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# Assessing the Paranoid Tendencies of Men and Women in Mauritius - A Comparative Study

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**Abstract:** ***The study was undertaken with the purpose of assessing and comparing the level of paranoid tendencies of men and women of Mauritius since it has been observed by the researchers that people have a high level of suspiciousness in everything they do and have difficulties developing trustworthy relationships at all levels. They have a strong tendency to attribute bad things that occurs to them to external cause including the notion that people want to harm them. The study was done on 602 respondents from Mauritius including 295 male and 307 female subjects of age 18 years and above. It was an ex post facto study where data was collected through a questionnaire and a random sampling method was used to determine the representative sample. Results showed that there were no significant differences between the level of suspiciousness of male and female subjects, however, females showed an inclination towards greater paranoid tendencies. A regression model using gender, age, education and socio-professional status was validated for the prediction of paranoid tendencies. Interestingly, individuals from the lower socio-professional status were less affected by paranoia as opposed to those from the higher status. The present findings have critically demonstrated the demographic effect of the Mauritian population with respect to paranoid tendencies, although the extent and progression of such attributes still require further investigation.***

**Keywords:** paranoid, suspiciousness, socio-professional factors, paranoid characteristics

## 1. Introduction

Paranoia, or suspiciousness is the second most frequently observed symptom of psychosis and a commonly explored subgroup of delusion. Paranoia can be interpreted as the assumption that the victim is or will be injured and that the so-called persecutor plans to harm them (Freeman and Garety, 2000). The person foresees danger from other individuals when the former projects him into the future (Corcoran, 2010). Paranoid tendencies apply to individuals who experience excessive paranoid thoughts, normally without valid reasons, and who have a strong certainty in the malignant intents of other people. David Laporte (2015) stated that the most prominent symptoms are excessive or unjustified suspicions. Minor paranoia feelings are prevalent (figure 1), but chronic paranoia can trigger considerable anxiety leading to a noticeable impact on social functioning (Kasper, 2015). Ultimately, the people who are on the end of the spectrum become persuaded of bad forces against them which is also referred to as persecutory delusions (Dieguez, 2018).


1. The hierarchy of paranoia

Source: Freeman et al., 2005

Similarly, paranoia progress into major mental illnesses such as delusional disorder and paranoid schizophrenia (Laporte, 2015). Freeman (2012) has illustrated that anxiety could contribute to an improbable paranoid experience. Paranoid signs are also frequently observed in other conditions, such as Alzheimer's or alcoholism, although they are not the vital or defining characteristics of any of them (Laporte, 2015). Paranoia's cognitive interpretation refers to thoughts which are attempts by individuals to justify their encounters (Maher, 1988).

### 1.1 Models of Paranoia

Numerous models attempt to enlighten the occurrence and persistence of paranoia. Recently, cognitive models of paranoia conceive paranoia and persecutory delusions as dangerous assumptions arising from potential or actual damage and heightened mental anguish (Freeman, et al, 2002). Behavioural models of paranoia argue that a lack of trust is a conditioned response which occurs from mechanisms such as strengthening of paranoid statements and modelling, for example, parental modelling of paranoid justifications (Tiegreen&Combs, 2017). However, this observation has pretty much gone unproven (Haynes, 1986). Kramer (1998) stated that cases resulting in higher levels of social self-awareness that is, self-awareness as a target of others, could lead to paranoia. All these models of paranoia indicate that paranoia can differ depending on the social environment and that paranoia is prevalent in personal and social circumstances (Bentall et al., 2001).

