The Correlation Between Depression and Pseudosciences (Astrology, Tarot Cards, Psychic Readings)

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Abstract

Introduction: Depression prevalence is increasing worldwide, and so are Astrology, tarot cards, and psychics readings practices, as most people who seek pseudoscience practices tend to seek an answer to life issues that they suffer from, such as relationships, or financial issues for example.

Aim: This study aimed to find the correlation between pseudoscience practices and depression among pseudoscience believers in Saudi Arabia.

Subjects and method: This is a cross-sectional study conducted among the Saudi population who believe in pseudoscience. A self-administered questionnaire was distributed electronically using social media platforms, which adhere to the tenets of the Declaration of Helsinki 2013. The questionnaire was composed of socio-demographic variables, psychic-related practices, and depression questionnaires using Patient Health Questionnaire (PHQ-9).

Results: Of the 409 pseudoscience believers, 41.8% were aged between 26 – 35 years old with females being dominant (94.5%). The most prominent practice of reading was the Zodiac (81.3%). The prevalence of depression among pseudoscience believers was 36.3%. In univariate analysis, depression was significantly associated with the younger age group (p<0.001), less educated participants (p=0.028), being single (p<0.001), student (p=0.001), and practicing Zodiac (p=0.014). In a multivariate regression model, Zodiac practice reading was determined as the sole independent significant predictor of increased depression rates.

Conclusion: There was a high prevalence of depression among pseudoscience believers. Increased depression was demonstrated more frequently by younger believers who were still single, less educated, and who were currently engaged in Zodiac reading practices. More research is needed to shed more light on the effect of pseudoscience on the mental health condition of its believers.

Keywords: Pseudoscience, psychic reading, depression, astrology

Introduction

Depression is a disorder that can interfere with the patient's life, and results in burden, where the patient cannot function properly during daily activities (19). Depression is increasing worldwide, and so is the prevalence of astrology, tarot cards, and psychic readings practices, as most people who seek pseudosciences practices tend to seek an answer for life in the future, life issues, relationships issues, and financial issues. Pseudosciences like psychic readings, cup readings, tarot cards, astrology, and other Pseudosciences practices profess to help heal the client in becoming a whole, such as energy healing, or guide the person into understanding their personality more, like birth charts in astrology (20).

Psychic Readings, Cup readings and Tarot Cards:
Psychic readings, Cup readings and Tarot Cards profess to provide information about unknown events, emotions and questions. Each one of them uses different ways in providing such an answer. Psychic readings profess to use extra human abilities to provide answers. Cup readings are by reading the cup after drinking coffee, in which the coffee grounds will dissolve in the bottom of the cup giving the psychic reader a shape from which to read about the client's fortune. Tarot Cards on the other hands, uses cards that can represent the client's chances, hidden intentions and potential giving a clue about the client's thoughts about various topics a tarot card reader can provide (21).

Astrology:
Astrology is a type of pseudoscience that has a variety of aspects. but the major aspects and the more commonly used are personality aspects, answers about unknown questions, yearly events by star charts, the person's past, present and future. Astrologists provide the answers by using the person's birthday, birth time and place, with the guide of planets, like Mars, Venus, Mercury, Sun, Moon, Saturn, Jupiter, Uranus, Neptune and Pluto under different kinds of signs, where each person is different from one another and they are called the Zodiac Signs. There are twelve signs in total, for example, Cancer and Gemini according to which time of the year you are born. Astrologists also claim that each person has a unique birth chart, based on the position of the planets when they are born and under what 'house' the date falls into as there are also twelve houses which, it is claimed can influence the person's life in the past, present and future (22). It also provides the seeker advice on the ways that can enhance their mental, physical, economy, as well as health from a point of view of astrologer by complex ways to reduce the hard angles in the client's birth chart for example enhancing the moon in the client's birth chart as moon represents emotions, so astrologists believe that it can help in the case of depression (8).

Energy Healings:
The last branch of pseudoscience types in this research is energy healings that help to enhance the person's wholeness in emotional, social, physical, mental, and many other aspects of life giving the person a chance to become a whole soul. It uses different approaches, like Reiki in the East Asian approach, therapeutic touch (TT) and healing touch in western approaches, and many other different techniques (20).

