

## Epidemiology of Non-Addicted Schizophrenic Patients: Evidence from Pakistan

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### Abstract

Whether key variances exist in the frequency of schizophrenia about addiction or non-addiction is not simple. More work has been done on comorbid schizophrenia as compared to exclusive work on non-addicted schizophrenia persons due to strict inclusion criteria. In the present study, we enrolled only non-addicted schizophrenia persons and evaluated factors like Gender difference, low education status, non-biological beliefs, and old age to clear the picture of schizophrenia in Pakistan. This cross-sectional study conducted on 111 participants included 81 patients and 30 controls. The non-addicted schizophrenia persons have participated in the present study were from the Punjab Institute of Mental Health (PIMH) Lahore and Blessings Drug Rehabilitation Centre Lahore and were fulfilling diagnostic and statistical manual (DSM-IV) operational criteria. Data was collected via a questionnaire and analyzed on SPSS 16. The mean age of non-addicted schizophrenia persons was 35.42 years in the range of 18-65 years. Epidemiological results showed that in the Pakistani population, there is no gender difference seen in the non-addicted schizophrenia persons. Hospital-visiting non-addicted schizophrenia persons have more biological beliefs (45.9 %) for their illness, and superstitious beliefs were at second. Among the subtypes, the Catatonic subtype is more prominent and associated with low marriage outcomes. Paranoid patients have strong superstitious beliefs as they possess more hallucinations and delusions and report alien influence as the main reason of their illness. Gender differences, low education status, non-biological beliefs and old age may not be

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considered prominent factors in the incidence of schizophrenia in the Pakistani population.

**Keywords:** Mental disorder, Paranoid, Catatonic, Paranoid, Paranoid, Catatonic, Hallucinations and delusions, Pakistani population

## 1 Introduction

Schizophrenia is a multifaceted psychiatric disorder that is characterized by a breakdown of thought processes and by insufficient emotive responses, with a lifetime prevalence of 0.3 – 0.6% (Patel et al., [2014](#)). The symptoms of disease includes hallucinations, psychomotor poverty, delusions, anxiety and depression (Caetano et al., [2008](#); Tropea et al., [2016](#)). The types of schizophrenia include paranoid, Hallucinations, and more often delusions, residual, catatonic, disorganized and may have moods and emotions that are not appropriate to the situation, hallucinations are not usually present and undifferentiated (Venables & O’connor, [1959](#)). Pakistan, a country renowned for its heterogeneity and diverse gene pool. Studies on schizophrenia in Pakistan is mainly confined itself to social aspects of the dilemma. Our group is mainly working in hierarchy of objectives to cover all angles of schizophrenia, i.e. epidemiology, addiction, incidence, genetics, molecular profiles and bioinformatics. In present study we tried to cover the all sides of non-addicted schizophrenia persons.

## 2 Methods

This medical study followed standard procedures to get data from the respondents 1-5. A total of 111 participants, 30 controls and 81 non-addicted schizophrenia persons were included in this study. Written informed consent form was signed from all participants for data collection. The non-addicted schizophrenia persons for the present study were from the Punjab Institute of Mental Health (PIMH) Lahore and Blessings Drug Rehabilitation Centre Lahore and we followed the research protocols set in the literature (Singh et al., [2020](#)). Data was collected in one year from Jan 2013 to Dec 2013. Inclusion criteria was the participation of only those non-addicted schizophrenia patients who were admitted or attending in Outdoor, irrespective of sex and age and fulfilling diagnostic and statistical manual (DSM-IV) operational criteria of the study.

Study instruments include i) General Questionnaire ii) Questionnaire for confirmation of schizophrenia type according to DSM-IV (diagnostic and statistical manual of mental disorders) (Müller et al., [2021](#)). The questionnaire used contains several questions aimed at gathering information about the demographical characteristics described by the literature (Manzano et al., [1992](#)). See Table 1 that explains illness history, family history and the beliefs about their illness of each patient.

