

Belief in astrology, locus of control, and intolerance of uncertainty among young adults

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Abstract: The present study aimed to identify the impact of belief in Astrology and its relation with Locus of Control (LOC) and intolerance of uncertainty among young adults. **Methodology:** The study participants included 250 participants aged 18-25 from India. The tools used were the Belief in Astrology Inventory (BAI), Levenson Multidimensional Locus of Control Scales, and Intolerance of Uncertainty Scale (IUS-12), respectively. The statistical correlation technique was used to assess the relationship between all the variables, the t-test evaluated the gender differences in belief in astrology, and regression analysis was used to understand the impact of belief in astrology on the other variables. The findings indicate a negative relationship between belief in astrology and Locus of control (Internality), a positive relationship between belief in astrology and Locus of Control (Chance), and a positive relationship between belief in astrology and intolerance of uncertainty. In females and males, there was no significant gender difference in belief in astrology. Finally, in terms of impact, belief in astrology had a minimal impact on variables as a locus of control and intolerance of uncertainty. The study's results provide an impetus to pursue further belief in astrology and how it could influence various facets of people's lives.

Index Terms: Belief in Astrology, Locus of Control, Intolerance of Uncertainty.

I. INTRODUCTION

Belief in Astrology

Astrology is a phenomenon that makes people astound as it is an amalgamation of mystery, surprise, and wonderment for people who in some way relate to what was predicted about their life. It has gained increasing popularity despite the lack of scientific evidence. Astrology or fortune telling over the period has helped people with their various needs as money, relationships as, love, or missing loved ones [10]. People also find answers to their concerns in fortune teller's predictions; even widely used dating apps such as Tinder, Bumble, and Match report popularity by the algorithm of matches by zodiac signs, where active users of these apps add zodiac signs to their profiles.

Lindeman incorporated much of this work (1998) and proposes two major reasons for people having credibility towards Astrology. First, motivation: Astrology appears to offer a way to understand and predict the future. It helps in having a clear and precise understanding of a complex and changing world, as well as one's inner life, personality, and luck to cite a few examples. which makes it more appealing. Second, thinking or cognition appears to be another major influencer for people having credibility towards astrology: It frequently appears to be consistent with heuristic or "experiential" forms of reasoning. Astrological prophesy is frequently used as a source of inspiration to believe [11]. This makes them appealing to skeptics of astrology as well. Confirmation bias is one of the well-known types of heuristic cognition regarding astrology [5]. This is called the "Barnum Effect," which has the name of renowned American showman P. T. Barnum, is one of the most frequently cited arguments for astrology believing. Finally, astrology may be used as a "just in case" measure, similar to bringing a lucky charm to a crucial job interview. This can be especially true when things are stressful since there is so much to gain and so little to lose. This was described as a "cost-benefit" analysis by Tolbert given in 1990 [18]. The "cost" of astrology believing is quite minimal for most people because it requires little in the way of time, effort, or money. Even if the effect is limited to improving your sense of control, self-worth, and self-concept, it might still be worthwhile. People are subjective and tend to pay attention to information that confirms their positive self-concepts and interpret negative or contradictory feedback to diminish its impact which may help explain how belief in astrology develops in the first place [6].

Many findings have revealed that women tended to both believe in and knew more about astrology. This could help them serve as an escape from current pressures on women to succeed in academics and the workforce, or it may indicate a submissiveness or a respectful attitude toward achievement, or, on the other hand, may serve as a way for females to take back some control over their lives if they feel somewhat helpless [17].

Astrology or fortune telling over the period has helped people with their various needs as money, relationships as, love, or missing loved ones and hence becomes an important phenomenon to study [10],[4].

Locus of Control

Second, the concept of locus of control was introduced by Rotter in 1966 as the degree of belief in authority over one's life. This concept of locus of control is divided into the internal and external locus of control. Individuals with an internal locus of control believe that events in occur their lives are the result of one's control, behavior, and traits. Individuals who have an external locus of control see the events in their lives as the result of external factors such as fortune, fortuity, and destiny - forces over which they have no control [17]. According to Levenson, externality may have more facets as several dimensions than internality. Externals,

on the other hand, have been once again classified into two types. The individuals with type one externals believe that powerful others control reinforcements. Type two externals believe that destiny, chance, or luck govern the world. Levenson uses an instrument with scales assessing internal control, control by powerful others, and beliefs that outcomes are controlled by chance and/or to differentiate internals from Type one and Type two externals [9].