Statistical Analysis

The assessment of depression was drawn from the patient health questionnaire (PHQ-9) developed by Kroenke, Spitzer, & Williams, (2001). It is composed of a 9-item questionnaire with 4-point Likert scale categories ranging from "Not at all" coded with 0 to "nearly every day" coded with 3. The score has a possible range from 0 to 27. A higher score indicates higher depression. Depression levels were categorized as "depressed" (score <10 points) and "not depressed (score ≥10 points). Minimal depression (score 0 – 4 points), mild depression (score 5 – 9 points), moderate (score 10 – 14 points), moderately severe (score 15 – 19 points), severe depression (score 20 – 27 points) (12).

Descriptive statistics were calculated to present numbers and percentages for all categorical variables while mean and standard deviation were used to present continuous variables. The relationship between the level of depression in regards to the socio-demographic characteristics and psychic-related practices of participants was conducted using the Chi-square test. Significant results were then tested in a multivariate regression model to determine the independent significant predictor of depression. A p-value of 0.05 was used to indicate statistical significance. All data analyses were performed using the Statistical Packages for Software Sciences (SPSS) version 26 (Armonk, New York, IBM Corporation, USA.).

Methodology

This is a cross-sectional study which was conducted among the Saudi population who practice pseudoscience from April 2022 to December 2022. A self-administered questionnaire was distributed electronically using social media platforms, which adhere to the tenets of the Declaration of Helsinki 2013. The questionnaire was distributed to 409 believers including both males and females and was composed of three sections. The first section contained ten socio-demographic variables questions, which give information about the believer, or the practitioner's life, as well as the common denominators between them. The second section contained 14 questions, involving detailed questions about Pseudosciences practices (Astrology, Tarot cards, Psychic Readings, Cup Readings, and Energy healings) such as, the reasons for engaging in them, how frequently, their thoughts, beliefs and outcomes, in order to get better perspectives into the minds of people who are engaged with pseudosciences practices. The last, and the third section was the PHQ9 depression questionnaire, to clarify if there is any correlation between pseudoscience practitioners and depression.

Results

Table 1: Socio-demographic characteristics of the participants (n=402)

Study variables	N (%)
Age group	
• 16 – 18 years	30 (07.5%)
• 19 – 25 years	133 (33.1%)
• 26 – 35 years	168 (41.8%)
• >35 years	71 (17.7%)
Gender	
• Male	22 (05.5%)
• Female	380 (94.5%)
Nationality	
• Saudi	367 (91.3%)
• Non-Saudi	35 (08.7%)
Residence region	
• Central Region	165 (41.0%)
• Eastern Region	52 (12.9%)
• Western Region	129 (32.1%)
• Southern Region	30 (07.5%)
• Northern Region	26 (06.5%)
Educational level	
• Middle school	04 (01.0%)
• High school	60 (14.9%)
• Bachelor's degree	295 (73.4%)
• Master or PhD	43 (10.7%)
Socio-economic status (SAR)	
• <5,000	262 (65.2%)
• 5,000 – 15,000	91 (22.6%)
• 15,001 – 25,000	33 (08.2%)
• 25,001 – 35,000	09 (02.2%)
• >35,000	07 (01.7%)
Marital status	
• Single	275 (68.4%)
• Engaged/Married	76 (18.9%)
• Divorced	51 (12.7%)
Employment status	
• Student	118 (29.4%)
• Unemployed	125 (31.1%)
• Employed	115 (28.6%)
• Free Business	30 (07.5%)
• Working and free business	14 (03.5%)

Table 1: Socio-demographic characteristics of the participants (n=402) continued

| Living Arrangement	
• Alone	31 (07.7%)
• With family	306 (76.1%)
• With husband	21 (05.2%)
• With husband and children	44 (10.9%)
Place residence	
• Apartment (rented)	130 (32.3%)
• Apartment (owned)	37 (09.2%)
• House	235 (58.5%)

A total of 402 respondents were recruited. Table 1 presents the socio-demographic characteristics of participants. 41.8% were aged between 26 to 35 years old with nearly all being females (94.5%) and most were Saudis (91.3%). 41% lived in the Central Region. Respondents who were bachelor degree holders were 73.4%. With regard to socio-economic status, nearly two-thirds (65.2%) were earning less than 5,000 SAR per month. With respect to marital status, 68.4% were single and 31.1% were unemployed. Also, 76.1% were living with family and 58.5% lived in their own house.

