


The influence of Internet economy on consumer psychology in the post-epidemic era



Authors:

Junjing Zhao¹ Qi Li¹ 

Affiliations:

¹School of Economics and Finance, Xi'an Jiaotong University, Xi'an, China

Corresponding author:

Junjing Zhao,
zhao_eurasia@163.com

Dates:

Received: 08 Apr. 2023

Accepted: 14 June 2023

Published: 24 Aug. 2023

Retracted: 22 Aug. 2024

How to cite this article:

Zhao, J. & Li, Q., 2023, 'The influence of Internet economy on consumer psychology in the post-epidemic era', *HTS Teologiese Studies/Theological Studies* 79(4), a8839. <https://doi.org/10.4102/hts.v79i4.8839>

DOI of retraction notice:

<https://doi.org/10.4102/hts.v80i1.10046>

Copyright:

© 2023. The Authors.
Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

Introduction

The article aims to argue that the pandemic caused by COVID-19 strengthened religious faith. This objective is argued from the perspective of advanced economies studies. In the post epidemic era people's lifestyle and shopping habits have undergone tremendous changes due to the development of the Internet economy. Prior to the COVID-19 pandemic, research pointed towards an alleviating effect of Internet usage for religious purposes. This study explores the impact of Internet economy on consumers' psychology and behavior in the post epidemic era, and analyses the factors that affect consumers' purchase intention. The research has certain guiding significance for the development of Internet economy, the relief of residents' psychological pressure and the solution of psychological problems in the post epidemic era. Consumers in the Liaoning province were interviewed by means of questionnaires through group chat links and web advertisements. Consumption information and data were gathered from 15 March 2020 to 15 March 2021. After collecting the questionnaires, 500 effective questionnaires were selected. Questionnaire data were analysed by self-rating anxiety scale (SAS), and the influencing factors of consumers' purchasing psychology were judged by self-rating depression scale (SDS). The overall psychological status of consumers was evaluated by SAS-90. The software SPSS® 18.0 was used to analyse the data collected from the questionnaire. The corresponding strategies for the development of Internet economy are proposed according to the analysis results. The results of data analysis show that appropriate Internet economic consumption can alleviate the negative emotions and psychological pressure of consumers due to long-term home isolation.

Contribution: This study demonstrates that appropriate Internet economic consumption can alleviate the negative emotions and psychological pressure of consumers due to long-term home isolation. The research outcome can be utilised by scholars in the field of the psychology of religion, sociology of religion and pastoral care focusing on trauma caused by the consequences of the COVID-19 pandemic.

Keywords: post-epidemic era; Internet economy; consumer psychology; purchase intention; religious faith.

COVID-19 is a large-scale epidemic disease sweeping the world. It not only has a great impact on the economy of various countries but has also changed people's lifestyle and living habits, and has brought great pressure on the management for prevention of public health safety (Camerini et al. 2021). In addition, public sentiment is also the focus of all management departments. During the epidemic period, the public will often have negative emotions such as fear, anxiety and tension. These negative emotions arise from the public's fear and worry about the potential risk of the epidemic in daily life. In some specific cases, such excessive worry will impact on public order, cause certain social chaos and is not conducive to the construction of a harmonious society (Esen et al. 2021). The study explored the impact of COVID-19 on public psychology from the perspective of psychology. The COVID-19 epidemic is characterised by sudden transmissibility, causing certain stress to individuals and breaking the stability of the public's internal and external environment, such as home isolation and suspected cases, which will bring certain psychological stress reactions to people (Ardeshirrouhanifard et al. 2021). In addition, the large-scale dissemination of information such as holiday extension, home office, travel restriction, city and community blockade will cause the public to have fear and anxiety, and generate some negative emotions such as anger, urgency and tension, and even lead to

Note: Special Collection: Culture and Psychology Education, sub-edited by Mahdi Esmailzadeh (Scientific Research Publishing House, Iran), Aghel Ali (University of Babol, Iran), Mohammad E. Hokmabadi (Islamic Azad University, Iran).

Read online:



Scan this QR code with your smart phone or mobile device to read online.

various psychological diseases (Kapur et al. 2020). Relevant studies have shown that during the epidemic period, the prevalence of anxiety and depression increased significantly when compared with the past (Thomas et al. 2020).