**Table 1:** Demographic features of participants.

| Features                     | Category             | Controls<br>(n=30) | Schizophrenic<br>(n=81) |
|------------------------------|----------------------|--------------------|-------------------------|
| <b>Age</b>                   | 17-30                | 24                 | 29                      |
|                              | 31-44                | 2                  | 35                      |
|                              | >45                  | 4                  | 17                      |
| <b>Gender</b>                | Male                 | 15                 | 39                      |
|                              | Female               | 15                 | 42                      |
| <b>Religion</b>              | Islam                | 30                 | 78                      |
|                              | Christian            | 0                  | 3                       |
| <b>Religious Inclination</b> | Not at all religious | 3                  | 11                      |
|                              | Somewhat religious   | 9                  | 53                      |
|                              | Moderately religious | 17                 | 15                      |
|                              | Very religious       | 1                  | 2                       |
| <b>Marital Status</b>        | Married              | 12                 | 24                      |
|                              | Unmarried            | 17                 | 45                      |
|                              | Widower              | 0                  | 4                       |
|                              | Divorced             | 1                  | 8                       |
| <b>Education</b>             | None                 | 0                  | 17                      |
|                              | Can read             | 0                  | 2                       |
|                              | Primary              | 0                  | 11                      |
|                              | Secondary            | 2                  | 10                      |
|                              | Metric               | 6                  | 20                      |
|                              | Intermediate         | 8                  | 11                      |
|                              | Graduate             | 14                 | 10                      |
| <b>Family System</b>         | Nuclear              | 12                 | 30                      |
|                              | Joint                | 18                 | 50                      |
|                              | Extended             | 0                  | 1                       |
|                              | Unemployed           | 9                  | 17                      |
| <b>Employment Status</b>     | Employed             | 13                 | 14                      |
|                              | Housewife            | 0                  | 15                      |
|                              | Student              | 8                  | 13                      |
|                              | Other                | 0                  | 22                      |
| <b>Ethnicity</b>             | Punjabi              | 23                 | 46                      |
|                              | Balochi              | 0                  | 24                      |
|                              | Urdu speaking        | 7                  | 6                       |
|                              | Other                | 0                  | 5                       |

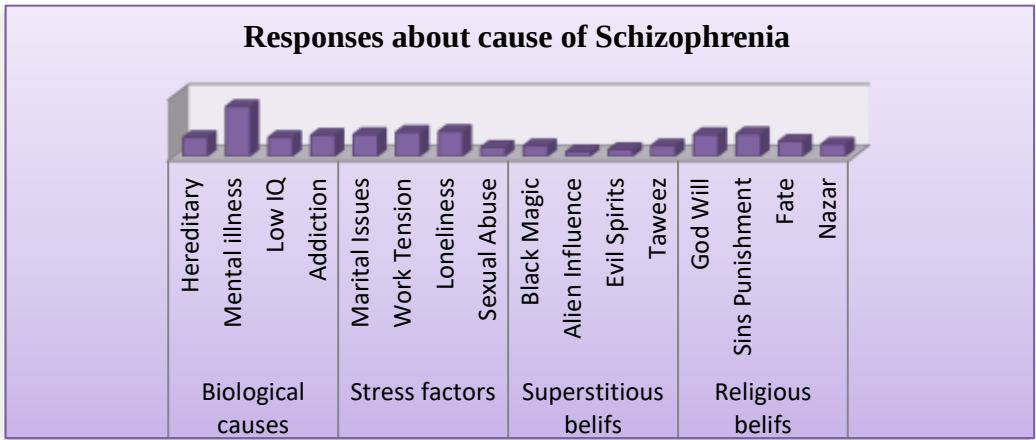
To complete this information, the relatives of the non-addicted schizophrenia patients were also interviewed, and the medical records of previous admissions were surveyed.