Figure 1: Sources of information regarding psychic-related practices
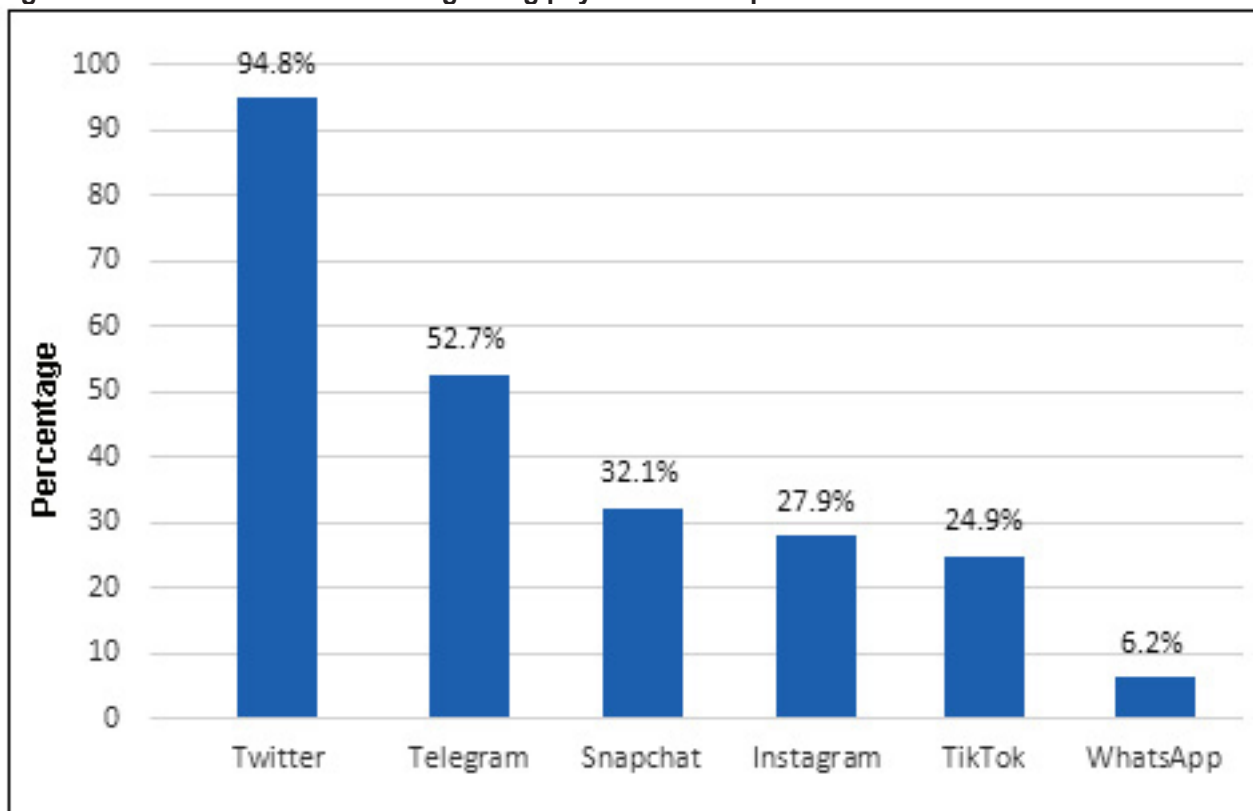
In Figure 1, the common source of information regarding psychic-related practices was Twitter (94.8%), followed by telegram (52.7%) and Snapchat (32.1%).