Intolerance of Uncertainty

At last, intolerance towards uncertainty could be defined as a trait to respond negatively to uncertain situations on emotional, cognitive, and behavioral levels. The possible explanation for this tendency is man's inner desire to be aware of the future and be self-assured in his abilities when encountering it [12]. It is also found belief in astrology is closely related to autocracy & certainty orientation, as intolerance for ambiguity. It was found that believers might have a greater need to know information that eventually reduces uncertainty with attributions about self and others compared to skeptics. People with a higher sense of control are more competent to bear short-term uncertainty (in terms of its impact) and seek long-term interest [10].

II. REVIEW OF LITERATURE

Temcharoenkit, S., & A. Johnson, D. in 2021 conducted research on “*Factors Influencing Attitudes toward Astrology and Making Relationship Decisions Among Thai Adults*”. An online survey was used to collect data from 253 Thai people between the ages of 29 and 39, and the majority of respondents (55% with a bachelor's degree and 32% with a master's degree) were university graduates. One of the findings reveals that Thai females in the sample strongly believe in fortune-telling [19].

Koutsoumpis, A. in 2020 came up with a research study where the major objective was to investigate the relationship between astrological belief (AB) and a wide range of psychological concepts. The study was split into three different (but concurrently released) investigations to prevent an extremely time-consuming task. The relationship between AB, Locus of Control, Optimism, and Openness to Experience was examined in Study 1. Study 2 investigated the relationship between personality, AB, and zodiac signs and examined two astrological hypotheses (the sun-sign and water-sign impacts). The third study looked at the connection between AB and supernatural beliefs. In all three investigations AB and gender were positively associated. In all three investigations, AB was positively connected with age, extraversion, the external locus of control, gender (women had stronger astrological views), and paranormal beliefs (religiosity, psi, witchcraft, superstition, spiritualism, extraordinary life forms, precognition) [8].

A study was conducted on how the Internal-External locus of control (IE beliefs-both general and specific) related to curiosity about paranormal events, specifically astrological information. It was found that Rotter scale and beliefs about control by Powerful others, were not connected to belief in astrology and liking towards astrology, external ideas about chance or fate were positively related to belief and action taking astrological activities [17].

A study done by Lillqvist & Linderman. (1998) explained the notion of belief in astrology as being a coping mechanism to overcome stress, wherein students taking astrology classes and students taking courses unrelated to astrology were compared in their study. The study wanted to see if the students said they have stressors in their life (relationship issues, employment issues or financial difficulties) [10].

Another study by A. Sosis, R et al., (1980) found that in comparison to men, women showed higher tendency to both believe in and know more about astrology. This could help them serve as an escape from current pressures on women to succeed in academics and the workforce, or it may indicate a submissiveness or a compliant attitude toward achievement, or, on the other hand, may serve as a way for females to take back some control over their lives if they feel rather helpless [17].

Renovica, S. (2021) undertook a research study to understand “*The association between locus of control, generational age, and astrological belief*”. The study's working hypotheses were that at least one predictor would be involved in the model, that locus of control specifically would be involved in the model, that generational age specifically would be involved in the model, and that the inclusion of locus of control would improve the forecasting belief in astrology. Data were collected from 237 participants at one point in time using online surveys. The locus of control and generational age were the predictive variables. Belief in astrology was a factor influencing result. To see if belief in astrology could be meaningfully predicted using two models generational age and later correcting for locus of control a multiple hierarchical regression was performed. It was discovered that generational age alone was not a reliable indicator of astrology believed. The prediction was greatly enhanced by the addition of locus of control [13].

There was an other study based on “*coping, locus of control, and intolerance of uncertainty in emerging adulthood*”, wherein a study was done on how the above three facets of handling mental stressors are being employed amongst the young adult student population. 145 participants in total completed the study. Intolerance of uncertainty and locus and control as predictors of coping in a multiple regression model.

It was found that having higher internal locus of control which is related to greater use of managing distress emotions rather than dealing with the stressor (positive reinterpretation) and less use of behavioral disengagement i.e., they don't easily give up to attain their goals. Conversely, lower internal locus of control was associated with greater use of behavioral disengagement and less use of positive reinterpretation.

Internal locus of control had no relationship with either emotional outbursts or mental disengagement, although intolerance of uncertainty did [1].

Shukla, A. (2019) in his article “*People Believe In Astrology To Cope With Stress, Uncertainty, & Conflict*” wherein he talks about Uncertainty, self-perception, and the reason why individuals believe in astrology are all related. In a larger sense, lack of certainty and lack of reality testing increase belief in the paranormal (rational evaluation of the grounded reality of thoughts and emotions) [15].