### 3 Results

The obtained data was analyzed by using Microsoft excel and Statistical Package for the Social Sciences (SPSS) v 16. This study includes 111 subjects 30 controls (27%) and 81 non-addicted schizophrenia persons as experimental group (73%), 54 men (49%), 57 women (51%). The Demographic features of the participants provided results 46-53. The analysis outcomes are given in Table 1. The mean age of non-addicted schizophrenia persons in present study was 35.42 years in the range of 18-65 years. Most of them were educated and belong to joint families (Sharifzadeh et al., 2022). Subjects fall in four main subtypes of schizophrenia according to their prominent symptoms are shown in Table 2. Following are different angles which show the status of non-addicted schizophrenia in Pakistan (Chen et al., 2022).

### 3.1 Causes of schizophrenia

Questionnaire based interviews were conducted to investigate beliefs about the cause of schizophrenia, which is in line with the research protocols. Majority of hospital visiting patients



**Figure 1:** Responses about the cause of schizophrenia illness.

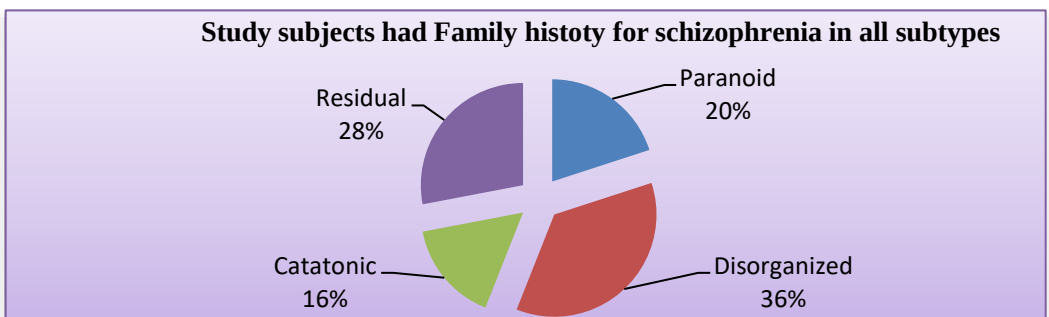
recognize their illness as biological disorder. They told more than one reason for their illness; their views fall into four categories. 45.9 % responses were about biological factors, 32.7% told various stress factors which is more seen in male patients as unemployment (39.5%) or work tension, 29.3 % respond on religious beliefs 13.2% study population has superstitious beliefs (Chmielowiec et al., 2022). The detailed responses for these questions are given in Table 2. And categorical comparison between these factors is given in Figure 1. Paranoid patients have strong superstitious beliefs as they possess hallucinations and delusions (Hu et al., 2018). Only paranoid patients reported alien influence as the main reason of their illness (Gelenberg, 1976).

### 3.2 Religious beliefs

Study population show moderate religious inclination, significance of moderate religious behavior was found  $P=0.04$ . It clearly shows that there is lack of extreme religious views as assumed (Dabirzadeh et al., n.d.). In response to the question asking the participants for the cause of illness 29.3 % responded on various religious beliefs. Only 2.5 % patients showed strong religious beliefs.

### 3.3 Family History

Non-addicted schizophrenia in present study was found associated with family history. 31% of all the schizophrenia persons reported that they had genetic predisposition for this disorder (Nazari et al., 2022).



**Figure 2:** Family history among subtypes of schizophrenia

Among these, inherited family history has been found in persons of all subtypes of schizophrenia (Markiewicz et al., 2020). 20% of Paranoid, 16% of Catatonic, 36% of Disorganized, and 28% of Residual schizophrenic persons had family history of psychological complaint (Figure 2).