#### 1.1.1 Cognitive Aspect and Social Cognition

Paranoia has been extensively researched in this regard and has shown that there are several prevalent cognitive irregularities, even though they are distinct in severity, between schizophrenia and those healthy people with high impulsivity to delusion (Preti and Matteo, 2011). Trower and Chadwick (1995) argue that persecutory delusions can act as a defence and was labelled as ‘poor-me’ paranoia. A second form of paranoia was also proposed which is the ‘bad-me’ paranoia and the latter is believed to be much less prevalent. People with the second type of paranoia consider themselves as evil and see others as punishing them legitimately. As a consequence, they are considered to be much less frustrated than first-type of individuals with the poor-me paranoia. The work of Chadwick and Birchwood (1994) on opinions arbitrating responses to auditory hallucinations may also help to understand the emotional distress behind people suffering from delusions. Patients suffering from major depression and schizophrenia spectrum disorders adopt a pessimistic thinking style stemming from poor self-esteem and high levels of anxiety; closely related to persecutory beliefs (Bentall et al., 2009). This supports the notion of cognitive performance, i.e. the ability to comprehend other people's mental states and the aptitude to convey hypotheses on the basis of information exhibited, is linked to paranoid thinking.

Furthermore, recent research in paranoia has also progressed in the sphere of social cognition. According to Kinderman (2003), the self-concept is perhaps the most critical component of social cognition. Kihlstrom and Cantor (1984) and Markus and Wurf (1987) highlighted multiple possible explanations indicating that the self-concept assigns or guides the processing of information, plays a key role in influencing regulation and is involved in a substantial number of social cognitive or interpersonal processes.

#### 1.1.2 Psychodynamic Perspective and Neurobiology

Psychodynamic reasoning resides at the opposite end of the spectrum of explanatory psychopathology, which deems the content of paranoid delusions to be insignificant to what is interesting about them in its truest form (Kapfhammer, 2001). A well-known psychodynamic theory stated that paranoia was the result of repressed homosexual desires (Freud, 1911), but in terms of psychoanalytic thinking, Object Relations Theory (ORT) is far more essential to understand paranoid delusions. Limited scientific or experimental evidence has validated homosexual tendencies as a source of paranoia versus the well-established stream of anxiety. although theoretical work has maintained the notion of paranoia as an external manifestation of internal tension (Lee, 2017). Thus, from a psychodynamic perspective, individuals who are susceptible to paranoia are firmly believed to project risk into several forms of high stress situations to avoid facing their own core inappropriate emotions.

Many of the neurobiological delusion models express some of the psychological models’ concepts. Neural delusion theories that seek to explain how delusions arise from impaired brain function originate from overall psychosis accounts (Moutoussis et al., 2007). The current analysis shows that paranoia will occur when abnormal prediction bias in front striatal learning systems affect the amygdala, generating a sense of fear and hyper-vigilance. Therefore, in individuals with delusions such as hyper-vigilance and the sense of significance in meaningless or insignificant occurrences, paranoia seems to occur, since confusion and complexity are inevitably causing fear to the individuals (Startup and Startup, 2005; Whitson and Galinsky, 2008).

#### 1.1.3 Computational and Biological Models

PARRY, a computerized chatbot with an artificial intelligence to simulate a paranoid psychological process that is capable of engaging in interactive human conversations, is designed to experience thought processes which can easily be triggered by social interaction. PARRY identified subjects to put blames on as a negative effect and its paranoia stays at bay. For psychotherapists involved with individuals suffering from PPD, one intriguing implication of the chatbot was that it is capable of providing important and meaningful input; whether they can delay igniting shame until the negative effect function is complete, they can mimic the attitudes of the paranoid personality (Lee, 2017). Similarly, with regard to persecutory delusions, implies that the aversive learning models like the Conditioned Avoidance Response (CAR) task could provide effective understandings into the fundamental standard and abnormal processes (Moutoussis et al, 2007). The CAR model of paranoia shows that paranoidal thoughts are formed by the psychological escape attitude of externalizing the blame, and upheld by adapting avoidance behaviours like isolation. The model, however, gives a significant insight for rehabilitation and psychotherapy concerning the role of social seclusion in maintaining paranoid ideation

(Lee, 2017).

### 1.2 Factors Influencing Paranoid Thoughts

Paranoia is the outcome of a complicated interaction of several factors. Generally, each level of faith or suspicion rises or reduces in relation to environmental occurrences. These occurrences usually involve details such as how we are parented; the ongoing behaviours of everyone around; and factors that influence the brain, such as accidents, illnesses, or chemistry.

