was using a Markov Chain Monte Carlo sampling method. To this end, we experimented with both, a Metropolis Hastings based sampler with a Multivariate Gaussian Proposal Distribution, as well as Hamiltonian Monte Carlo NUTS based sampler (Hoffman and Gelman, 2014; Salvatier, Wiecki, and Fonnesbeck, 2016). Unfortunately since most of the features we work with are categorical this results in a large parameter space. Thus, this did not allow us to have high acceptance rates for the samplers. We instead proceeded to model the point estimates of the parameters by using a Maximum A Posteriori estimator of the Log-Likelihood, given by

$$p(\mathcal{D}|\Theta) = \prod_{i=1}^{N} p(x_i, s_i, t_i, y_i, r_i, \Theta)$$

$$= \left(\prod_{i=1}^{N} \int_{z_i, \gamma_i} p(y_i|x_i, \theta, \pi, r_i, z_i) p(z_i|s_i, \varphi) p(\tau_i|t_i, \pi) dz_i d\tau_i\right) \prod_{i=1}^{R} p(\theta_r, \pi_r|w)$$

Note that we ignore the parameter priors to simplify notation. For inference, we perform Stochastic Gradient Descent on the objective, with Mini-Batching for 10000 epochs.

## Experiments

We experiment with the following models

1. **Parametric Max Entropy Classifier (MAX-ENT)** Amounts to learning a logistic regression model for the outcome variable yi given xi. This model assumes that the output yi is a linear function of the inputs xi on the log-odds scale.

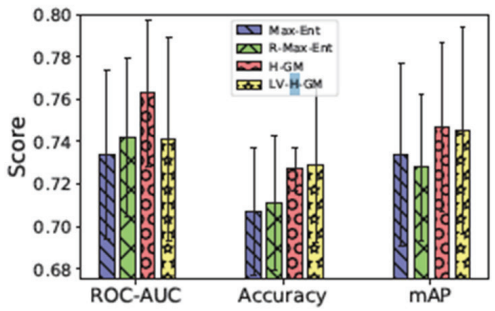
2. **Region-Specific Max Entropy Classifier (R-MAX-ENT)** Similar to the previous baseline approach but involves separate models for each region. This allows learning more Non-Linear hypotheses by allowing for the model to linear separate functions for each region. However, the lack of data does not let the model to benefit from sharing knowledge about similarity of the regions.

3. **Hierarchical Graphical Model (HGM)** The HGM is similar to the Proposed Figure 3, but the observed covariates(s, t) corresponding to the responses to the Questions, are grouped together with other demographic covariates x instead of reducing to latent variables.

4. **Hierarchical Latent Variable Model (H-LV-GM)** Finally we experiment with the proposed Latent Variable model. The advantage of incorporating the Latent Variables is that it reduces the adverse effects of Social and Traditional Media to single variables, helping interpretability and analysis.

## Experimental Set-up

For both our model and the baselines, we perform 5-foldcross validation over the dataset. We compute the Area under the ROC Curve, the Mean Average Precision, and the Accuracy over the held out fold and report the mean of each metric over each of the 5 folds. Before training the model, we standardise each column of our data matrix X by subtracting the column mean and dividing by the column sample variance, to ensure all the features are on a relatively same scale.




| | AuROC | Accuracy | mAP |
|---|---|---|---|
| H-GM | $0.763 \pm 0.04$ | $0.727 \pm 0.01$ | $0.747 \pm 0.05$ |
| LV-H-GM | $0.741 \pm 0.05$ | $\mathbf{0.729 \pm 0.04}$ | $0.745 \pm 0.06$ |

## Results

Figure 4 Compares the performance of the proposed approaches (HGM, H-LV-GM) against baseline linear models. Note that the HGM has larger number of parameters than H-LV-GM, which justifies better performance on classification metrics. H-LV-GM however while having lower performance, allows collapsing effects of media into a single variable allowing for a single variable of comparison for analysis, and outperforms the other two baselines.

Figure5: The Response Variable (y), and the Latent Effects of Media with age of the responders. Interestingly we found that as opposed to common belief, our definition of separatism tends to be weakly positively correlated with Age, suggesting that younger responders seem to have a more positive disposition towards the Indian Union. The effects of both Traditional and Social Media seem to be positively correlated with the responder's age too, which is contrary to public opinion about social media being more popular with the younger population.