**Table 2:** Beliefs about Schizophrenia

| Factors                      | Responses |      |    |      |
|------------------------------|-----------|------|----|------|
|                              | Yes       | %    | No | %    |
| <b>Biological causes</b>     |           |      |    |      |
| Mental Illness               | 66        | 81.5 | 15 | 18.5 |
| Addiction                    | 28        | 34.6 | 53 | 65.4 |
| Hereditary                   | 25        | 30.9 | 56 | 69.1 |
| Low IQ                       | 30        | 37   | 51 | 63   |
| <b>Stress factors</b>        |           |      |    |      |
| Marital issues               | 29        | 35.8 | 52 | 64.2 |
| Work tension                 | 32        | 39.5 | 49 | 60.5 |
| Loneliness                   | 33        | 40.7 | 48 | 59.3 |
| Sexual Abuse                 | 12        | 14.8 | 69 | 85.2 |
| <b>Superstitious Beliefs</b> |           |      |    |      |
| Alien influence              | 6         | 7.4  | 75 | 92.6 |
| Evil Spirits influence       | 9         | 11.1 | 72 | 88.9 |
| Black Magic                  | 14        | 17.3 | 67 | 82.7 |
| Taweez                       | 14        | 17.3 | 67 | 82.7 |
| <b>Religious Beliefs</b>     |           |      |    |      |
| Fate                         | 20        | 24.7 | 61 | 75.3 |
| Punishment for Sins          | 30        | 37   | 51 | 63   |
| Nazzar                       | 16        | 19.8 | 65 | 80.2 |
| Allah`s Wish                 | 29        | 35.8 | 52 | 64.2 |

### 3.4 Gender difference

Epidemiology surveys from random samples population by questionnaire or interview does not show much difference between males and females in the overall prevalence of mental disorder (Hesaruiyeh et al., 2022).

This study did not find any gender difference in non-addicted schizophrenia in Pakistani population. Both male and female are vulnerable for the disorder and no significant statistical difference was found (Pearson Chi-square = 2.028,  $p = 0.565$ ).

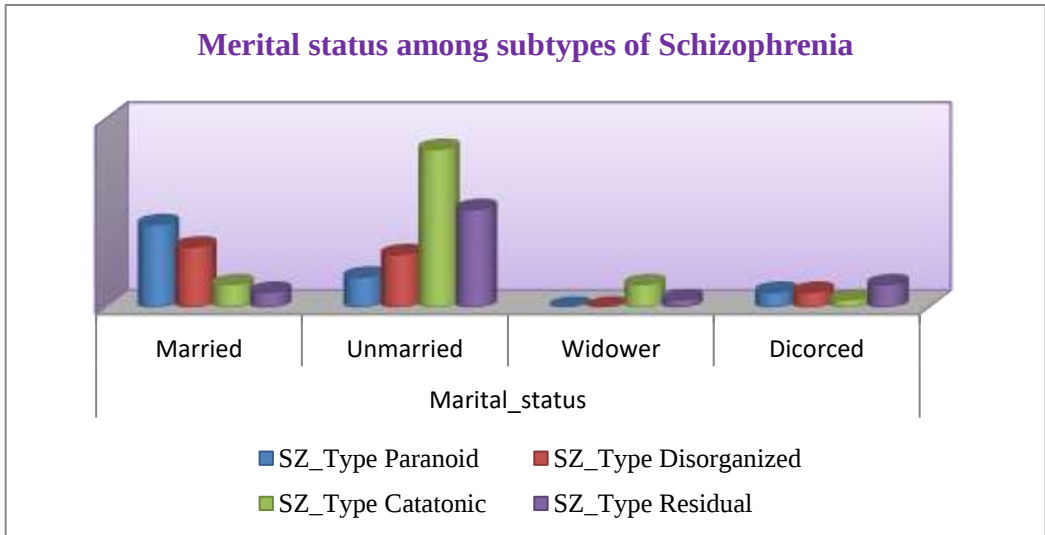
**Table 3:** Subtypes of Schizophrenia in study population

| <b>Schizophrenia subtypes in study population</b> |               |             |
|---------------------------------------------------|---------------|-------------|
|                                                   | Frequency (N) | Percent (%) |
| <b>Paranoid</b>                                   | 17            | 21          |
| <b>Disorganized</b>                               | 17            | 21          |
| <b>Catatonic</b>                                  | 28            | 34.6        |
| <b>Residual</b>                                   | 19            | 23.5        |
| <b>Total</b>                                      | 81            | 100         |

### 3.5 Marital status in Schizophrenia

Marriage is a social process that requires person`s health for it to be successful but with mental

disorder such as schizophrenia the rate of marriage is low. Low marital rate in non-addicted schizophrenia has been observed in this study, 70.4% of the study subjects were unmarried, widowed or divorced (Vaganova et al., [2022](#)). Among the subtypes, most of the catatonic schizophrenia patients (75%) were unmarried (Pearson chi-square  $p = 0.02$ ) (Figure 3), comparatively paranoid patients were associated with a good marriage outcome, separation and divorced seemed to be less common.