Song, Y., & Li, B. (2017) conducted research on “*Locus of Control and Trait Anxiety in Aged Adults: The Mediating Effect of Intolerance of Uncertainty*” This study proposed to understand how intolerance of uncertainty could have an effect

between trait anxiety and locus of control. 317 adults aged 17 did the test which measures the above-mentioned variables. The results proved to be that there's a significant relationship among all 3 variables. According to the results, it was proven that trait anxiety could be significantly predicted by intolerance of uncertainty as well as locus of control. Thus Intolerance towards indeed had an arbitrating influence of locus of control on trait anxiety [16].

Another study conducted by Keinan on "*Effects of stress and tolerance of ambiguity on magical thinking*". He explains how in face of uncertainty magical thinking as astrology beliefs could provide a sense of stability. Also connecting earlier study mentioned even this study explains how stress could possibly fosters the birth of magical thinking within humans.

The need for the study is that belief in astrology can play a significant role in people's life, including decision-making [19]. Also in some way it acts as a coping mechanism wherein astrological belief has served as a buffer of anxiety wherein it helps them comprehend and to cope with certain stressful situations. It appears to be a predominant theme perceived worldwide. However, research related to belief in astrology in the Indian sub-context is trifling. India is one of the most culturally and religiously diverse nations, where the subject matter of astrology is prevalent and influential among people. Still, there is a sheer deficit of scientific knowledge related to belief in astrology. Also, how variables such as locus of control and intolerance of uncertainty are affected by having belief in astrology requires primary consideration, especially among the youth population. Thus, the study aims to gain an understanding of belief in astrology and its impact on locus of control and intolerance of uncertainty. The study result could help gain insight into those mentioned above, thereby proposing a diverse scope of research that could be further administered to the population under consideration.

III. METHODOLOGY

This study aimed to find the relationship and how belief in Astrology influences locus of control and intolerance of uncertainty among young adults.

The research ethics followed was that consent was taken from the participants before they started filling out the google form, and the Confidentiality of the participants was maintained.

The research variables are:

Independent variable:

1. Belief in astrology

Dependent variables:

2. Locus of control
 - Internality subscale
 - Chance subscale
3. Intolerance of uncertainty

Tools used

1. Belief in Astrology Inventory (BAI)- It's a 24-item unidimensional scale developed by Chico & Lorenzo-Seva, 2006. This scale is found to have higher internal consistency.
2. Levenson Multidimensional Locus of Control Scales- This scale was developed by Levenson wherein it has internality as one dimension and Externals, on the other hand, have been reclassified into two types. The individuals with type one externals believe that powerful others control reinforcements. Type two externals believe that fate, chance, or luck govern the world. These are referred to as Internality, Powerful Others, and Chance (L P, C) Scales [9].
3. Intolerance of Uncertainty Scale (IUS)-12- is a short version of the original 27-item Intolerance of Uncertainty Scale (Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994) that measures responses to uncertainty, ambiguous situations, and the future [2],[3].

Procedure

For the present study, a google form was created wherein questions about the demographic details of participants followed by questions related to the above tools were posted. The universe of the study is young adults across India, and the participants were excluded because they were not literate enough to answer research questions posted in google forms and don't reside in India. For the present study, a Non-Experimental Correlational Research Design was used for this study. And the sampling technique used study non-probability convenience sampling was used, wherein it is the process of selecting a sample of individuals or cases that is neither random nor systematic but instead is governed by chance or ready availability. The sample size for the present research study has a total of 250 samples representative of the universe of the study. It consists of an equal division of 125 male and 125 female samples. Finally, after data collection from the above scales, coding and scoring of sample data were done in MS Excel, later exported to IBM SPSS version 20 software for data analysis and interpretation.

IV. RESULTS AND DISCUSSION

The present study's aim being able to understand the relationship and impact of belief in astrology toward locus of control and intolerance of uncertainty among young adults. The sample size for the present research study has a total of 250 samples representative of the universe of the study. It consists of an equal division of 125 male and 125 female samples from India

Table 1 indicates the socio-demographic details of the participants

Demographic variables	Categories	Mean (SD) / Percentage %
Age	18-25	20.73 (2.23)
Gender	Male	50
	Female	50
Highest educational qualification	PU	59.2
	Under-graduation	27.2
	Post-graduation	12.4
	M.Phil. or doctorate	0.4
Belief in Astrology	Yes	15.6
	No	35.6
	Neutral	48.8

In Table 1, the basic socio-demographic details of the participants are given. The sample's age range was between 18-25. The mean age range of the participants was 20.73, with a standard deviation of 2.23. A question stating that "Do you believe in astrology?" was given with options as "Yes," "Neutral," and "no". A total of 15.6 % of the participants mentioned "Yes, whereas 35.6 % of participants said "no," and 48.8 % of participants gave "neutral" as their response.

