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# A descriptive study of agoraphobic situations and correlates on panic disorder

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## Abstract

**Background:** We aimed to identify the distribution and effective factors of agoraphobic situations and how they relate to panic disorder. We included confirmed 61 patients with agoraphobia in Bozorgmehr Psychiatric Clinic of Tabriz. Multiple logistic regression was used to measure panic disorder, agoraphobia, and effective factors.

**Results:** The average age of participants was 37.26 (SD 10.9), including 68.85% female and 31.15% male. Out of those, around three-fourths, 45 (73.7%), had panic disorder or comorbidity at least by one psychiatric disorder. Among various types of agoraphobia situations, leaving 34.63% and being 32.63% home alone had the most occurrences. A trend was observed between the rising of agoraphobia situations and panic risk. The final analysis was found a significant relationship between being bathroom alone (OR = 1.3; CI 1.12–1.56), having more than one psychiatric disorder (AOR = 8.25; CI 1.12–27.17), and panic risk.

**Conclusions:** We found leaving home alone, being home alone, being in a crowd, and standing in line as the most common agoraphobic situations. There appears agoraphobia and panic disorders are poorly understood in primary mental health care systems. The screening and treating programs are needed for increasing the quality of life and early identification of these disorders.

**Keywords:** Agoraphobia; Descriptive study, Panic disorder, Tabriz

## Background

Agoraphobia refers to the fear of being in places or situations it is difficult or embarrassing to escape from when a panic attack occurs or being helpless in such situations that leads to avoiding the place or the dreadful situation, for example, crowds, big stores, bridges, tunnels, using the train, bus or plane, cinema, standing in line, and small enclosed spaces [1, 2].

It might be the most disabling phobia since it can significantly influence the person's social performance or career outside the home. Agoraphobia has a lifetime prevalence between 0.6 and 6% [3]. In a review article,

the 12-month rate of agoraphobia (AG) was variable between 0.4 and 3.1%. The overall prevalence estimated 1.3%, which was 0.6% and 1.5% in males and females, respectively [4]. It is characterized by severe fear or anxiety, and it is clear that they are triggered by being exposed to real situations or expecting to be in a wide range of situations.

Diagnosing the disorder requires at least having two signs in the five following situations: (1) using public transportation like the bus, car, train, ship, or plane; (2) being in open spaces like parking lots, big stores, or bridges; (3) being in enclosed spaces like shops, cinema, or theater halls; (4) standing in line or being in a crowd; and (5) leaving home alone. Fear or anxiety appears whenever the person is in a dreadful situation (C criteria). A genetic predisposition is supported by family aggregation. However, non-specific environmental experiences may also contribute to its prevalence. This

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disorder was underestimated due to wide and unclear diagnostic criteria and neglect by health care providers. Although the study by The US National Comorbidity Survey (NCS) suggested that only 5.26% of the people with agoraphobia reported that avoidance behavior has greatly impaired their lives [5], in the clinical samples, severe dysfunction is observed in various aspects of life. Disturbance in interpersonal relationships and marital life has been proven in people with agoraphobia and related panic disorder.

However, it is not clear whether these dysfunctions existed before the start of agoraphobia [6, 7]. Other problems of patients with agoraphobia and related panic disorder are medical expenses and occupational disturbance. Besides, agoraphobia with related panic disorder increases the use of non-psychiatric medical services and admission to the emergency department. Agoraphobia with/without panic disorder are subtypes of this disorder. Assessment of 26 patients indicated that 57% of the patients suffer from panic attacks, and they will be diagnosed with panic disorder in case of one or two symptoms being added [8]. In another longitudinal study on 562 patients with panic disorder and agoraphobia, it was indicated that only 6% are diagnosed with agoraphobia with/without panic disorder [9]. In a cohort study by Bienvenu et al., 14 people (34%) reported the fear of being in the crowd and standing in line; 10 people (34%) reported the fear of using the train, bus, plane, and car; 14 people (34%) reported the fear of crossing bridges; 11 people (27%) reported the fear of leaving home alone; and 11 people (27%) reported the fear of being home alone among their common fears [10]. As reported by the patients, the most common agoraphobic situation was the fear of being in a crowd and standing in line with a prevalence rate of 31.1%; however, about  $\frac{2}{3}$  of people with agoraphobia mentioned more than one agoraphobic situation, including fear of leaving home alone and using public transportation [11]. In children, being home alone is the most common agoraphobic situation; however, for adults, standing in line in a shop or being in open spaces are the most common dreadful situations. The cognitive elements governing children and adults are being lost and falling.