#### 1.2.1 Emotions, Drugs and Genetics

Suspicious thoughts are often triggered by traumatic experiences like stressful relationships, harassment and loneliness (Freeman &Gareta, 2006). Bone and Oldham (1994) showed that abuse is a common finding in the histories of paranoid patients; what might be perceived as persecution is sometimes rationalized by the parent and child as appropriate disciplining or caretaking. The traumatic experiences, thus, may not be the trigger of the paranoid ideation, but rather the result. Children who are mistreated by their parents sometimes become paranoid since they assume the same abusive behaviour from other individuals (Martin, 2004). These potential paranoid people avoid social interactions, which prohibit them from constructing other thoughts, but at the same time seem willing to accept others' opinions (Martin, 2004) without being overly suspicious. Furthermore, stress may occur against the image of past experiences that may have contributed to the individual's vulnerability, the latter perceiving others as potentially dangerous and demonizing their surroundings, consequentially leading to suspicious thoughts (Fowler et al, 2006).

Prior to the decision-making process, paranoid individuals may undergo high levels of emotional excitement when considering possibilities in a complex situation. In this case, a sharp emotional reaction to a considerable number of choices, the individual in question may feel threatened. The cognitive prejudices can somehow depend on genetic exposure (Iarocci et al., 2007) such as brain damage in the early phases of life (Preti&Miotto, 2005). Overuse of psychotogenic drugs, such as dopamine stimulants such as cocaine, amphetamine or marijuana, can precipitate suspicious thought in predisposed individuals (Miettunen et al., 2008). During adulthood, brain damage often contributes to delusions, brain abnormalities in the right hemisphere and bifrontal regions are often found to psychiatric cases with delusions (Devinsky, 2009). Some amygdala dysfunction involving the identification of fearful stimuli and triggered in rage or anger may lead to the cognitive biases that trigger suspicious thoughts when it is not appropriate (Reuter et al., 2009). Certain possible areas implicated in the excessive stimulation of paranoia heuristics are those in brain networks that promote empathy (Singer &Lamm, 2009).

#### 1.2.2 Stress and mental health

Individuals with existing mental illnesses such as anxiety, depression are more likely to experience paranoid thoughts or develop a heightened sensitivity to such occurrence; which emerges from negative thinking and worriedness. Hartley et al. (2013) investigated the links between depression and anxiety on the occurrence of psychotic signs, and deduced that there was a substantial connection between severity, effective condition, distress and subject of psychotic experiences such as paranoia. Factors such as low self-esteem and condition attribution to external factors act as defence mechanisms. There is evidence that anxiety is specifically associated with the onset of psychosis (Gracie et al., 2007), and is connected to positive psychotic signs in non-clinical units (Scott et al., 2007). Individuals with dysphoria, anxiety or depression are susceptible to positive psychosis symptoms. (Cella et al., 2008). Experimental tests of individuals with persecutory delusions showed that paranoia intensified when they encountered a 'busy street' and it is also partially influenced by anxiety and depression (Freeman et al., 2015). This indicates that people with paranoia have social anxiety, exhibit dependence, need the approval of others (Fornells-Ambrojo, 2007) or characterising others as conceivably dangerous. The ways depression and anxiety stimulate suspicious thought can be influenced by cognitive biases: a tendency to assign dangerous actions to others can also trigger paranoid thinking in distress (Lee, 2017).

#### 1.2.3 Media

People's knowledge about the modern world comes mainly from media and gradually from the Internet (Freeman & Freeman, 2008). The press, especially when it comes to depictions of traumatic events, can have a strikingly strong impact on the population. Many reports explored the effect of watching television on the reactions of people to the 9/11 attack (Freeman & Freeman, 2008). Four months after the attack, a poll of 2,000 people from New York showed that the more people watching the news, the higher their likelihood of showing symptoms of PTSD which initially resulted from paranoid thoughts. A further study revealed that PTSD was especially likely when audiences saw the incredibly troubling pictures of people dropping and falling from the Twin towers. These accounts may help to build a paranoid mindset in which a perpetrator or terrorist's likelihood of horrific death, is still out of all proportion to the reality of the threat. (Freeman & Freeman, 2008).