The demographic details are as follows:

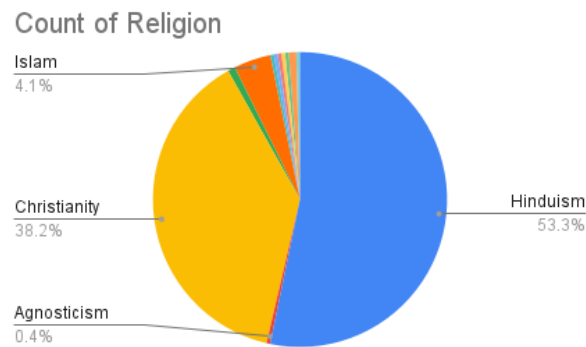


Figure 1 represents the Count of religion taken for the sample

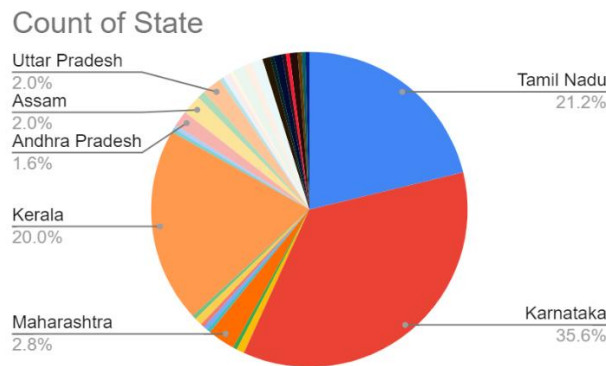


Figure 2 represents the count of state taken for the sample

Table 2 represents the mean, standard deviation, skewness and kurtosis of belief in astrology, internality scale, chance scale, and intolerance of uncertainty variables, respectively

Variable	M	SD	Skewness	Kurtosis
Belief in Astrology	61.35	15.64	-.421	.418
Locus of control:				
	Internality scale	33.61	8.2	-.637
Chance scale	21.42	8.14	-.079	-.114
Intolerance of uncertainty	32.72	8.63	.025	-.148

M=Mean, SD=Standard deviation, N=250

In Table 2, the variables belief in astrology [M=61.35, SD=15.64, Skewness= -.421, Kurtosis= -.418], internality [M=33.61, SD=8.2, Skewness = -.637, Kurtosis = .563], chance [M=21.42, SD=8.14, skewness = -.079, Kurtosis = -.114], intolerance of uncertainty [M=32.72, SD=8.63, skewness = .025, Kurtosis = -.148] are normally distributed. The values of skewness and kurtosis within the range of -1 to +1 are said to be normally distributed [7].

Table 3 indicates Pearson correlation showing the correlation coefficients for all the variables

Variables	Belief in astrology	Internality	Chance	Intolerance of Uncertainty
Belief in astrology	---	-.156*	.270**	.206**
Internality	---	---	.203**	.128*
Chance	---	---	---	.329**

* Indicates correlation is significant at the 0.05 level (2-tailed).

** Indicates correlation is significant at the 0.01 level (2-tailed), N=250

Pearson correlation coefficients for all variables are indicated in Table 3 wherein for the variable's belief in Astrology and internality, there was a statistically significant negative correlation at $p \leq 0.05$ level. For the variables, belief in Astrology and chance, there was a statistically significant positive correlation at $p \leq 0.01$ level. And finally, for the variables, belief in Astrology and intolerance of uncertainty, there was a statistically significant positive correlation at $p \leq 0.01$ level.

Table 4 indicates the t-test for belief in astrology among males and females

Variable	Gender	Mean	SD	t	Sig (p)
Belief in Astrology	Male	60.128	16.1620	1.238	.217
	Female	62.576	15.0832		

N=250

Table 4 demonstrates an independent sample-t test done on both females and males and the results show that there's no significant difference in belief in astrology among males (Mean=60.128, Standard deviation=16.16) and females (Mean=62.57, Standard deviation=15.08) as the sig value ($p = .217$) is more significant than 0.05. This finding contradicts the results of Torgler (2007) studies and even the latest findings by Temcharoenkit, S., & A. Johnson, D. (2021), where the findings were that females have more belief in fortune telling than that of males. However, in the present study, the possible reason for the no significant difference between males and females might be that young Indian adults' exposure to astrology could be more homogeneous across both genders. Second, older adults might have higher requirements to seek astrologers than young adults relating to concerns about relationships and care careers.

