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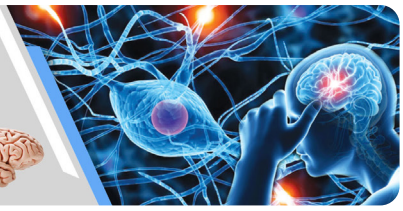

The Effect of Media Exposure on Coulrophobia Symptoms

Avery Yong Sian Gan*

Abstract

Fear is a fundamental emotion developed by humans for evolutionary purposes. This is transmitted in human DNA through the generations to help our survival. However, people may argue that the irrational fear of clowns is standing on the opposite side of survival purposes since clowns have no hazard. Coulrophobia is relatively new as a subtype of anxiety disorder, and so less research investigates the specific reason that triggered the phobia. This study utilised the Fear of Clown Questionnaire (FCQ) to assess symptoms of coulrophobia and employed correlation analysis, independent samples t-tests, ANOVA, and regression coefficients to identify potential predictors of these symptoms. The analysis results indicated that individuals with media exposure exhibited higher scores on total items in the FCQ, indicating that their symptoms of coulrophobia differ from those of the control group. In addition, the findings revealed a significant negative correlation between exposure to the non-exposure group and coulrophobia symptoms ($r=-.739$, $p<.001$), indicating that media exposure is associated with higher symptom severity, further supporting the impact of exposure on coulrophobia symptoms.

Keywords: Coulrophobia; Fear of Clown Questionnaire (FCQ); Exposure; Media; Symptoms

Introduction

A phobia is an anxiety disorder characterised by an overwhelming, persistent fear of a particular object or circumstance. Individuals with specific phobias who encounter a phobic stimulus will show an immediate fear response that often resembles a panic attack except for the existence of a clear external trigger [1]. According to evolutionary psychology, anxiety (phobia) can be viewed as a response that has evolved as a part of the human species' adaptive repertoire to cope with environmental challenges and threats. Anxiety may have served as a survival mechanism that helped human beings detect and respond to potential dangers in their environment, enabling them to avoid harm and increase their chances of survival [2]. Despite the study of [3] finding fact that individuals are more likely to fear snakes and spiders than other predatory animals, the existence of other specific phobias still developed well in the population. For example, fear of clowns (coulrophobia). Coulrophobia refers to fear or disgust elicited by clowns or images of clowns and may be accompanied by significant distress [4]. Coulrophobia, or the fear of clowns, is a syndrome that is poorly understood despite research showing that it has a high prevalence in the general population [5].

The prevalence of coulrophobia

Although the words from [5] that research shows an individual with coulrophobia has a high prevalence in the general population, it is not

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explicitly identified as a specific phobia within the DSM-V. Coulrophobia is set apart from the four more general categories of particular phobias, which include those involving animals (e.g., spiders), the outdoors (e.g., heights), blood-injection injuries (e.g., needles), and situational phobias (e.g., aeroplanes) (Tyson et al., 2022). According to their result, 35.9% of participants from Asia reported fear of clowns, followed by 28.8% of UK participants, then 27.8% from Australia and Oceania, 22.6% from North and South America, 22.5% in mainland Europe and 17.6% from Africa. Asians ranked the highest in this. However, it is arguable that the number of samples is too small to be generalised as the number of Asian participants involved only 92 people. Several studies indicated this dread exists in many different cultures among adults and children from the American Fear Survey Methodology Report prepared by [6].

The explanation of fear of clowns

As well as other specific phobias, the fear of clowns can be explained in several ways. The biological perspective postulates that certain individuals may exhibit a hereditary inclination towards the manifestation of particular phobic conditions [7]. Studies suggest the id's impulses can result in fear and anxiety when they are suppressed or ignored. Phobias are one way this internal conflict can manifest in human behaviour [8]. According to Freud's psychosexual stages theory, such conflicts are expected at different times in human development. The phobic object eventually comes to symbolise the confrontation. For example, the implication of the Little Hans case study might indicate that a child who developed the fear of amputation might emerge from the phobia when witnessing an upsetting event (e.g., a clown accidentally gets hit). One behavioural explanation for phobias is based on classical conditioning. If an unnerving event is coupled with an innocuous stimulus, individuals may develop a phobia of that stimulus. Early views regarding the acquisition of particular phobias favoured a theory based on fear conditioning (Watson & Rayner, 1920); for instance, after being scared by the clown "Pennywise" in a movie, a person (especially a child) could experience coulrophobia.