Figure 2: General mood before and after engagement in psychic-related practices
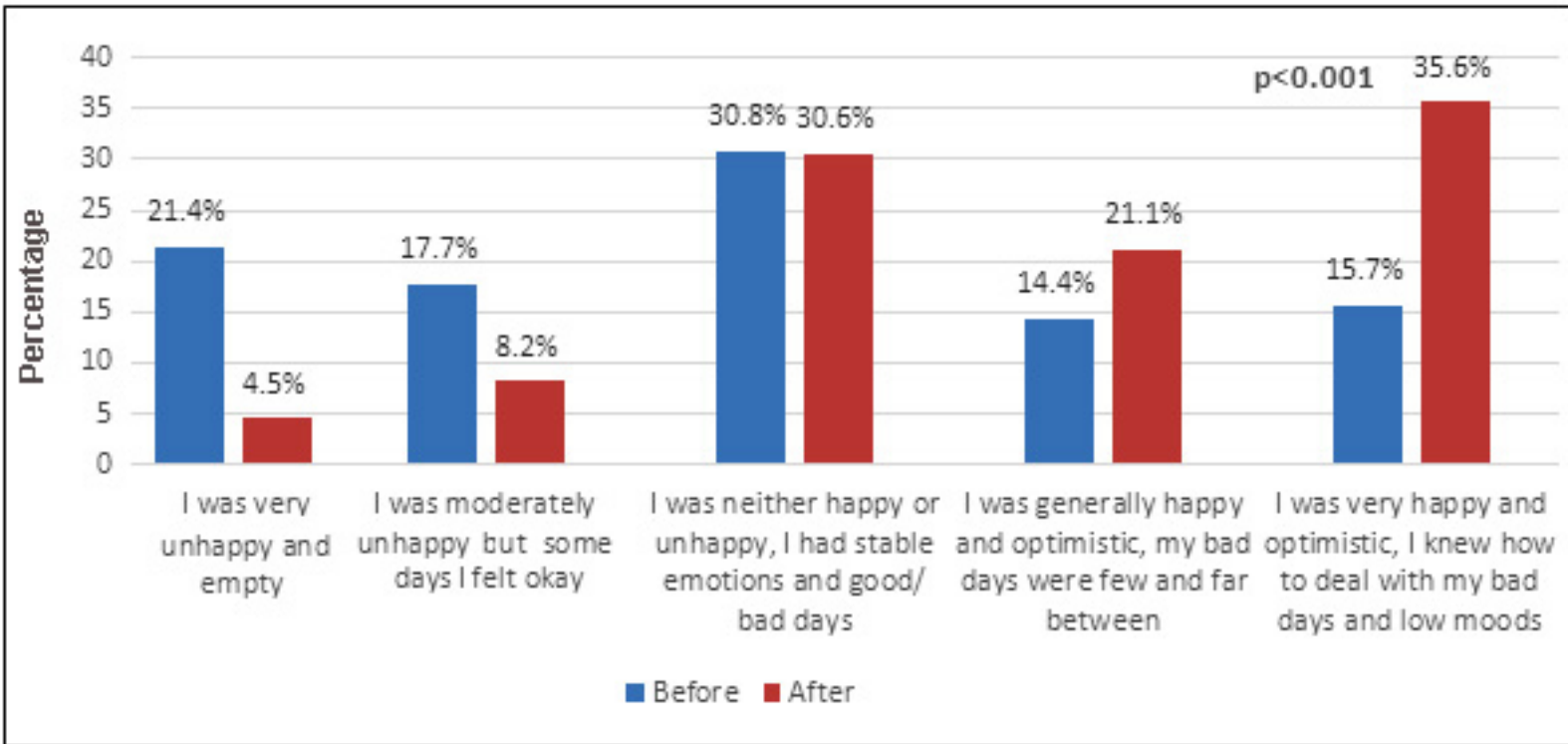
In Figure 2, there was a significant difference between the general mood before and after psychic-related practices engagement (p<0.001).

Table 2: Psychic-related practices (n=402)