Table 5 indicates linear regression to access the impact of belief in astrology on the variable LOC Internality

Variable	Dependent variable	B (β)	F	R ²	T Value	Sig
Belief in astrology	LOC Internality	-.156	6.175	.024	-2.485	.014

Table 5 shows a regression analysis of belief in astrology (independent variable) on internality (dependent) with the Beta value of -.156, F value of 6.175, and t value of -2.485. The LOC internality and belief in astrology were found to be significant with $p \leq 0.05$. This indicates a considerably significant impact of faith in astrology on internality. The 2.4% change in internality demonstrates that belief in astrology predicts this. , it's been found that a person with solid internality takes responsibility for their life situations. They are less affected by the opinions of others [14]. Thus, they might be least influenced by belief in astrology and its possible prediction of their life outcome.

Table 6 indicates linear regression to access the impact of belief in astrology on the variable LOC Chance

Variable	Dependent variable	B (β)	F	R ²	T Value	Sig
Belief in astrology	LOC Chance	.270	19.533	0.073	4.420	.000

Table 6 shows regression analysis of belief in astrology (independent variable) variable on the chance (dependent variable) with a Beta value of 0.270, F value of 19.533, and t value of 4.420. The result was found to be significant with $p \leq 0.01$. This indicates a considerably significant impact of belief in astrology on the chance variable. Belief in the astrology variable predicts a 7.3 % change in LOC Chance. The findings of this study are consistent with the study done by Temcharoenkit, S., & A. Johnson, D. (2021) on Thai adults, where it was found that 34% of the change in the chance variable was predicted by belief in astrology.

Table 7 indicates linear regression to access the impact of belief in astrology on the variable Intolerance of Uncertainty

Variable	Dependent variable	B (β)	F	R ²	T Value	Sig
Belief in astrology	Intolerance of uncertainty	.206	10.977	.042	3.313	.001

Table 7 shows a regression analysis of belief in astrology (independent variable) on intolerance of uncertainty (dependent variable) with a Beta value of 0.206, F value of 10.977, and t value of 3.313. The table also indicates that the result was found to be significant with $p < 0.01$. This indicates a considerably significant impact of belief in astrology variables on intolerance of uncertainty. It is characterized by a 4.2 % change in intolerance of uncertainty predicted by belief in astrology.

CONCLUSION

The findings show that Belief in astrology is negatively correlated with the LOC-internality variable at a .05 significance level. However, the chance variable and intolerance of uncertainty were both positively correlated at a .01 significance level. The impact of belief in astrology on variables LOC internality, LOC Chance, and intolerance of uncertainty was present. There are no significant differences between males and females regarding their belief in astrology.

LIMITATIONS

The study didn't screen individuals who believed in astrology; instead, a mix of samples with high, low, and neutral beliefs was taken for the study. Thus, it lacked a decisive result in understanding the degree to which locus of control a intolerance of uncertainty affected young adults by the sheer belief in Astrology. The sample size was relatively small considering the universe of study across India; thus, the result cannot be generalized across the entire universe. Here close to 76% of the sample were from the Southern states of Karnataka, Kerala, and Tamil Nadu.

IMPLICATION

This study provides an understanding of the contemporary mentality of how young adults are being influenced by belief in Astrology. The findings suggest that while understanding the concepts as the locus of control and intolerance of uncertainty of people, one needs to examine one's belief in astrology stance as well. The latter could be a major influencer on how people view life and the attributions they could make considering their degree of belief towards astrology when it comes to making important decisions in their life. Through this study, the unprecedented or this neglected variable of astrological belief is something that needs to be taken into consideration when studying social variables, it doesn't just restrict itself to the locus of control or intolerance of uncertainty. The results of the study could also help the scientific community to research Indian people who have beliefs towards astrology and how it affects them in their day-to-day life.

SCOPE FOR FUTURE RESEARCH

As discussed in the introduction, research studies have shown that astrology has helped people with their various needs, such as money, relationships, love, or missing loved ones. Thus, it is important to equally research belief in astrology and its related subject matter, excluding its precise scientific validity. Second, a mixed approach can be done wherein the validity of the results would be more precise. Also, further research needs to be done in the Indian context, especially among the young adult population for those having believe in Astrology. Finally, this study could be a starting point to understand people's conscious or unconscious motives on why they believe in astrology and how this helps in their everyday life.

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