The trend of clown movies

The clown, supposedly a jolly figure of innocuous, kid-friendly entertainment, becomes weighed down by fear and sadness. "In one way, the clown has always been an impish spirit… as he is kind of grown up, he has always been about fun, but part of that fun has been a bit of mischief," says David Kiser, director of talent for Ringling Bros. and Barnum & Bailey Circus. Dating back to the silent film "The man who laughs" in 1928, clowns began to be demonised in the movies. The trend of horror clown films is depicted in Figure 1, which was generated using data taken from Wikipedia and examined. Before the 1950s, just two instances of horror clown elements were used in films. It undoubtedly rose to 15 after the 1950s, then 19 in the 2000s and 23 in the 2010s. However, the production of horror clown films may have decreased in the 2020s to 2023s because of the COVID-19 pandemic. In the early 2020s, the COVID-19 pandemic significantly impacted certain films, echoing its effects throughout all artistic disciplines. Blockbusters that were supposed to hit theatres by mid-March 2020 have been postponed or cancelled globally, and film production has also been suspended [9]. The number of initially written TV programmes across broadcast, cable, premium pay, and streaming decreased for the first time since the statistic began monitoring more than ten years ago in 2020 due to production studios being temporarily shut down. The number of films in 2020 decreased as studios pushed their release dates to 2021 (and beyond), much like TV series. According to the study, there were just 338 theatrical releases in 2020, a 66% decrease from the 987 films released in 2019. In addition, there were 447 films predicted to have started production in 2020, a 45% decrease [10].

Hypotheses and Aims

The illustration of analysed data inspired me to figure out the nature of coulrophobia. Nurturing an individual with phobic stimuli may trigger specific phobias, such as Coulrophobia. As in Figure 1, the horror clown content movie trends flourished in the 21st century, when the psychological disorder with clowns surfaced. Therefore, there is a possibility that the development of coulrophobia, or the fear of clowns, may have been influenced by the negative representation of clowns in entertainment.

Methods

Sample

A total of 128 participants were recruited for this study through a combination of offline and online recruitment methods, including posters and platforms such as Prolific,

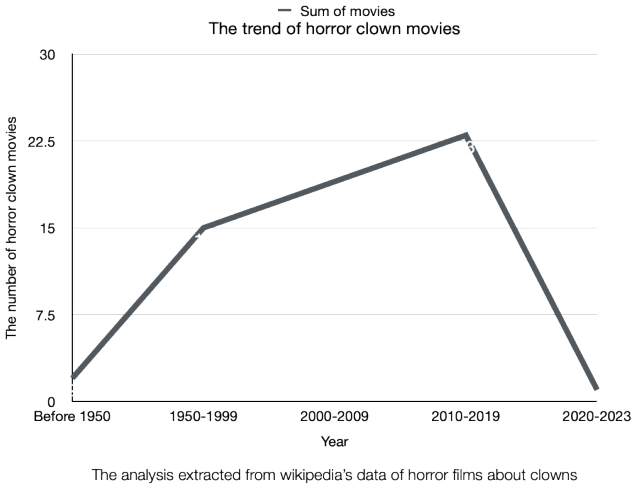

Figure 1: The trend of horror clown movies from 1929-2023s

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Aishiyan, and Poll-pool. However, 26 participants were excluded because of attendance check failed. Statistical analysis confirmed that 70 participants were female and 32 were male. All participants were self-identified as 'vulnerable' individuals who reported experiencing fear of clowns. Through a randomisation process, participants were assigned to either an experimental group (n=51) or a control group (n=51). Data was gathered from a diverse group of participants spanning multiple regions and subsequently organised into four distinct categories for the experimental group: Europe (n=35), Asia (n=13), Africa (n=1), and North America (n=2). The control group consisted of individuals from Europe (n=40), Africa (n=8), and North America (n=3).