## 2. Methods and Procedures

**Aim**

To assess the level of Paranoid tendencies of men and womensubjects of Mauritius.

**Objectives**

1) To assess the level of paranoid tendencies of both males and female subjects of Mauritius.
2) Characterizing the paranoid episodes of subjects of Mauritius.
3) To compare the paranoid tendencies of male and female subjects of Mauritius.
4) To assess the relationship between socio-professional status and number of paranoid episodes.
5) To identify the causative factors of paranoid episodes across socio-professional characteristics.
6) To propose solutions to decrease the level of paranoid tendencies among subjects in Mauritius.

**Hypothesis 1**
H0: Paranoid tendencies of male subjects will not differ significantly from that of female subjects of Mauritius.
H1: Paranoid tendencies of male subjects will differ significantly from that of female subjects of Mauritius.

**Hypothesis 2**
H0: There will not be a significant difference between people belonging to low and upper socio- professional status with respect to the paranoid episodes
H1: There will be a significant difference between people belonging to low and upper socio-professional status with respect to the paranoid episodes

**Hypothesis 3**
H0: Age and education level as determinants of socio-professional status will not have a significant impact on the paranoid tendencies of the subjects.
H1: Age and education level as determinants of socio-professional status will have a significant impact on the paranoid tendencies of the subjects.

**Sample**
Sample comprised of 602 respondents of Mauritius including 295 male and 307 female subjects of age 18 years and above

**Research design and Tool used**
A quantitative descriptive design has been employed which logically includes survey method since they are more quantitative in nature, therefore questionnaire as a data-collection method was used.

## 3. Results, interpretation and General discussion

### 3.1 Characterizing surveyed sample

**Table 1:** Demographic profile of respondents

| **Gender** | n | % |
|---|---|---|
| Male | 295 | 49.10% |
| Female | 307 | 50.90% |
| **Age group** | | |
| 18 - 29 years | 146 | 24.30% |
| 30 - 39 years | 124 | 20.70% |
| 40 - 49 years | 124 | 20.60% |
| 50 - 59 years | 105 | 17.40% |
| 60 years and above | 103 | 17.00% |
| **Socio-Professional Category** | | |
| Directors, Professionals and Technicians | 78 | 12.90% |
| Office and Service workers | 89 | 14.80% |
| Manual workers | 161 | 26.80% |
| Inactive | 274 | 45.50% |
| **Education** | | |
| Maximum primary school | 124 | 20.60% |
| secondary school education (Part) | 138 | 22.80% |
| Secondary school education (completed) | 238 | 39.60% |
| Tertiary education | 102 | 17.00% |

An almost equal distribution of respondents was received when factoring gender as the demographic variable with a prominent age group ranging from 18-24 years old (24%). 46% of the respondents were not in an active profession, which leads to infer a status of unemployment or retirement for that segment. The highest proportion of working class was for manual workers with 27% of the respondents. All the participants for this study were educated with secondary level being the highest level for 63% of the individuals surveyed.