The main impact of COVID-19 on public psychology is as follows. The COVID-19 epidemic will cause some people to have excessive anxiety. As there is no effective specific drug for COVID-19 and the novel coronavirus is highly contagious, many people have intense fear and anxiety about COVID-19 (Kribakaran et al. 2019). At present, the relevant information about the COVID-19 epidemic is open and transparent. The public's attention is highly focused on the relevant information about the epidemic. The information about the epidemic in any place will receive wide attention from netizens, which can reflect the public's anxiety to a certain extent (Kolosowska et al. 2019). The epidemic has a certain negative impact on the national market economy, affecting all walks of life, causing economic weakness and decline. The economic recession will also lead to the decline of employment rate. For people who have housing loans and car loans, their psychological pressures will increase. Their worries about the future economy will continue to affect their psychological state, leading to excessive anxiety (Wongpakaran et al. 2019). Excessive anxiety will cause problems in human body functions and lead to decreased immunity, while physical discomfort will aggravate anxiety and irritability and result in a vicious circle (Alipour 2020); In addition to excessive anxiety, individuals also have hypochondriac psychology during the epidemic. The incubation period of COVID-19 is long, generally 14 days. During this period, the health of individuals varies between dangerous and normal. During this period, residents will be very anxious, waiting for an answer. Therefore, they often have compulsive Internet search behaviour in order to obtain information. However, after obtaining the information, the individual will have doubts about the accuracy of the information and will therefore continue to search in order to verify the accuracy of the information (Watabe, Ito & 2020). The root of all these behaviours is individual's uncertainty and hypochondriac psychology. This emotional experience of the individuals is accompanied by anxiety and makes the individual sensitive, suspicious and hesitant. In addition, when a confirmed case occurs in an area, people will instinctively be defensive as well as have a sense of panic psychology and fear that they will also be infected. This kind of defensive psychology will make people's spirit tense all the time and eventually result in anxiety. In addition, because of the increasing number of confirmed cases and the continuous blockade in various places, some people suffer from depression, fear or numbness, which is harmful to their body and mind (Duffy et al. 2020).

Since the outbreak of COVID-19, we have entered a post-epidemic era. In this special period, people's lifestyles and shopping habits have undergone tremendous changes. As a result, the frequency of offline activities has been greatly reduced, the frequency of online consumption has become

higher, and even become the main consumption mode of people. The Internet economy has also developed rapidly. Psychological research shows that shopping behaviour will stimulate people's psychology to a certain extent. Therefore, the development of the Internet economy may have a certain positive impact on the public's psychology in the post-epidemic era. The study explored the impact of the Internet economy on consumers' psychology and behaviour in the post-epidemic era through questionnaires and analysed the influencing factors of consumers' purchase intention. The purpose of this study is to develop the network economy, relieve the psychological pressure of consumers and solve the psychological problems in the post-epidemic era.

Subjects and methods

Study setting

The outbreak of COVID-19 has seriously affected people's daily life, and people's lives and shopping styles have also undergone tremendous changes. In this context, the rapid development of the Internet economy has made great contributions to people's consumption, shopping and entertainment. There are four main impacts of COVID-19 on consumers. Firstly, the frequency of consumers' going out has been greatly reduced and even the situation of staying indoors for several days or more has occurred from time to time. During the epidemic period, the living range of consumers was mainly around their places of residence. According to statistics, during the epidemic period, most of the reasons for going out were to buy vegetables and daily necessities, and the number of express deliveries and takeaways was significantly reduced. Secondly, consumers' consumption desire is reduced and their consumption psychology is not strong. During the epidemic isolation period, consumers' consumption was more rational, and their willingness to buy clothing, accessories, pet products and household appliances decreased significantly. Thirdly, consumer spending on entertainment has decreased. Because of the epidemic, Internet cafes, KTVs, bars and other entertainment places have been greatly affected, and consumers' consumption willingness and consumption quantity in these entertainment places have significantly decreased. Finally, the online shopping demand of consumers increased: the offline traffic decreased sharply during the epidemic period and e-commerce became the main mode of consumer consumption. In order to reduce the exposure risk, consumers no longer choose to visit physical stores with large traffic, but choose online shopping to purchase necessities. Therefore, it is very necessary to analyse the psychology of consumers and explore the psychological impact of the Internet economy on the public in the post-epidemic era.