In the study by Hons-Ulrich et al., the prevalence of panic disorder with agoraphobia was 0.8%. And in a review article published in 2010 by Hons-Ulrich Wittchen et al., it was concluded that AG is an important clinical disorder that might be seen independent from panic disorder (PD) and panic attack (PA) in most cases. The ratio of women with AG without panic was higher than men. According to the available studies, the mean age of the prevalence of agoraphobia in PD, PA, and AG groups was about 21–13 years old, and the mean age of

the prevalence of AG was reported to be 25–29 years old [4, 12]. Avoiding situations with/ without panic disorder is not significantly different. Given the pervasive dysfunction caused by this disorder, understanding the prevalence and determinants of AG with and without panic is needed. Very few studies have focused on this disorder especially in developing countries. On the other hand, it seems there is no integrated program to identify and manage this debilitating disorder in many countries' health care systems and most of these patients are undetected, untreated in the private sector. Moreover, AG patients have poor access to health services in Iran's PHC system.

The purpose of the present study is to obtain a better understanding of the status of AG situations and the more effective factors that related them to panic disorder.

## Methods

### Study design and sampling

This descriptive study was conducted from April 2014 to July 2015 in Bozorgmehr Clinic of Tabriz city, Iran. The target population was all patients diagnosed with agoraphobia. The study population was all 61 agoraphobia patients diagnosed during the study period (sampling frame). A total of 61 samples (agoraphobic patients) were selected for the study from both females and males. The present study was conducted after being approved by the ethics committee, and informed consent was obtained from all patients before starting the study.

### Data collection

A valid structured interview was used by a trained psychiatrist for agoraphobia (with/without panic disorder) diagnosis according to DSM-IV diagnostic criteria for agoraphobia. The Schedule for Affective Disorders and Schizophrenia (SADS) scale was used to confirm the diagnosis of agoraphobia and comorbidities especially psychotic disorders in the participants. SADS was developed by Spritzer in 1978 [13], and it is organized as a semi-structured diagnostic interview. The validity and reliability of the questionnaire were approved in Iran [14, 15] and many studies [16, 17]. A total score on the SADS is measured according to the answers to the true/false questions that if answered positively, the questions related to each scale will continue, so in the absence of mental illness in addition to the demographic questions (28 questions), 15 key questions asked. Higher scores show greater disorders. Scores are classified into high, average, and low scorer [13]. The sensitivity level of this tool is over 75% for mood, anxiety, and psychotic disorders, epilepsy, mental retardation, and dementia, and it was about 45% for dissociative disorder [15].

Then, the trained psychiatrist determined the frequency and existence of each phobic situation in a specific clinical face-to-face and single sitting interview with all patients using the checklist designed for the frequency of phobic situations. In the interviews, agoraphobia situations were asked via an open question included what situations or places and or locations that you being feared or escape might be difficult or that help wouldn't be available if things go wrong in the last 12 months.

### Data analysis

The SPSS software (version 21, Chicago, IL, USA) was used for data analysis. Descriptive statistics and charts were applied for the frequency and distribution of AG among study participants. The Chi-square ( $\chi^2$ ) and t test were used for comparing qualitative and quantitative variables between panic disorder, respectively. Multiple logistic regressions are calculated for estimating crude and adjusted odds ratios (ORs) and 95% confidence interval (CIs), the association between panic disorder and agoraphobic situations and affecting factors. A significance level of 0.05 was considered in all tests.