### 3.2 Frequency and nature of paranoid events

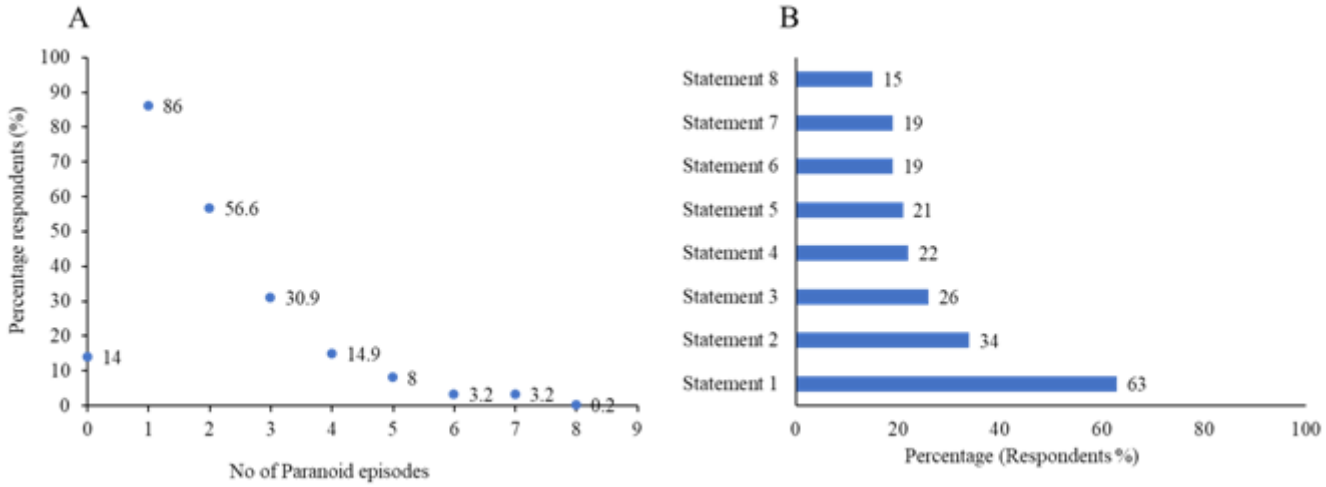


**Figure 1: (A)** number of paranoid events recorded; **(B)** the nature of the paranoid events based on a few broad statements given to isolate the source of their paranoia

The types of paranoid tendencies prevalent in Mauritius have been characterized mainly in terms of ***Statement 1***; fidelity towards sexual partner /spouse; ***Statement 2***: attacks on one's character or reputation; ***Statement 3***: trust to close ones with important information***;*** ***Statement 4***: reaction towards a person who has negative attitude; ***Statement 5***: doubts about loyalty or trust worthiness of friends or associates; ***Statement 6***: taking others people remarks as demeaning or threatening to one; ***Statement 7***: suspiciousness that others are attacking one's character or reputation; ***Statement 8***: suspiciousness that others are exploiting, planning to harm or deceive one.

According to the results a majority of the respondents have

experienced at least one paranoid episode (84%) in their lives, while 14% never had such an episode.

Extreme paranoid, i.e. with an aggregate of 8 episodes was recorded in only 0.2% of the respondents, which accompanied a decreasing trend in number of episodes characterizing the 'paranoid-positive' participants.

Social paranoia with focus on community and personal disturbances were the most common related events, such as marital instability emerging from doubted unfaithfulness accounting for 63% of those paranoid events while delusions about character slandering account for 34% of these episodes.

Concerns about social exploitation or deceitfulness were the least feared with only 15% respondents associating themselves with such circumstances. Hence, paranoid events originating from a marital sphere would also justify the heightened occurrence of a minimum of one paranoid episode.

Paranoia could be one of the psychological implications of socio-cultural transformation in Mauritius. High level of doubt concerning unfaithfulness could be attributed a period of rapid modernization that resulted into a dramatic socio-cultural, and economic changes, impacting the daily lives of Mauritian people. Women empowerment, individualism and high level of stress following modernisation have led to insecurities in couple relationships. There has been a high prevalence rate of crimes in couples over recent years in Mauritius mainly due to infidelity or at times just because of suspiciousness. People with paranoia often have a complex connection of paranoid thoughts and ideas. This can result in a disproportionate amount of time spent thinking which in turn can develop into paranoid disorders. This has an impact on the individual's feelings and their ability to communicate resulting in couple relationships problems. Some people with symptoms of paranoia can be fearful and seek to avoid others while others may express their fears and frustration through aggression and violence and still some may become a target for violence or exploitation themselves. However, there is a difference on how men and women express their paranoia according to a study done by Huggins 2017. He found that paranoid men developed such tendencies as "an experience related to external and physical threats, expressed through an unpredictable and aggressive manner; whilst paranoia in women was constructed as more normalised and based in social and intimate relationships, expressed in an open manner, and shared with others".