Design

In the context of the epidemic, people's shopping methods have changed dramatically. The research on the effect and mechanism of the Internet economy on consumer psychology under the epidemic situation is conducive to economic

growth and the physical and mental health of the public. Consumers were invited to fill in the questionnaire through group chat links and website advertisements. After collecting the questionnaires, 500 effective questionnaires were selected. The age group in the questionnaires varied between 20 and 40 years old, with half of them being male and half being female. The items in the questionnaire include the psychological impact of the Internet economy on consumers and the influencing factors of consumers' purchasing psychology. The software SPSS® 18.0 is used to analyse the data collected from the questionnaire and the corresponding strategies for the development of Internet economy are proposed according to the analysis results. The questionnaire includes some psychological scales such as self-rating anxiety scale (SAS) and symptom Checklist-90 (SCL-90) to evaluate the psychological state of the respondents.

Results

In the 500 questionnaires, 30 people were randomly selected from the consumers with high, medium and low Internet consumption frequency, respectively, to compare the psychological status of the consumers with three Internet consumption frequencies. The criteria for judging the frequency of online consumption are: if the number of online consumptions is equal to or less than 10 times per year, the consumption frequency is low; if the number of online consumption is 11–30 times a year, the consumption frequency is medium; if the number of online consumptions is more than 30 times per year, the consumption frequency is high. The results of data analysis show that consumers with high and medium consumption frequency have less anxiety and depression than those with low consumption frequency. This shows that appropriate Internet economy consumption can alleviate the negative emotions and psychological pressure of consumers because of long-term home isolation. Among them, three kinds of consumers' anxiety psychology were evaluated by SAS. The maximum, minimum and average SAS scores of the three consumers are shown in Table 1.

It can be seen from Table 1 that consumers with high and medium consumption frequency have less anxiety than those with low consumption frequency. Among them, the average SAS score of consumers with low consumption frequency is 65.84; the average SAS score of consumers with moderate consumption frequency was 48.76 and the average SAS score of consumers with high consumption frequency is 51.23. It can be seen that although the SAS scores of consumers with medium consumption frequency and consumers with high consumption frequency are significantly lower than those of consumers with low consumption frequency, the SAS scores of consumers with medium consumption frequency are slightly lower than those of consumers with high consumption frequency, which indicates that proper online shopping can help consumers alleviate their anxiety, but excessive shopping could cause consumers to become anxious. This anxiety may be related to factors such as economy and Internet dependence. Three kinds of consumers' anxiety psychology

TABLE 1: The maximum, minimum and average self-rating anxiety scale scores of the three consumers.

Consumption frequency	SAS		
	Maximum	Average	Minimum
Low	73.62	65.84	55.43
Medium	67.33*	48.76*	38.17*
High	69.74*	51.23*	39.17*

Source: Grimpe, C., Murmann, M. & Sofka, W., 2019, 'Organizational design choices of high-tech startups: How middle management drives innovation performance', *Strategic Entrepreneurship Journal* 13(3), 359–378. <https://doi.org/10.1002/sej.1330>

SAS, self-rating anxiety scale.

*, $p < 0.05$ Compared with consumers with low consumption frequency.

TABLE 2: The maximum, minimum and average self-rating depression scale scores of the three consumers.

Consumption frequency	SDS		
	Maximum	Average	Minimum
Low	74.44	66.23	58.44
Medium	65.74*	45.36*	39.85*
High	67.74*	50.76*	42.63*

Source: Grimpe, C., Murmann, M. & Sofka, W., 2019, 'Organizational design choices of high-tech startups: How middle management drives innovation performance', *Strategic Entrepreneurship Journal* 13(3), 359–378. <https://doi.org/10.1002/sej.1330>

SDS, self-rating depression scale.

*, $p < 0.05$ compared with consumers with low consumption frequency.

were evaluated using the self-rating depression scale (SDS). The maximum, minimum and average SDS scores of the three consumers are shown in Table 2.

In Table 2, it can be seen that consumers with high and medium consumption frequency are less depressed than those with low consumption frequency. Among them, the average SDS score of consumers with low consumption frequency is 66.23; the average SDS score of consumers whose consumption frequency is medium is 45.36 and the average SDS score of consumers with high consumption frequency is 50.76. It can be seen that although the SDS scores of consumers with moderate consumption frequency and consumers with high consumption frequency are significantly lower than those of consumers with low consumption frequency, the SDS scores of consumers with moderate consumption frequency are slightly lower than those of consumers with high consumption frequency, which indicates that proper online shopping can help consumers to alleviate their depression, but excessive shopping frequency will also cause consumers to have a certain amount of depression. Therefore, you need to pay attention to moderation when shopping. The overall psychological status of consumers is assessed by SCL-90, and the average score of each dimension is shown in Table 3.