Instrument

The symptoms of the coulrophobia evaluation instrument were a set of 18 items developed by Tyson et al. (2022), which adapted from the Fear of Spider Questionnaire [11] called the Fear of Clowns Questionnaire (FCQ). The psychometric data have indicated high levels of reliability for FCQ, of which Cronbach's alpha was 0.980, with a split-half reliability coefficient of 0.973 in their study. The study participants were requested to provide their level of agreement on a scale ranging from 1 to 7, as FCQ is a 7-point Likert scale questionnaire. Furthermore, demographic information such as the participant's name, age, gender, and nationality were analysed. Finally, to ascertain the level of attention being paid, participants are tasked with responding to filler questions regarding the subject matter of a clown content video clip and expressing their degree of concurrence by pressing 7-strongly agree in one query.

Design

Prior to commencing the study, all participants were provided with a concise outline of the experiment, informed of any potential risks involved, and advised that they retained the right to withdraw from the study at any stage. Once the participants had thoroughly read and comprehended the declaration, they were requested to provide their informed consent to participate. The study was structured using an independent measure design, whereby participants were randomly allocated to either the media exposure or control group. Before participating in the study, all individuals must complete the pre-test for symptoms of coulrophobia. In addition, those in the media exposure group will be requested to watch standardised short video clips containing clown characters online (Figure 2). The content and duration of the media exposure will be consistent across all participants. In contrast, those assigned to the control group will not receive any media exposure. Instead, they will be asked to engage in a neutral activity, such as observing a nature photograph for 10 seconds. Following the media exposure (or neutral activity), all participants will complete assessments of coulrophobia symptoms utilising validated evaluation tools (FCQ). After conducting the experiment, the experimenter conducted a thorough screening of all participants to ensure the accuracy and validity of the results. If a participant neglected to check their attendance, their corresponding data was automatically removed, resulting in disqualification from any rewards or incentives. The Statistical Package for the Social Sciences, commonly called SPSS 29.0, was used to analyse the data. The results of the pre-test and post-test assessments for coulrophobia symptoms were displayed in Tables 1 and 2, respectively, utilising descriptive statistics, including mean and standard deviation scores. In order to determine the effectiveness of the media exposure intervention in reducing coulrophobia symptoms, an independent samples t-test was conducted, shown in Table 3. This test also compared the experimental and control groups' mean scores of coulrophobia symptoms. In addition, factor analysis was performed to identify underlying factors and constructs that explain the correlation among the observed symptoms. Finally, the present study employed multiple regression analysis to examine the potential influence of age and gender on the manifestation of coulrophobia symptoms. The mean and standard deviation of the pre-test for the experimental and control group

Figure 2: Illustration of two representative scenarios of the scenes

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Results

Upon conducting an assessment of the FCQ survey, it was discovered that the majority of the surveyed items did demonstrate significant variations amongst the diverse groups examined. The independent samples t-test revealed a statistically significant difference in scores on every item ($p<0.001$) in the questionnaire between the two groups, those in the media exposure group. This indicates that the group exposed to media stimuli scored significantly differently on this item than the control group. The model summary showed that the regression model accounted for a substantial proportion of the variance in symptoms of coulrophobia ($R^2=.546$, adjusted $R^2=.966$). The ANOVA results demonstrated a significant regression model ($F=.89>2$, $df=1$, $p<0.001$), indicating that the group variable significantly predicted coulrophobia symptoms. The intercept term (Constant) is ($\beta=2.627$, $p<.001$), indicating the expected value of the Symptoms score when the exposure group is zero, which represents the media exposure group. This baseline level suggests the presence of symptoms in the media exposure group. The coefficient for the predictor variable Group is ($\beta=-1.436$, $p<.001$), indicating a statistically significant negative effect. This means that moving from the media exposure group to the control group is associated with a decrease of 1.436 points in the symptoms score. Hence, individuals in the control group, who were not exposed to the fearful stimuli, tend to exhibit lower levels of coulrophobia symptoms compared to those in the media exposure group. The standardised coefficient (Beta) for Group is ($\beta=-0.739$), implying that moving from the media exposure group to the control group leads to a decrease of 0.739 standard deviations in the symptoms score. This standardised coefficient allows for a better understanding of the relative impact of transitioning from media exposure to non-exposure on the symptoms. The negative correlation coefficient suggests that as the group assignment changes from the experimental group to the control group, there is a tendency for lower symptom scores to be reported. In other words, participants in the control group, who were not exposed to the specific stimuli or conditions, exhibited lower symptom scores compared to those in the experimental group. The statistical significance of the correlation ($p<0.001$) indicates that the observed association is unlikely to occur by chance.