Statement	N (%)
What are the practices that you read of? [*]	
• Zodiac (horoscope/astrology)	327 (81.3%)
• Energy healing work (E.g. Theta, Reiki)	212 (52.7%)
• Tarot	201 (50.0%)
• Psychics reading	176 (43.8%)
• Cup reading	82 (20.4%)
How much would you describe your belief in them?	
• I don't believe in them	08 (02.0%)
• I don't believe in them, but I read them for fun	39 (09.7%)
• I believe that sometimes they are right, but also believe that some of them could be untrue	222 (55.2%)
• I believe in them completely	133 (33.1%)
How did you get them?	
• I look for accounts and follow them to stay updated	344 (85.6%)
• I get them sent by friends	50 (12.4%)
• I usually avoid them	08 (02.0%)
How often do you read them?	
• Daily (multiple times a day)	117 (29.1%)
• Daily (once or twice a day)	67 (16.7%)
• Every other day	44 (10.9%)
• Weekly	32 (08.0%)
• Monthly	12 (03.0%)
• When I have a question on my mind	130 (32.3%)
What was your reason behind starting to engage yourself in these practices?	
• Curiosity about the future	65 (16.2%)
• A painful event (Divorce, break-up, death)	46 (11.4%)
• A life aspect that I wanted predictions for (Family issues, income issues)	31 (07.7%)
• Looking for answers about a specific topic	163 (40.5%)
• To feel hope and optimism about the future	97 (24.1%)
Did your engagement with them affect your life?	
• No	91 (22.6%)
• Slightly	106 (26.4%)
• Moderately	101 (25.1%)
• Yes, majorly	104 (25.9%)
Was the effect positive or negative?	
• Positive	276 (68.1%)
• Negative	35 (08.7%)
• No effect	91 (22.6%)
Have any of the readings come true?	
• Yes, all	11 (02.7%)
• Yes, most of them	116 (28.9%)
• Yes, part of it	137 (34.1%)
• No	25 (06.2%)
• I do not practice readings concerned with predicting the future	113 (28.1%)

† Variables with multiple response answers.

Table 2: Psychic-related practices (n=402) Continued

Statement	N (%)
Do you think engaging in these readings can be helpful for other people?	
• Yes	239 (59.5%)
• No	163 (40.5%)
During your low moods/bad days, have you ever sought help from a professional (Psychiatrist, therapist...)?	
• Yes	174 (43.3%)
• No, but I thought about it / wanted to	177 (44.0%)
• Never	51 (12.7%)
If yes, were they helpful? (n=174)	
• Yes	87 (50.0%)
• No	34 (19.5%)
• Probably	53 (30.5%)
If no, what was the reason for not going for a professional? (n=174)	
• Financial issues	82 (36.0%)
• I don't believe they are helpful	61 (26.8%)
• Others	85 (37.3%)

† Variables with multiple response answers.

In Table 2, the most common practice related to a pseudoscience that participants were reading was zodiac (81.3%), followed by energy healing (52.7%) and tarot (50%). 55.2% were of the opinion that people who consult psychics were sometimes right but some of this might not be true. Nearly all (85.6%) indicated that they found these people by searching for their accounts and subscribing to them to stay updated. 29.1% used to read pseudoscience multiple times a day. The most common reason to engage in these practices was looking for answers about a specific topic (40.5%). A quarter of them (25.9%) indicated that engagement in pseudoscience practices affects them majorly wherein 68.1% reported positive effect in their lives. Only 2.7% reported that the obtained readings all came true. Approximately 60% of the respondents believed that engaging in these readings can be helpful. The proportion of respondents who sought professional help during low moods/bad days was 43.3%, wherein 50% indicated that the sought advice was helpful. Of those who did not seek professional help, the most common reason was financial constraints (36%).

Table 3: Prevalence of depression according to PHQ-9 (n=402)

Variables	N (%)
Depression score (mean ± SD)	8.49 ± 6.33
Level of depression	
• Depressed	146 (36.3%)
• Not depressed	256 (63.7%)
Severity of depression	
• Minimal	126 (31.3%)
• Mild	130 (32.3%)
• Moderate	79 (19.7%)
• Moderately severe	40 (10.0%)
• Severe	27 (06.7%)
How difficult has this problem been when performing your work, studying, or carrying out your responsibilities in your home or in harmony with people?	
• Not difficult at all	199 (49.5%)
• Somewhat difficult	139 (34.6%)
• Very difficult	33 (08.2%)
• Extremely difficult	31 (07.7%)

The prevalence of depression has been discussed in Table 3. Based on the results, it was found that the total mean score of depression was 8.49 (SD 6.33) and the prevalence of depressed participants was 36.3%, the rest were not depressed (63.7%). Regarding depression severity, minimal, mild, moderate, moderately severe, and severe were found in 31.3%, 32.3%, 19.7%, 10%, and 6.7% of participants, respectively. Overall, only 8.2% expressed difficulties when performing work, studying, or doing tasks at home or socializing with people while 7.7% had extreme difficulties.