It can be seen from Table 3 that the average scores of consumers with medium consumption frequency and consumers with high consumption frequency in all dimensions of SCL-90 are significantly lower than those with low consumption frequency, but the average scores of consumers with medium consumption frequency in all dimensions of SCL-90 are slightly lower than those with high consumption frequency. This shows that moderate shopping can keep consumers happy and thus maintain positive psychology. The maximum, average, and minimum scores of consumers in the dimension of socialisation are 26.74,

TABLE 3: Overall psychological status of consumers.

Dimension	Consumption frequency		
	Maximum	Average	Minimum
Somatisation	26.74	24.64	35.48
Obsessive compulsive symptoms	23.08	22.43	28.50
Interpersonal sensitivity	21.52	19.89	29.56
Depression	32.46	28.26	40.12
Anxiety	26.68	24.97	33.42
Hostile	10.74	8.25	17.31
Terror	16.66	14.32	22.54
Paranoid	12.49	10.30	16.84
Psychotic	22.74	19.22	28.63

Source: Grimpe, C., Murmann, M. & Sofka, W., 2019, 'Organizational design choices of high-tech startups: How middle management drives innovation performance', *Strategic Entrepreneurship Journal* 13(3), 359–378. <https://doi.org/10.1002/sej.1330>

Note: $p < 0.05$ compared with consumers with low consumption frequency.

TABLE 4: Factors influencing consumers' purchasing psychology.

Variable	Correlation coefficient	Sig.
For entertainment	-0.034	0.258
Pragmatic value	0.748	0.000
Interactive quality	0.709	0.000
Public praise	0.816	0.000
R^2	0.558	-
F -value	27.137*	-

Source: Grimpe, C., Murmann, M. & Sofka, W., 2019, 'Organizational design choices of high-tech startups: How middle management drives innovation performance', *Strategic Entrepreneurship Journal* 13(3), 359–378. <https://doi.org/10.1002/sej.1330>

Note: Dependent variable: willingness to buy.

F -value, consumption frequency; Sig., significance.

*, $p < 0.01$.

24.64, and 35.48. The maximum, average, and minimum value scores of consumers in the observed comprehensive symptoms dimension are 23.08, 22.43, and 28.50, respectively. The maximum, average, and minimum scores of consumers in the dimension of interpersonal sensitivity are 21.52, 19.89, and 29.56, respectively. The maximum, average, and minimum values of consumers in the depression dimension are 32.46, 28.26, and 40.02, respectively. The maximum, average, and minimum value scores of consumers in the anxiety dimension are 26.68, 24.97, and 33.42, respectively. The maximum, average, and minimum value of consumers in the hostile dimension are 10.74, 8.25, and 17.31, respectively. The maximum, average, and minimum scores of consumers in the terror dimension are 16.66, 14.32, and 22.54, respectively. The maximum, average, and minimum scores of consumers in paranoid dimension are 12.49, 10.30, and 16.84, respectively. The maximum, average, and minimum scores of consumers in the psychotic dimension are 22.74, 19.22, and 28.63, respectively. According to the survey results, various factors affecting consumers' purchasing psychology are analysed, as shown in Table 4.

As can be seen in Table 4, in addition to entertainment, the practical value, interactivity and word of mouth related to products have a significant positive impact on consumers' purchase intention. Therefore, businesses should pay attention to these characteristics of products and strengthen consumers' willingness to buy. For the variable for entertainment, the correlation coefficient is -0.034 , and the significance is 0.258. For the variable pragmatic value, the correlation coefficient is 0.748, and the significance is 0.000. For the variable interactive

quality, the correlation coefficient is 0.709, and the significance is 0.000. For the variable public praise, the correlation coefficient is 0.816, and the significance is 0.000. The R^2 of all variables is 0.558, and the F -value is 27.137, which is highly significant, and the p -value is less than 0.001.