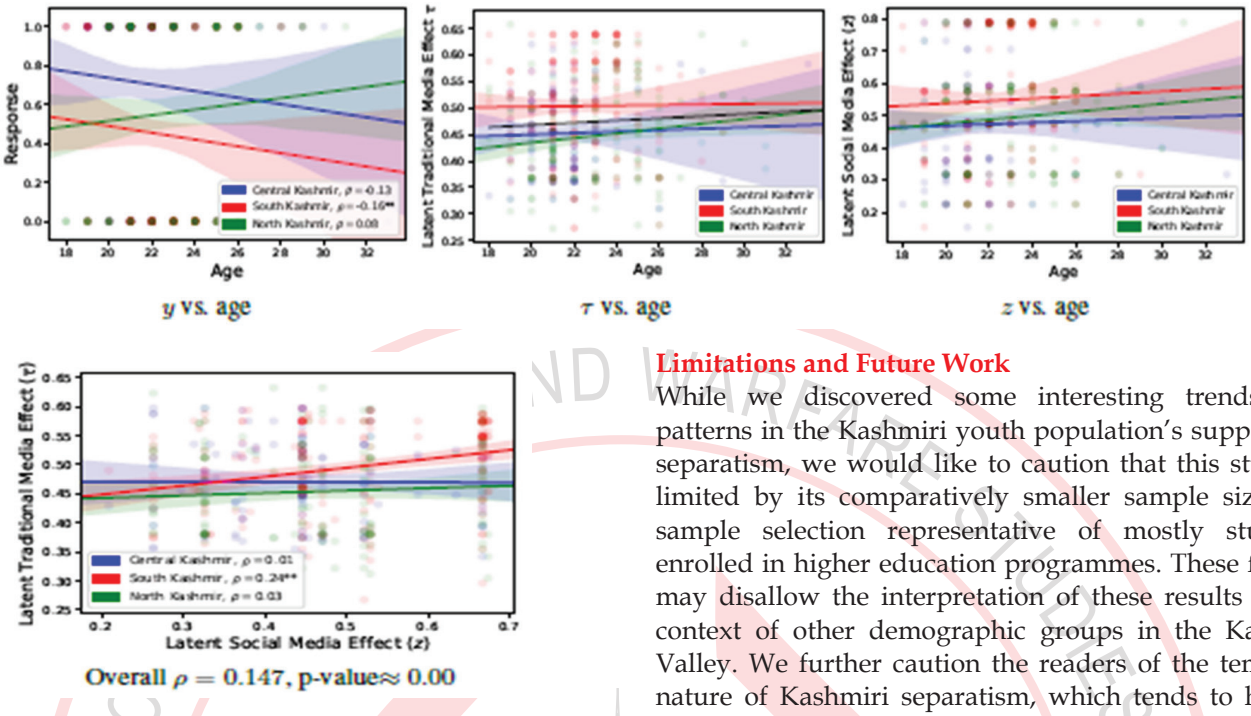



Figure 6: Correlation between the Latent Social Media Effect, z and the Traditional Media, _ . Notice that the effects seem to be mostly uncorrelated, across the regions except for South Kashmir where the effects have a weak correlation.

Figure 6 compares the distribution of the Latent Variables _ and z, representing the effects of Traditional News Sources and Social Media respectively. Notice that for both North and Central Kashmir, the effects seem to be mostly uncorrelated, while for South Kashmir, there seems to be some weak positive correlation. This suggests that for the most part, cohorts of individuals who are likely to be adversely influenced into separatism from social media and traditional news sources respectively are disparate.

We also establish that as opposed to popular belief there seems to be an overall increasing trend in separatism with age, as evidenced from Figure 5. Notice also that the effects of Social Media and Traditional News sources, as captured by the latent variables, z and _, seems to increase with age across all regions of the Valley. While one would expect this to be the case for electronic and print media, the fact that social media's influence on separatism seems to increase with age is an interesting discovery.

## Limitations and Future Work

While we discovered some interesting trends and patterns in the Kashmiri youth population's support for separatism, we would like to caution that this study is limited by its comparatively smaller sample size and sample selection representative of mostly students enrolled in higher education programmes. These factors may disallow the interpretation of these results in the context of other demographic groups in the Kashmir Valley. We further caution the readers of the temporal nature of Kashmiri separatism, which tends to have a cyclical pattern of periods with mass unrests, followed by relative peace with high participation in electoral politics. Given these realities, in the future we aim to extend this study to larger sample sizes, representative of all heterogeneities of the Kashmiri Demographic, sampled over fixed time intervals. In the future, we also aim to incorporate other demographic factors in order to better model all confounding evidence to make stronger causal claims.

## Conclusion

In this paper we aimed to study the recent rise of separatist unrest in the Kashmir Valley in India, especially in the youth population. Towards this end we conducted a survey of the youth population in the Valley, to understand the nature of separatism with regard to trust on various instruments of the Indian state. We further tried to model the impact of Social Media and Traditional Sources of News towards rising separatist movement based on this definition and exploited a Hierarchical Latent Variable Model, in order to better understand how these effects vary with the demography and determine separatism.

## Acknowledgements

We would like to thank the reviewers for there valuable suggestions.

** The questionnaire has been prepared by TISS and the responses were taken under their guidance; the analysis of the same has been done by the authors and TISS.

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