**Figure 3:** Marital statuses among subtypes of Schizophrenia

#### 4 Discussions

Key variances exist in the frequency of schizophrenia in relation to addiction or non-addiction. More work has been done on comorbid schizophrenia as compared to exclusive work on non-addicted schizophrenia persons due to strict inclusion criteria. Gender difference, low education status, non-biological beliefs and old age are considered as prominent factors in the incidence of schizophrenia. In present study we enrolled only non-addicted schizophrenia persons and evaluated different angles to clear the picture of schizophrenia in Pakistan (Caponnetto et al., [2021](#)).

There are four major subtypes of schizophrenia, paranoid, disorganized, catatonic and residual, each classified by their most prominent symptoms. Broadly divided in paranoid and non-paranoid subtypes, among these the paranoid schizophrenia is found to be more common subtype. Within non-paranoid schizophrenia, catatonic, and hebephrenic schizophrenia may also prove to be distinct entities. The available evidence for differentiating the incidence of subtypes of typical schizophrenia is inconclusive. Present study subjects fall in all four main subtypes of schizophrenia, 34.6% of non-addicted schizophrenia persons were catatonic.

There are many factors playing role for the schizophrenic illness; Biological, environmental and other social stress factors (Brüne, [2005](#)). The reported epidemiological surveys do not show much difference between male and females in the overall prevalence of schizophrenia. Similarly, epidemiological findings of the present study did not find any gender difference, both male and female are vulnerable for the disorder ( $P = 0.565$ ). Research findings from the world also support it. A high-quality prevalence study from Finland also confirmed that there is no sex difference in lifetime prevalence of schizophrenia (Uhlhaas & Silverstein, [2005](#)).

Recognition of mental illness is important for treatment-seeking behavior as mental health treatment is influenced by the knowledge and beliefs of people about the causation of illness. It helps people for recognition, management or prevention. A study reported that schizophrenia persons who had been previously admitted to hospital, showed 24% religious beliefs (Larsen, 2001). It has also been observed that people have non biomedical beliefs for their illness (Dixon et al., 1990). A study from Pakistan (Karachi) also reported that there are more non biological beliefs in Pakistani population (Bengston, 2006). In comparison, with the said studies the present study, subjects showed significant biological beliefs (45.9%). This may be due to the awareness of people about the disorder and the contribution of society in this regard specially the efforts of Pakistani mental health improving literacy programs in the concerned hospitals.

Reported work suggests that both the incidence and the prevalence of schizophrenia are higher in developing countries (Dixon et al., 1990; Kendler et al., 1994). To confirm it, in present study the reported work on epidemiology of schizophrenia from the SAARC countries (an organization of developing nations includes Pakistan, India, Sri-lanka, Bangladesh, Nepal, Bhutan and Afghanistan) has been reviewed and it was concluded that prevalence of schizophrenia is higher in these countries (Dixon et al., 1990). Mean value was calculated from the data reported by WHO, the rate of the disability-adjusted life year (DALY) due to schizophrenia was 271.12 per 100,000 inhabitants in SAARC countries. It had been verified by Nuevo et al that developing countries showed similar number of incidence (Kendler et al., 1994).

**Table 4:** Prevalence of schizophrenia in SAARC countries

| Country     |                                                                                     | Prevalence % | DALY Number per<br>100,000 |
|-------------|-------------------------------------------------------------------------------------|--------------|----------------------------|
| Pakistan    |    | 1.12%        | 266.348                    |
| India       |   | 0.40%        | 268.903                    |
| Sri lanka   |  | 5-6%         | 312.278                    |
| Bangladesh  |  | 0.76%        | 265.704                    |
| Nepal       |  | 2.54%        | 265.396                    |
| Bhutan      |  | 19% of 2846  | 265.396                    |
| Afghanistan |  | 0.46%        | 253.778                    |

Further research is in progress by our group to see the other angles e.g. Schizophrenia and drug addiction in Pakistan etc.