When measuring the relationship between the level of depression in regard to the socio-demographic characteristics and other psychic-related practices of participants (Table 4), it was found that the prevalence of depression was significantly more common among the younger age group (p<0.001), less educated participants (p=0.028), being single (p<0.001), student (p=0.001), and practicing Zodiac (p=0.014) while it was significantly less among those who practiced energy healing (p=0.004). Other variables did not significantly relate to the level of depression including gender, socio-economic status, place of residence engagement in practices that affect life, engagement that can be helpful to others, and visiting a professional during low moods/bad days (p>0.05).

In a multivariate regression model (Table 5), it was revealed that only Zodiac reading was the sole independent significant predictor of depression, compared to participants who were engaged in other psychic readings. Participants who were engaged in Zodiac readings were predicted to increase the risk of depression by almost 2 times higher (AOR=1.965; 95% CI=1.086 – 3.553; p=0.025). Other variables included in the model were not predicted to increase the risk of depression including age, educational level, marital status, and employment status (p>0.05).

Table 4: Relationship between the level of depression according to the Socio-demographic characteristics and psychic-related practices of the participants (n=402)

Factor	Level of depression		P-value §
	Depressed N (%) (n=146)	Not depressed N (%) (n=256)	
Age group			
• ≤25 years	79 (54.1%)	84 (32.8%)	<0.001 **
• >25 years	67 (45.9%)	172 (67.2%)	
Residence region			
• Inside Central Region	56 (38.4%)	109 (42.6%)	0.408
• Outside Central Region	90 (61.6%)	147 (57.4%)	
Educational level			
• High school or below	31 (21.2%)	33 (12.9%)	0.028 **
• Bachelor's degree or higher	115 (78.8%)	223 (87.1%)	
Socio-economic status (SAR)			
• <5,000	104 (71.2%)	158 (61.7%)	0.054
• ≥5,000	42 (28.8%)	98 (38.3%)	
Marital status			
• Single	116 (79.5%)	159 (62.1%)	<0.001 **
• Engaged/Married/Divorced	30 (20.5%)	97 (37.9%)	
Employment status			
• Student	59 (40.4%)	59 (23.0%)	
• Unemployed	41 (28.1%)	84 (32.8%)	0.001 **
• Employed	46 (31.5%)	113 (44.1%)	
Place residence			
• Apartment	59 (40.4%)	108 (42.2%)	0.728
• House	87 (59.6%)	148 (57.8%)	
Practices to psychic readings †			
• Zodiac	128 (87.7%)	199 (77.7%)	0.014 **
• Tarot	68 (46.6%)	133 (52.0%)	0.300
• Cup reading	27 (18.5%)	55 (21.5%)	0.474
• Psychic readings	57 (39.0%)	119 (46.5%)	0.148
• Energy healing	63 (43.2%)	149 (58.2%)	0.004 **
Did your engagement with them affect your life?			
• Yes	107 (73.3%)	204 (79.7%)	0.140
• No	39 (26.7%)	52 (20.3%)	
Do you think engaging in these readings can be helpful for other people?			
• Yes	79 (54.1%)	160 (62.5%)	0.099
• No	67 (45.9%)	96 (37.5%)	
During your low moods/bad days, have you ever sought help from a professional?			
• Yes	62 (42.5%)	112 (43.8%)	0.803
• No	84 (57.5%)	144 (56.3%)	

† Variable with multiple response answers. § P-value has been calculated using Chi-square test.
** Significant at p<0.05 level.

Table 5: Multivariate regression analysis to determine the independent significant factor associated with depression (n=402)

Factor	AOR	95% CI	P-value
Age group			
• ≤25 years	Ref		
• >25 years	0.687	0.376 – 1.257	0.223
Educational level			
• High school or below	Ref		
• Bachelor's degree or higher	0.708	0.398 – 1.258	0.239
Marital status			
• Single	Ref		
• Engaged/Married/Divorced	0.593	0.346 – 1.016	0.057
Employment status			
• Student	Ref		
• Unemployed	0.752	0.384 – 1.472	0.405
• Employed	0.911	0.539 – 1.542	0.730
Practices psychic readings †			
• Zodiac	1.965	1.086 – 3.553	0.025 **
• Energy healing	0.670	0.435 – 1.033	0.070

AOR – Adjusted Odds Ratio; CI – Confidence Interval.
† Variable with multiple response answers.
** Significant at p<0.05 level.