Table 2: The mean and standard deviation of the post-test for the experimental and control group

	Experimental group		Control group	
	Mean	**SD**	**Mean**	**SD**
1. If I came across an image of a clown, I would turn my head away.	2.98	1.761	3.12	2.065
2. I am sometimes on the lookout for clowns.	1.73	1.15	1.92	1.354
3. If I saw a clown, I would worry it might harm me.	2.9	1.825	2.57	1.746
4. I think a lot about clowns.	1.65	0.976	1.59	0.938
5.I would be somewhat afraid to go to a place where I have seen a clown before.	2.29	1.847	2.04	1.496
6. I would do anything to try to avoid a clown.	2.53	1.793	2.61	1.767
7. I sometimes think about a clown trying to hurt me.	2.08	1.56	1.9	1.578
8. If I encountered a clown unexpectedly, this would cause me distress.	3.1	2.062	3.1	1.814
9. If I encountered a clown, it would take me a long time to get it out of my mind.	2.67	1.785	2.67	1.705
10. If I came across a clown, I would leave the room.	2.86	2.164	2.88	1.986
11.If I saw a clown, I would think it will try to chase me.	2.47	1.891	2.31	1.794
12. If I saw a clown, I would turn to someone else for comfort.	2.35	1.842	2.45	2.003
13. If I encountered a clown, I would have images of it trying to get me.	2.41	1.941	2.47	1.826
14. If I saw a clown, I would be afraid of it.	2.75	1.948	2.86	2
15. If I saw a clown, I would feel very panicky.	2.57	1.993	2.71	2.033
16. Clowns are one of my worst fears.	1.96	1.673	2.16	1.738
17. I would feel nervous if I saw a clown.	2.9	1.879	2.9	2.022
18. If I saw a clown, I would probably break out in a sweat and my heart would beat faster.	2.18	1.729	2.1	1.578

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Table 3: Independent samples t-test for the experimental and control group