### Results

A total of 61 agoraphobia patients participated in this study. More than two-thirds 68.85%, were female and the female-male ratio was reported 2:2. The mean age of the participants was 37.26 with a standard deviation

(SD) of 10.948. Regarding marital status, forty-five respondents were married (73.8%). The majority of respondents, 37 (60.65%), had an educational level of secondary school. More than half, 57.37% and 29.5%, of agoraphobia patients were housewives and government employees, respectively. Almost 82% of participants have not reported any physical illness history. Furthermore, marital status, occupation, educational level, and having other phobias were significantly associated with gender types and agoraphobia risk (Table 1).

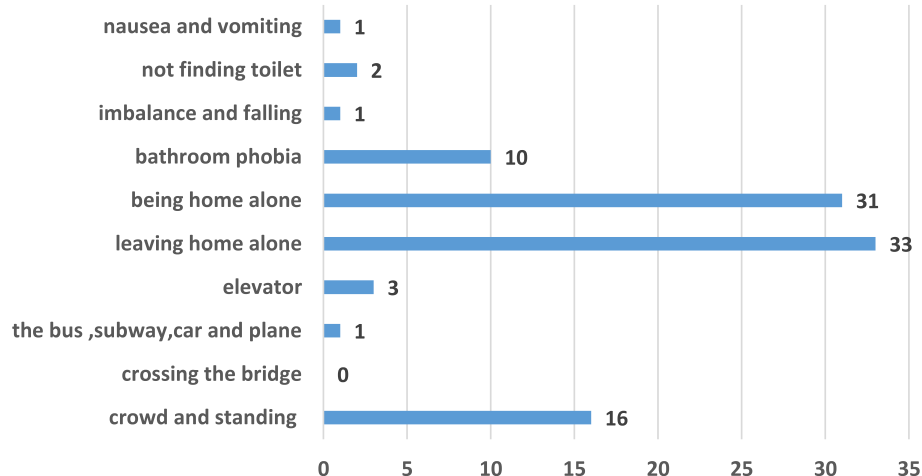
Figure 1 shows the frequency of agoraphobic situations among participants. Leaving home alone, 33, and being home alone, 31, had the maximum numbers of agoraphobic situations.

Table 2 indicates the association between panic disorder and the demographic characteristics of respondents. A statistically significant relation was found between panic disorder and marital status ( $P = 0.015$ ) and having more than one psychiatric disorder ( $P = 0.002$ ). Furthermore, a relationship was observed between panic disorder and having more than one agoraphobic situation, but this association was not significant ( $P = 0.163$ ).

Table 3 demonstrates the number of agoraphobic situations and their association with panic disorder in the study participants. We found a trend association between raising the number of agoraphobic situations and the risk of panic disorder but this trend was not statistically significant.

**Table 1** Selected socio-demographic characteristics of participants with agoraphobia

| Variables         |                     | Female (N = 42) | Male (N = 19) | Total (N = 61) | P value |
|-------------------|---------------------|-----------------|---------------|----------------|---------|
| Age groups        | < 30                | 11              | 6             | 17 (27.86)     | 0.664   |
|                   | 30<                 | 31              | 13            | 44 (72.13)     |         |
| Mean $\pm$ SD     | 37.26 $\pm$ 10.94   |                 |               |                |         |
| Marital status    | Married             | 35              | 10            | 45 (73.77)     | 0.014   |
|                   | Single              | 7               | 9             | 26 (26.23)     |         |
| Occupation        | Housewife           | 35              | 0             | 35 (57.37)     | 0.001   |
|                   | Self-employee       | 3               | 15            | 18 (29.50)     |         |
|                   | Government-employee | 4               | 4             | 8 (13.12)      |         |
| Educational level | Primary school      | 7               | 0             | 7 (11.47)      | 0.005   |
|                   | Secondary school    | 28              | 9             | 37 (60.65)     |         |
|                   | Academic            | 8               | 10            | 18 (29.5)      |         |
| Resident          | Urban               | 40              | 19            | 59 (96.70)     | 0.217   |
|                   | Rural               | 2               | 0             | 2 (3.3)        |         |
| Smoking           | Yes                 | 0               | 1             | 1 (1.65)       | 0.124   |
|                   | No                  | 42              | 18            | 60 (98.35)     |         |
| Having phobia     | Yes                 | 39              | 12            | 51 (83.6)      | 0.004   |
|                   | No                  | 3               | 7             | 10 (16.4)      |         |
| Physical illness  | Yes                 | 6               | 5             | 11 (18.03)     | 0.258   |
|                   | No                  | 36              | 14            | 50 (81.97)     |         |