### 3.3 Relationship between socio-demographic factors and number of paranoid episodes

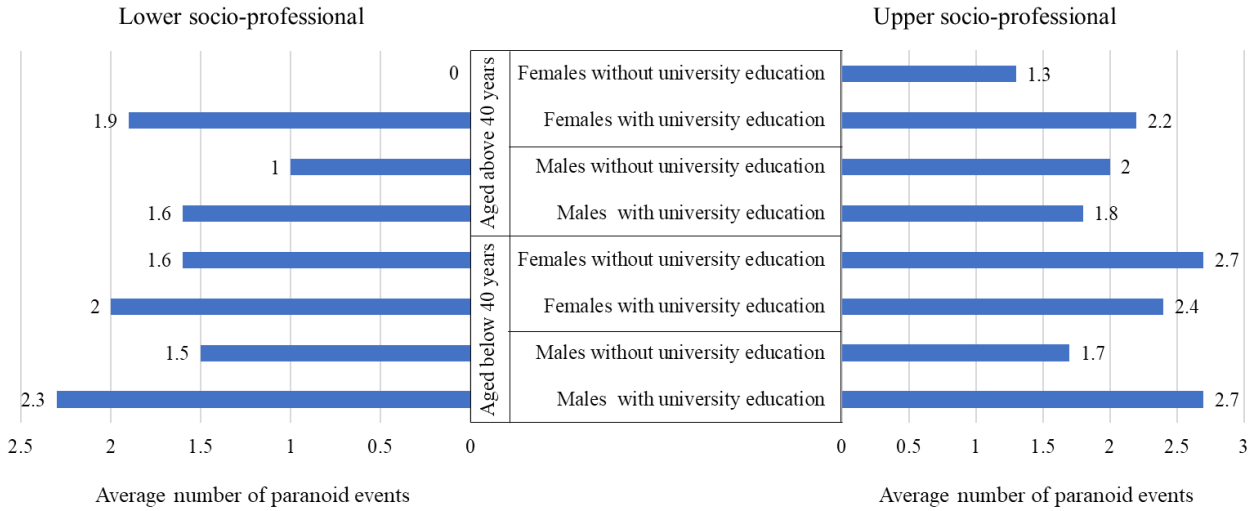


**Figure 2:** Impact of age and education level as determinants of socio-professional status on paranoid events

Data was segmented according to age group, demarcating individuals aged below or above 40 years old as well as level of education with tertiary level as prime threshold.

According to a study done by Freeman et al, in 2011 on 7,000 general population respondents, paranoia was found to be highest among younger people and it decreased with age. In another study done by Freeman et al in 2005, it was found that one third of a sample of 1,202 UK students experienced paranoid thoughts.

In a study done by Ellett, Lopes, and Chadwick, 2003 on a sample size of 324 university students out of which 153(47.2%) students aged between 18 and 49 had experienced paranoia (including a clear statement of planned intention to harm). It has also been found by McIntyre, Worsley, Corcoran, Harrison Woods, & Bentall, 2018, that students are more likely to experience paranoid experiences due to loneliness which can increase distress.

Within the low socio-professional segment, education appeared to play a pivotal role in the development of paranoid events given that respondents who were educated up to a tertiary level, whether male or female exhibited a higher mean of paranoid episodes across age groups. This is supported by the fact that males and females who had undergone university training below 40 years old experienced paranoid events at a frequency of 1.5 and 1.25 times higher than those with no tertiary education.

Within the same age group, males and females with tertiary education recorded a total of 121 paranoid episodes versus

those without education, the latter cumulating only 36 episodes in total (Supplementary Table…).

Respondents from an upper socio-professional segment showed a different pattern with variations observed between the two age groups in male participants. University education appeared to have a high impact on males in the younger age strata with a total of 81 paranoid events versus those aged 40 years and above with a total of 60 paranoid events.

A descriptive analysis of females aged 40 years and above revealed a higher mean of 2.2 paranoid episodes in females with education against those without, averaging at 1.3 episodes. This differed from the ones aged 40 years and below with a contrasting trend averaging at 2.7 versus 2.4 episodes for females without versus with tertiary education respectively.