		Levene's for equality of variance		T-test for equality of means		
Items in the FCQ		F	Sig.	t	df	P (2-tailed)
If I came across an image of a clown, I would turn my head away.	Equal Variance Assumed	7.934	0.006	5.361	100	<.001
	Equal Variance Not Assumed			5.361	85.241	<.001
I am sometimes on the lookout for clowns.	Equal Variance Assumed	7.749	0.006	7.092	100	<.001
	Equal Variance Not Assumed			7.092	95.112	<.001
If I saw a clown, I would worry it might harm me.	Equal Variance Assumed	15.461	<.001	4.566	100	<.001
	Equal Variance Not Assumed			4.566	83.672	<.001
I think a lot about clowns.	Equal Variance Assumed	37.193	<.001	8.695	100	<.001
	Equal Variance Not Assumed			8.695	74.077	<.001
I would be somewhat afraid to go to a place where I have seen a clown before.	Equal Variance Assumed	7.502	0.007	5.725	100	<.001
	Equal Variance Not Assumed			5.725	95.901	<.001
I would do anything to try to avoid a clown.	Equal Variance Assumed	13.206	<.001	6.497	100	<.001
	Equal Variance Not Assumed			6.497	78.721	<.001
I sometimes think about a clown trying to hurt me.	Equal Variance Assumed	19.437	<.001	6.18	100	<.001
	Equal Variance Not Assumed			6.18	74.346	<.001
If I encountered a clown unexpectedly, this would cause me distress.	Equal Variance Assumed	11.594	<.001	4.665	100	<.001
	Equal Variance Not Assumed			4.665	80.103	<.001
If I encountered a clown, it would take me a long time to get it out of my mind.	Equal Variance Assumed	10.502	0.002	4.338	100	<.001
	Equal Variance Not Assumed			4.338	82.691	<.001
If I came across a clown, I would leave the room.	Equal Variance Assumed	11.317	0.001	5.645	100	<.001
	Equal Variance Not Assumed			5.645	83.109	<.001
If I saw a clown, I would think it will try to chase me.	Equal Variance Assumed	19.196	<.001	5.563	100	<.001
	Equal Variance Not Assumed			5.563	85.708	<.001
If I saw a clown, I would turn to someone else for comfort.	Equal Variance Assumed	30.76	<.001	6.858	100	<.001
	Equal Variance Not Assumed			6.858	74.923	<.001
If I encountered a clown, I would have images of it trying to get me.	Equal Variance Assumed	16.42	<.001	2.002	100	<.001
	Equal Variance Not Assumed			2.002	83.087	<.001
If I saw a clown, I would be afraid of it.	Equal Variance Assumed	13.058	<.001	9.153	100	<.001
	Equal Variance Not Assumed			9.153	83.375	<.001
If I saw a clown, I would feel very panicky.	Equal Variance Assumed	11.299	0.001	7.218	100	<.001
	Equal Variance Not Assumed			7.218	87.385	<.001
Clowns are one of my worst fears.	Equal Variance Assumed	50.646	<.001	7.536	100	<.001
	Equal Variance Not Assumed			7.536	68.422	<.001
I would feel nervous if I saw a clown.	Equal Variance Assumed	9.267	0.003	7.825	100	<.001
	Equal Variance Not Assumed			7.825	84.765	<.001
If I saw a clown, I would probably break out in a sweat and my heart would beat faster.	Equal Variance Assumed	19.048	<.001	5.563	100	<.001
	Equal Variance Not Assumed			5.563	73.529	<.001

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Table 4: Linear regression analysis for group as the variable that affects the symptoms.

Constructs	Unstand. coeff.		Sta. coeff.	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.627	0.207		12.7	<.001
Group	-1.436	0.131	-0.739	-10.973	<.001

Table 5: Model Summary

R	R-sq	Adjt. R-sq	SE of the Estimate
0.739	0.546	0.9659	0.661

Table 6: ANOVA

Model		SS	df	MS	F	Sig.
1	Regression Residual Total	0.0185	1	98	0.8922	<0.001

Discussion

The present study aimed to investigate the impact of exposure to fearful stimuli on symptoms of coulrophobia, focusing on participants aged between 18-60 from around the world, with a relatively balanced gender distribution of male and female participants. The findings revealed significant associations and differences between the media exposure and control groups, providing valuable insights into the relationship between exposure and the severity of coulrophobia symptoms. The findings of this study provided compelling evidence regarding the influence of exposure to fearful stimuli on coulrophobia symptoms. The correlation analysis revealed a significant negative correlation between exposure to fearful stimuli and symptoms of coulrophobia, indicating that as the exposure to fearful stimuli increased, the severity of coulrophobia symptoms increased, which is shown in Figure 3. This finding suggests that exposure to such stimuli may potentially worsen coulrophobia symptoms in individuals. Further analyses using t-tests for individual items and overall symptom scores supported the correlation findings. In addition, the t-tests demonstrated significant differences between the media exposure group and the control group, indicating that individuals in the media exposure group exhibited higher coulrophobia symptoms compared to those in the control group, which are similar to those of the previous studies [12,13,14], and may apply to the conspecific animal [15].