**Fig. 1** Frequency of agoraphobia situations among participants

In a multiple logistic regression analysis, among all agoraphobic situations, being bathroom alone (OR = 1.32; 95% CI 1.12–1.56) and having more than one psychiatric disorder (AOR = 8.25; 95% CI 1.12–27.17) were significantly associated with panic disorder (Table 4).

Regarding the distribution of psychiatric disorders among participants with agoraphobia, the maximum

number had panic disorder 42.67% and also comorbidity of panic with other disorders 17.33%. Likewise, mood disorder 22.67%, anxiety 10.67%, and other disorders included major depressive disorder and BMD 6.67% were reported in agoraphobic patients (Fig. 2).

**Table 2** Association between demographic characteristics and panic disorder

| Variables                           |                     | Panic               |                        | P value |
|-------------------------------------|---------------------|---------------------|------------------------|---------|
|                                     |                     | With panic (N = 45) | Without panic (N = 16) |         |
| Gender                              | Female              | 33                  | 9                      | 0.205   |
|                                     | Male                | 12                  | 7                      |         |
| Age groups                          | < 30                | 35                  | 9                      | 0.108   |
|                                     | > 30                | 10                  | 7                      |         |
| Marital status                      | Married             | 37                  | 8                      | 0.015   |
|                                     | Single              | 8                   | 8                      |         |
| Occupation                          | Household           | 27                  | 8                      | 0.674   |
|                                     | Government-employee | 5                   | 3                      |         |
|                                     | Self-employee       | 13                  | 5                      |         |
| Educational level                   | Primary school      | 7                   | 0                      | 0.143   |
|                                     | Secondary school    | 26                  | 10                     |         |
|                                     | Academic            | 12                  | 6                      |         |
| Any physical illness                | Yes                 | 7                   | 4                      | 0.411   |
|                                     | No                  | 38                  | 12                     |         |
| More than one agoraphobia situation | Yes                 | 26                  | 6                      | 0.163   |
|                                     | No                  | 19                  | 10                     |         |
| More than one psychiatric disorder  | Yes                 | 1                   | 14                     | 0.002   |
|                                     | No                  | 16                  | 31                     |         |
| Physical illness                    | Yes                 | 8                   | 3                      | 0.931   |
|                                     | No                  | 37                  | 13                     |         |

**Table 3** Numbers of agoraphobia situations and its association with panic disorder in the study participants

| Agoraphobia numbers | Panic |    | OR (95% CI)       | P value |
|---------------------|-------|----|-------------------|---------|
|                     | Yes   | No |                   |         |
| 1                   | 19    | 10 | 1                 | 1       |
| 2                   | 21    | 5  | 2.21 (0.84–7.63)  | 0.110   |
| ≤ 3                 | 5     | 1  | 2.73 (0.76–25.71) | 0.305   |

## Discussion

The present study was conducted to investigate various types of agoraphobic situations in patients with and without panic disorder. Here, the highest frequency of agoraphobic situations was related to leaving home alone (34.73%) and being home alone (32.63%). In the study by Bienvenu et al. in 1920 subjects, the rate of leaving home alone and being home alone were both 27%, which were lower than the reported rate in the present study. In the present study, the prevalence of fear of being in a crowd and standing in line (17%), fear of using the bus, subway, or car (1.05%) were less than the reported rate in the above study (34% and 24%), respectively. In the current study, none of the patients reported their fear of crossing bridges as an agoraphobic situation; while, in the study