Discussion

This study investigated the relationship between depression and pseudoscience-related practices among pseudoscience believers in Saudi Arabia. The findings of this study revealed that among pseudoscience believers, 36.3% were detected to have depression and the rest were not depressed (63.7%). The overall mean depression score based on PHQ-9 was 8.49 (SD 6.33). To our knowledge, this is the first study in Saudi Arabia that discussed the prevalence of depression among people who practice pseudoscience which could be an important contribution to the literature. We estimated that engagement with psychic readings triggered our believers to suffer from depressive symptoms . However, in a study by Doolittle and Farrel (13), where they investigated the association between depression and spirituality, they found out that the prevalence of depression was 62% higher than our report. They also reported that high spiritual scores were correlated with a decreased rate of depression, adding that patients' spiritual healing beliefs may be a helpful alternative solution for the treatment of depression. This account is also true in our study, as we found that energy healing practices are a protective factor against depression. Further investigations are required to determine whether engagement in pseudoscience-related practices causes believers to suffer from depression.
Data in this study indicate that increased depression was significantly more common among believers who were young in age, had lower educational levels, were single, students, and those who were engaged in Zodiac sign practices. Furthermore, we have learned that there was a significant number of believers (35.6%; p<0.001) who indicated that their mood improved and they were very happy and optimistic after psychic reading engagement. These findings are not consistent with that of Escolà-Gascón et al (14). They reported significant differences for the variables depressive symptoms, positive psychotic symptoms, and certain perceptual alterations. Also, a notable increase in pseudoscience beliefs during the COVID-19 quarantine has been shown in the population. Researchers indicated that the high increases might be due to the restrictions during the pandemic which limit their movement and only concentrated with people around the households affecting their mental conditions and paranoid perceptual alterations. Another study published in Turkey (15), reported that the relationship between religiosity and obstructive compulsive symptoms was mediated by magical thinking through punishment and worry. A similar effect on mental health conditions due to engagement in psychic reading had also been recounted by Fenwick et al (16). According to reports, there was evidence to suggest that some psychic experiences were associated with brain dysfunction, however, despite an increased occurrence of head injury, the onset of 'psychic' sensitivity has no clear indication of correlation with the brain disorder. Mystical experience and vagueness about the location of the sensitive's 'psychic helper' showed a trend toward being related to non-dominant brain dysfunction.

Based on multiple response answers, the most common psychic-related practices were Zodiac (81.3%), energy healing (52.7%), Tarot (50%), psychic reading (43.8%), and cup reading (20.4%). Regarding psychic-related practices of believers, more than half (55.2%) of believers indicated that not all readings were true. Nonetheless, most believers (85.6%) were great followers of psychic reading personalities online. Also, nearly 30% of the believers used to read pseudoscience topics multiple times per day looking for an answer about a certain topic (40.5%). Likewise, a quarter of them (25.9%) reported a great influence of psychics on their life, mostly in a positive way (68.1%) though only part of the readings became true (34.1%). In spite of this scenario, a great proportion of them (59.5%) thought that engaging in these readings can be of great help to other people. In addition, citing financial constraints as the major reason for not consulting a professional during low moods/bad days (36%), only 43.3% sought professional help during these occurrences. In India (17), a researcher investigated the negative effect of excessive belief in Astrology. According to reports, some people tend to believe that horoscopes can make predictions turn into reality without providing solid evidence. They frequently make absurd decisions according to their zodiac sign which is purely unreliable astrological predictions. The author then emphasized that people should not concentrate on their future from horoscopes and their predictions of it. They have to shape their own future and not let predictions conquer one's sanity. In UK (18), investigations about misinformation effects on psychic readings and belief in the paranormal lead them to find that believers would be more prone to the misinformation effect and such a way that believers' recall of the reading was imprecise even without exposure to misinformation while non-believers may have better memories of readings when not exposed to misinformation but their recall was comparable to believers upon exposure to misinformation.

Conclusion

There was a high prevalence of depression among pseudoscience believers. Increased depression was demonstrated more frequently by younger believers who were still single, less educat- ed, and who were currently engaged in Zodiac reading practices.

Although, participants who participated in the research mentioned that their life quality has improved after pseudosciences practices, yet the depression prevalence is still high. More research is needed to shed more light on the effect of pseudoscience on the mental health condition of its believers.

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