## 5 References

- Patel, K. R., Cherian, J., Gohil, K., & Atkinson, D. (2014). Schizophrenia: overview and treatment options. *Pharmacy and Therapeutics*, 39(9), 638.
- Tropea, D., Molinos, I., Petit, E., Bellini, S., Nagakura, I., O'Tuathaigh, C., Schorova, L., Mitchell, K. J., Waddington, J., & Sur, M. (2016). *Disrupted in schizophrenia 1 (DISC1) L100P mutants have impaired activity-dependent plasticity in vivo and in vitro.* <https://doi.org/10.1038/tp.2015.206>

- Caetano, R., Ramisetty-Mikler, S., Wallisch, L. S., McGrath, C., & Spence, R. T. (2008). Acculturation, drinking, and alcohol abuse and dependence among Hispanics in the Texas–Mexico border. *Alcoholism: Clinical and Experimental Research*, 32(2), 314–321. <https://doi.org/10.1111/j.1530-0277.2007.00576.x>
- Venables, P. H., & O’connor, N. (1959). A short scale for rating paranoid schizophrenia. *Journal of Mental Science*, 105(440), 815–818. <https://doi.org/10.1192/bjp.105.440.815>
- Singh, F., Shu, I.-W., Granholm, E., & Pineda, J. A. (2020). Revisiting the potential of EEG neurofeedback for patients with schizophrenia. In *Schizophrenia bulletin* (Vol. 46, Issue 4, pp. 741–742). Oxford University Press US. <https://doi.org/10.1093/schbul/sbaa033>
- Manzano, J. M., Pereira, Y., Valderrama, M. L., Llorca, G., & Ledesma, A. (1992). [Aggressiveness and residual schizophrenia]. *Actas luso-espanolas de neurologia, psiquiatria y ciencias afines*, 20(4), 183–188.
- Hu, Y., Fang, Z., Yang, Y., Rohlsen-Neal, D., Cheng, F., & Wang, J. (2018). Analyzing the genes related to nicotine addiction or schizophrenia via a pathway and network based approach. *Scientific Reports*, 8(1), 2894. <https://doi.org/10.1038/s41598-018-21297-x>
- Gelenberg, A. (1976). The catatonic syndrome. *The Lancet*, 307(7973), 1339–1341. [https://doi.org/10.1016/S0140-6736\(76\)92669-6](https://doi.org/10.1016/S0140-6736(76)92669-6)
- Brüne, M. (2005). “Theory of mind” in schizophrenia: a review of the literature. *Schizophrenia Bulletin*, 31(1), 21–42. <https://doi.org/10.1093/schbul/sbi002>
- Uhlhaas, P. J., & Silverstein, S. M. (2005). Perceptual organization in schizophrenia spectrum disorders: empirical research and theoretical implications. *Psychological Bulletin*, 131(4), 618. <https://doi.org/10.1037/0033-2909.131.4.618>
- Larsen, D. (2001). South Park’s Solar Anus, or, Rebelais Returns. *Theory, Culture and Society*, 18(4). <https://doi.org/10.1177/02632760122051887>
- Bengston, M. (2006). Types of schizophrenia. *Psych Central*.
- Dixon, L., Haas, G., Weiden, P., Sweeney, J., & Frances, A. (1990). Acute effects of drug abuse in schizophrenic patients: clinical observations and patients’ self-reports. *Schizophrenia Bulletin*, 16(1), 69–79. <https://doi.org/10.1093/schbul/16.1.69>
- Kendler, K. S., McGuire, M., Gruenberg, A. M., & Walsh, D. (1994). Outcome and family study of the subtypes of schizophrenia in the west of Ireland. *The American Journal of Psychiatry*. [10.1176/ajp.151.6.849](https://doi.org/10.1176/ajp.151.6.849)
- Caponnetto, P., Casu, M., Amato, M., Cocuzza, D., Galofaro, V., La Morella, A., Paladino, S., Pulino, K., Raia, N., Recupero, F., Resina, C., Russo, S., Terranova, L. M., Tiralongo, J., & Vella, M. C. (2021). The Effects of Physical Exercise on Mental Health: From Cognitive Improvements to Risk of Addiction. *International Journal of Environmental Research and Public Health*, 18(24), Article 24. <https://doi.org/10.3390/ijerph182413384>
- Chen, Y., Li, M., Guo, F., & Wang, X. (2022). The effect of short-form video addiction on users’ attention. *Behaviour & Information Technology*, 0(0), 1–18. <https://doi.org/10.1080/0144929X.2022.2151512>
- Chmielowiec, J., Chmielowiec, K., Masiak, J., Śmiarowska, M., Strońska-Pluta, A., Dziedziejko, V., & Grzywacz, A. (2022). Association between Polymorphism rs1799732 of DRD2 Dopamine Receptor Gene and Personality Traits among Cannabis Dependency. *International Journal of Environmental Research and Public Health*, 19(17), Article 17. <https://doi.org/10.3390/ijerph191710915>
- Dabirzadeh, M., Yusefnia, H., Azizi, H., Raeghi, S., & Mirahmadi, H. (n.d.). *Comparison of nested PCR and ELISA techniques in diagnosis of toxoplasmosis infection in thalassemia patients by targeting the RE gene*. [10.17420/ap6803.450](https://doi.org/10.17420/ap6803.450)
- Hesaruiyeh, F. A., Rajabi, S., Motamed-Jahromi, M., Sarhadi, M., Bell, M. L., Khaksefidi, R., Sarhadi, S., Mohammadi, L., Dua, K., Mohammadpour, A., & Martelletti, P. (2022). A Pilot Study on the Association of Lead, 8-Hydroxyguanine, and Malondialdehyde Levels in Opium Addicts’ Blood Serum with Illicit Drug Use and Non-Addict Persons.