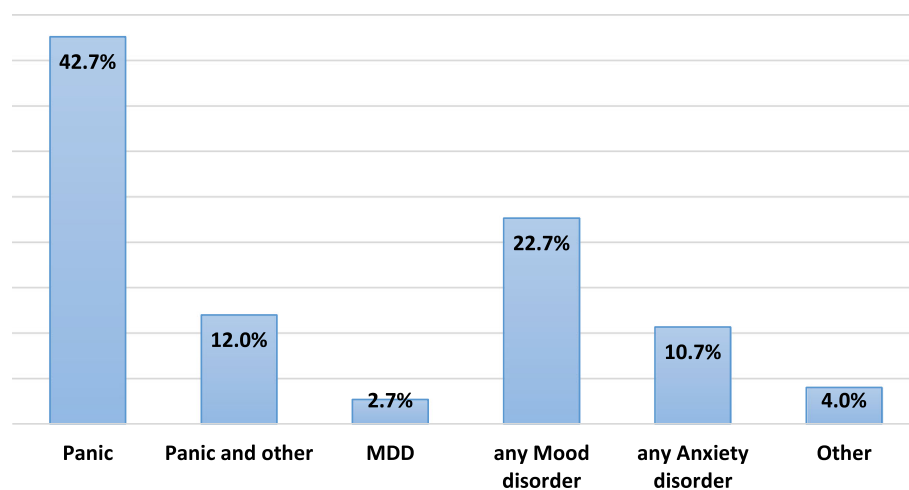
by Bienvenu, the fear of crossing bridges was reported by 34% of the patients. In the abovementioned study, bathroom phobia, elevator phobia, fear of not finding a toilet, imbalance, and falling, and nausea and emetophobia were not investigated as agoraphobic situations [10]. However, in our study, 10.53% of patients' bathroom phobia, 3.15% elevator phobia, 2.1% the fear of not finding a toilet, the fear of imbalance and falling, and the fear of nausea in the public and eremophobia were reported each 1.05%.

In the study by Wittchen in 1998, the fear of being in a crowd and standing in line was reported 31%. However, in our study, the fear of being in a crowd and standing in line was 26%, which was a little lower than the study by Wittchen. Moreover, in this study, the majority of the patients ( $\frac{2}{3}$ ) mentioned leaving home alone and using public transportation as their agoraphobic situation [12] while in our study, these situations were mentioned as agoraphobic by 34.73% of the patients, which was less than  $\frac{2}{3}$ . In the study by Wittchen, being home alone was not investigated, while it was reported by 32.63% of patients in our study [12, 18].

**Table 4** Measure of association between various types of agoraphobia situations and panic disorder by multiple logistic regression

| Agoraphobia situations                |     |  | Panic        |             | Crude OR (95% CI) | Adjusted OR (95% CI) |
|---------------------------------------|-----|--|--------------|-------------|-------------------|----------------------|
|                                       |     |  | Yes (N = 45) | NO (N = 16) |                   |                      |
| Bathroom*                             | Yes |  | 10           | 0           | 1.32 (1.12–1.56)  | 6.15 (0.75–57.08)    |
|                                       | No  |  | 35           | 16          |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.035             | 0.112                |
| Being home alone*                     | Yes |  | 24           | 5           | 1.27 (0.61–2.07)  | 1.85 (0.42–5.62)     |
|                                       | No  |  | 21           | 11          |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.125             | 0.470                |
| Leaving home alone                    | Yes |  | 22           | 10          | 1.2 (0.61–1.97)   | 1.40 (0.38–4.98)     |
|                                       | No  |  | 22           | 6           |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.391             | 0.669                |
| Elevator                              | Yes |  | 1            | 2           | 1.40 (0.85–1.13)  | 0.85 (0.62–11.58)    |
|                                       | No  |  | 44           | 14          |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.102             | 0.390                |
| Being in a crowd and standing in line | Yes |  | 10           | 5           | 1.02 (0.38–2.75)  | 1.32 (0.30–6.03)     |
|                                       | No  |  | 35           | 11          |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.471             | 0.717                |
| Having phobia                         | Yes |  | 39           | 12          | 2.16 (0.53–8.97)  | 1.51 (0.31–7.52)     |
|                                       | No  |  | 6            | 4           |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.279             | 0.567                |
| More than one psychiatric disorder    | Yes |  | 1            | 14          | 1.46 (1.20–3.76)  | 8.25 (1.12–27.17)    |
|                                       | No  |  | 16           | 31          |                   |                      |
| <b>P value</b>                        |     |  |              |             | 0.002             | 0.035                |