The data presented was also supported with a Poisson regression model, testing the interactivity across gender, education, age and socio-professional variables on the number of paranoid episodes; and a two-way interaction between education and socio-professional on paranoid reactions was also tested. The regression model was validated using the Cameron and Trivedi's Test for Overdispersion, with a z-score = -0.032904, p-value = 0.5131; and rejection of the null model (df = 16, deviation = 41.894, p-value < 0.001) to confirm variability of paranoid episodes dependent on the socio-demographic factors.

### 3.4Attributing paranoid episodes across socio-demographic factors

**Table 2:** Causative factors across socio-demographic characteristics

| | | | Statement | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 |
| Educated at the tertiary level | < 40 years | Upper socio-professional | 19.3 | 34.6 | 27 | 23.6 | 23.1 | 16.7 | 46.5 | 74.2 |
| | > 40 years | | 12.1 | 17.3 | 15 | 17.1 | 6.4 | 21.5 | 28.7 | 72.1 |
| | < 40 years | Lower socio-professional | 15.4 | 17.8 | 16.6 | 19.3 | 24.9 | 21.2 | 40.6 | 69 |
| | > 40 years | | 11.8 | 14.8 | 25.2 | 17.5 | 11.1 | 17.2 | 27.4 | 53.7 |
| Not educated at the tertiary level | < 40 years | Upper socio-professional | 13.8 | 14.8 | 25.2 | 17.5 | 11.1 | 17.2 | 27.4 | 53.7 |
| | > 40 years | | 17.6 | 24.3 | 14.9 | 10.6 | 13.9 | 10.8 | 4.5 | 78.8 |
| | < 40 years | Lower socio-professional | 8.1 | 18.7 | 22.1 | 12.3 | 28.1 | 6 | 24.2 | 49.5 |
| | > 40 years | | 25.2 | 25.2 | 14.6 | 0 | 0 | 25.2 | 0 | 0 |

Although the regression model generated did provide constructive information about the independent variables affecting the emergence of paranoid behaviors, data presented in Table 2 was critical in providing the root causes of such discrepancies across age group and socio-professional strata. Individuals without a formal tertiary education from the lower socio-economic status aged 40 years and above were mostly concerned with community-based paranoid events such as 'suspecting harm from others' or 'others attacking their reputation', both accounting for 25.2% of attributions.

Furthermore, education within the upper and lower socio-professional segment seemed to favour 'marital infidelity' posing as the main causative agent for paranoia within a range of 54-74% respondents, irrespective of age group, confirming the interactive role of education and work status on such episodic paranoid responses.

## 4. Findings and Conclusion

1) Gender and age had an impact on the number of paranoid episodes.
2) There is no statistical evidence to suggest that the number of paranoiac reactions is different for males and females.
3) Educated females aged 40 years and above showed a higher mean of paranoid episodes than uneducated females and the ones aged 40 years and below.
4) Subjects who were educated up to a tertiary level, irrespective of gender showed a higher mean of paranoid episodes across age groups.
5) Paranoid episodes were dependent on the socio-demographic factors.
6) Individuals aged below 40 years and who belong to the upper socio-professional category but who have not studied at university level have the highest mean number of paranoiac reactions.
7) On the other hand, the average number of paranoiac reactions is higher for younger individuals (aged less than 40 years) than for older individuals (aged 40 years and above), irrespective of the level of education and the socio-professional status.
8) The researchers observed that individuals who belong to the lower socio-professional tend to have relatively fewer numbers of paranoiac reactions, compared to those who belong to the upper socio-professional category, irrespective of whether they have studied at university level or not.
9) The main cause for paranoia for educated respondents within both upper and lower socio-professional segment seemed to favour 'marital infidelity' irrespective of age group.
10) The number of paranoiac reactions also varies according to the education level and the socio-professional status of the respondent but the significance of the interaction term means that the effect of education changes according to the socio-professional status of the individual and vice-versa.

## 5. Conclusion

The research findings were conclusive in terms of lower socio-professional individuals having a generally lower average number of paranoid episodes, while an interplay

between gender, age, education and socio-professional category could affect the emergence of paranoid events.

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