The model summary, ANOVA, and regression coefficients provided additional insights into the relationship between exposure and coulrophobia symptoms. The model summary indicated that the inclusion of the exposure variable significantly contributed to the prediction of coulrophobia symptoms, as evidenced by the adjusted R^2 value. The ANOVA results revealed a significant regression model, further confirming the impact of exposure on the symptoms of coulrophobia. The regression coefficients indicated a negative standardised coefficient for the exposure variable, highlighting its role individual in the control group in decreasing coulrophobia symptoms. One of the strengths of this study is the inclusion of participants from diverse backgrounds and regions. By recruiting participants from around the world, the study enhances the external validity of the findings and increases the generalisability of the results to a broader population. The inclusion of participants from various cultural backgrounds and age ranges also adds to the diversity of the sample, allowing for a more comprehensive understanding of coulrophobia symptoms in different populations. A notable strength of the study is its balanced inclusion of both male and female participants. This deliberate approach mitigates potential gender biases and enhances the generalisability of the findings to both genders. Furthermore, this balanced representation offers a more precise portrayal of the population and bolsters the reliability of the study's conclusions. However, despite these strengths, there are certain limitations that should be acknowledged. Firstly, the study had a relatively small sample size, which may limit the generalisability of the findings. A larger sample size would provide more robust and representative results, increasing confidence in the conclusions drawn from the study. Future research should aim to recruit larger samples to validate the findings further. Another limitation is the reliance on self-report measures for assessing coulrophobia symptoms. Self-report measures are subject to individual biases and may not capture the full complexity of the phenomenon. Incorporating objective criteria, such as physiological indicators or behavioural observations, would provide a more comprehensive assessment of coulrophobia symptoms and enhance the validity of the study's findings. Additionally, the study primarily focused on media exposure as the source of fearful stimuli. While media exposure is a relevant aspect to consider, it is essential to recognise that real-life exposure to clowns and clown-related environments may have distinct effects on coulrophobia symptoms. Therefore, future studies could further explore the impact of direct interactions with clowns or exposure to clown-related environments to elucidate the relationship between exposure and coulrophobia symptoms.

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Conclusion

The present study has revealed that exposure to distressing stimuli, specifically through media, can impart a substantial influence on the severity of coulrophobia symptoms. Furthermore, the findings indicate an inverse correlation between exposure and symptoms, wherein the cohort exposed to media exhibited significantly more severe symptoms than the control group. These results highlight the potential aggravating consequences of fearful stimuli on coulrophobia and emphasise the need for further investigation into the underlying mechanisms of this phenomenon.

The study's comprehensive analysis, including correlation analysis, t-tests, model summary, ANOVA, and regression coefficients, strengthens the validity of the findings. These statistical analyses consistently demonstrate the influence of exposure on coulrophobia symptoms and support the argument that exposure to fearful stimuli plays a significant role in increasing the severity of coulrophobia.

Declaration

Ethics approval for this study was obtained from Nanjing University's Department of Psychology, School of Social and Behavioural Science (SSBS) before data collection commenced (reference number: NJUPSY202305002). The SSBS ensured that the research was conducted in compliance with ethical principles for human research, including informed consent, confidentiality, and respect for participants' privacy. Participants were informed of their right to withdraw from the study at any time and assured that their participation was voluntary. All data collected were kept confidential and were only accessible to the research team. The researchers involved in this study were trained in ethical research practices and adhered to the guidelines set forth by the SSBS to ensure that the study was conducted ethically and responsibly.

Data Availability

Due to the sensitive nature of the data and the need to safeguard the privacy of participants, the findings of this study are not available for public access. However, interested parties may request access to the data from the corresponding author in a reasonable manner. The data is securely stored at Nanjing University, ensuring its confidentiality and integrity.

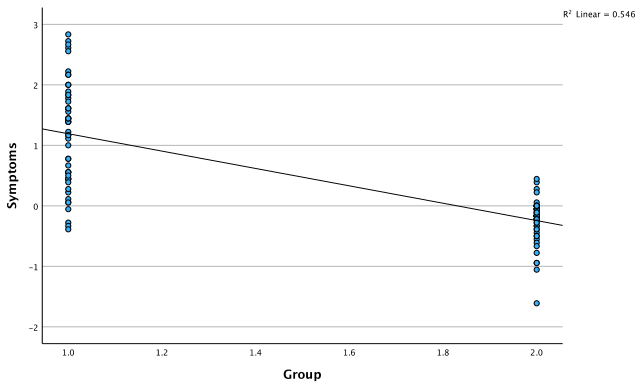

Figure 3: The correlation of group differences and symptoms of coulrophobia

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