\*Times when they are alone at home



**Fig. 2** Prevalence rate of psychiatric disorders among agoraphobia patients

In the diagnostic criteria of DSM-IV, being home alone was not mentioned as an agoraphobic situation [3]. However, in other sources being alone at home is considered an agoraphobic situation, we added this situation to our assessment checklist as well [19].

Therefore, in the present study, 34.73% of patients reported the fear of being home alone due to the fear of having no escape and being helpless in case of an emergency. The differences could be due to the cultural and social differences of the society under study and the statistical population of the mentioned studies. In addition, considering that 50% of our patients were homemakers, this difference is explainable. Moreover, phobic situations are poorly understood all around the world.

In the present study, 28% of participants reported no history of panic disorder or panic attacks. However, in the study by Wittchen in 2008, it was indicated that AG exists as an anxiety disorder independent from PD and most patients have not experienced panic attacks [20].

On the other hand, some researches revealed that almost 50% of AG cases have experienced PA and PD symptoms [10]. It was 28% in our study, which was less than the above-mentioned study.

In the present study, multiple logistic regression analysis indicated that bathroom phobia and having more than one psychiatric comorbid disorder have increased the risk of panic disorder, 1.32 and 6.25 times, respectively. Moreover, a trend was found between the rising of agoraphobic situations and panic attacks, but it was not statistically significant. Limited studies focus on the relationship between agoraphobia and panic attacks [21]. Hayward and et al. were found that negative affect is a risk factor for panic attacks and depressive disorders [21]. Likewise, our results are in agreement with Peter et al.'s study [22]. The same findings have been reported in the study by Ronald et al. They found that the major burden of panic disorder is

caused by agoraphobic situations [23]. In the present study, the majority of agoraphobic patients were female, with a female-male ratio of 2.2.

In a review study by Godwin et al. among studies conducted in Europe, the prevalence rate of agoraphobia in females was 2–3 times that of males, which is in agreement with the present study (2.2) [4]. In the study by Wittchen in 2008 and 2006, high prevalence of AG was observed in females, and AG was rarely observed in males, which comply with the present study [2].

### Limitations

This study had several limitations. First, the sample size of the study was too small and some of CIs were wide, because these patients poorly referred and recorded and also poorly understood by the health system, despite h agoraphobia impose and affect the quality of life intensively. Another concern was the descriptive design of this study. It does not allow causal inferences. We minimized these problems by using multiple logistic regression to estimate crude and adjusted odds ratios (ORs) and 95% CIs.

### Conclusion

In the present study, leaving home alone, being home alone, being in a crowd, and standing in line were identified as the most common agoraphobic situations. Other agoraphobic situations such as crossing bridges and using an elevator were of less importance. Therefore, it is essential to consider leaving home alone by the psychiatrists as an important condition in patients with agoraphobia, although it is not included in the agoraphobic situations found in DSM-IV TR.

Patients with agoraphobia and panic disorder are deserved more attention in the health care system. The screening and treatment programs are needed for increasing the quality of life and early identification of these disorders.

## Abbreviations

AG: Agoraphobia; PD: Panic disorder

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## Availability of data materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Authors' contributions

HB and AF: concept and design. HA and MF: data collection and interpretation of the data. SA and HD: performing of the study and writing of the draft. All authors read and approved the study.

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## Declarations

### Competing interest

The authors declare that there is no conflict of interest and financial disclosure.

### Ethics approval and consent to participate

All procedures performed in this study were in accordance with the ethical standards of the ethical committee of Tabriz University of Medical Sciences with the code of IR.TBZMED.REC.1393.249. This article was derived from the MD thesis. Written informed consent was obtained from all participants before the study. Participants' names and secret information were entered into the electronic system merely as a code and kept strictly confidential.

### Consent for publication

Not applicable

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