- International Journal of Environmental Research and Public Health*, 19(15), Article 15. <https://doi.org/10.3390/ijerph19159110>
- Markiewicz, I., Pilszyk, A., & Kudlak, G. (2020). Psychological factors of aggressive behaviour in patients of forensic psychiatry wards with the diagnosis of schizophrenia. *International Journal of Law and Psychiatry*, 72, 101612. <https://doi.org/10.1016/j.ijlp.2020.101612>
- Müller, C. P., Mühle, C., Kornhuber, J., & Lenz, B. (2021). Sex-Dependent Alcohol Instrumentalization Goals in Non-Addicted Alcohol Consumers versus Patients with Alcohol Use Disorder: Longitudinal Change and Outcome Prediction. *Alcohol: Clinical and Experimental Research*, 45(3), 577–586. <https://doi.org/10.1111/acer.14550>
- Nazari, S., Pourmand, S. M., Makki, S. M., Brand, S., & Vouseoghi, N. (2022). Potential biomarkers of addiction identified by real-time PCR in human peripheral blood lymphocytes: A narrative review. *Biomarkers in Medicine*, 16(9), 739–758. <https://doi.org/10.2217/bmm-2021-0291>
- Sharifzadeh, M., Rezanezhad, H., Solhjoo, K., Kargar Jahromi, Z., Shadmand, E., Shahabi, S., & Taghipour, A. (2022). Sero-molecular survey on *Toxoplasma gondii* infection among drug addicted and non-addicted individuals: A case-control study. *BMC Infectious Diseases*, 22(1), 19. <https://doi.org/10.1186/s12879-021-06979-8>
- Vaganova, A. N., Katolikova, N. V., Murtazina, R. Z., Kuvarzin, S. R., & Gainetdinov, R. R. (2022). Public Transcriptomic Data Meta-Analysis Demonstrates TAAR6 Expression in the Mental Disorder-Related Brain Areas in Human and Mouse Brain. *Biomolecules*, 12(9), Article 9. <https://doi.org/10.3390/biom12091259>