Discussion

As early as the 20th century, some researchers put forward the view that when people's desires cannot be satisfied, they will feel pain and anxiety. Consumption behaviour is the most intuitive way to satisfy people's desires. With the highly developed economy, information technology and Internet technology, online shopping has become one of the mainstream shopping methods. During the epidemic period, the frequency of consumers' going out was significantly reduced, and there was even a period of staying indoors for many consecutive days. In this case, the scope of consumption of consumers has been greatly reduced, mainly concentrated in the vicinity of their residences and the consumption objects are also mainly the necessities of life like food, vegetables, meat and eggs. In addition, because of the impact of the epidemic, many people's work fluctuates, their income decreases significantly, and their consumption desire also decreases significantly. In this special period, consumers' consumption behaviour and desire are more rational, and the demand for some non-necessities and luxury goods is greatly reduced. In addition to shopping, people's entertainment consumption also decreased significantly during the epidemic. According to some investigations and studies, the number of entertainment venues opened during the epidemic period decreased significantly, and the number of customers and consumption level also decreased significantly, such as Internet cafes, KTV, bars, etc. However, relatively speaking, during the epidemic, because of the restriction of physical shopping and the serious decline of offline traffic, consumers' demand for online shopping has been rising, and online shopping has also become the main method of shopping for consumers to shop. When shopping online, consumers' psychological analysis is very important. In the previous results of consumer psychological analysis, consumers' online shopping psychological characteristics are divided into four points. Firstly, when shopping online, consumers prefer products with high cultural taste, high fashion and high novelty. Secondly, for some products that can express themselves and reflect the personality of consumers, consumers' willingness to consume is stronger. Thirdly, consumers prefer those convenient and fast shopping methods with low time cost. Therefore, the delivery time of logistics often becomes an important factor affecting consumers' purchase decisions. Fourthly, consumers tend to have a herd mentality. Therefore, while shopping, consumers tend to choose the product with better sales volume for products of the same type and price. Based on consumers' consumption psychology, the study explored the impact of online shopping on consumers' psychological pressure under COVID-19.

Relevant research shows that during the epidemic, the prevalence of anxiety and depression has increased significantly

compared with the past. For public psychology, the impact of COVID-19 epidemic and its impact mechanism are mainly as follows. Firstly, at present, there is no exact treatment plan and specific medicine for COVID-19, and COVID-19 spreads very fast and widely, which leads to a strong fear of the COVID-19 epidemic among most of the public. This kind of fear will lead to the public's anxiety rising slowly. This anxiety can be reflected in the public opinion on the Internet: at present, the relevant information about the COVID-19 epidemic is open and transparent, the public's attention is highly focused on the relevant information about the epidemic, and the information about the epidemic will receive widespread attention from Internet users, which can reflect the public's anxiety to a certain extent. In addition, under the influence of the epidemic, China's market economy has declined to a certain extent, and this fluctuation will affect all industries, leading to economic weakness and decline. In this case, the employment rate is declining and the unemployment rate is increasing. For people who have loans, the economic burden will increase, and the psychological pressure will also rise, which will affect their psychological state, making their anxiety worse. Excessive anxiety will cause problems in human body functions, and also lead to the decline of immunity, while physical discomfort will aggravate anxiety and irritability, and eventually form a vicious circle. In addition, hypochondriac psychology is also an important factor that leads to individual anxiety. In addition, with the increasing number of people diagnosed with COVID-19, and the information of closing down the city constantly spreading from various regions, people's panic will intensify, which will give rise to a state of depression, fear or numbness, affecting the physical and mental health of individuals.

The outbreak of COVID-19 has seriously affected people's daily life, and people's life and shopping styles have also undergone tremendous changes. In this context, the rapid development of Internet economy has made great contributions to people's consumption, shopping and entertainment (Griffin et al. 2019). During the epidemic period, the public will often have negative emotions and psychological pressure such as fear, anxiety and tension. These negative emotions come from the public's fear and worry about the potential epidemic risk in daily life. In some specific cases, this excessive worry will impact the public order, cause certain social chaos, and is not conducive to the construction of a harmonious society (Hernández-Moreno et al. 2021). Excessive anxiety will lead to problems in human body function and decline in immunity, while physical discomfort will aggravate anxiety and irritability, eventually forming a vicious circle and having a negative impact on social development (Dal Bo et al. 2022). Therefore, from the perspective of psychology, the study explored the impact of Internet economy on consumer psychology and behaviour in the post-epidemic era through questionnaires. The results of the questionnaire show that consumers with high and medium consumption frequency have less anxiety and depression than those with low consumption frequency. This shows that appropriate Internet economic

consumption can alleviate the negative emotions and psychological pressure of consumers because of long-term home isolation. However, the average anxiety level and average depression level of consumers with moderate consumption frequency are slightly lower than those with high consumption frequency, which indicates that proper online shopping can help consumers to relieve psychological pressure. However, if the frequency of shopping is too high, consumers will have a certain amount of psychological pressure. Therefore, it is necessary to pay attention to moderation while shopping (Cai et al. 2021). The psychological pressure of consumers with high consumption frequency may come from the economic pressure caused by excessive purchase of products; feeling of emptiness and anxiety caused by over-reliance on Internet shopping and negative emotions such as anxiety and anger caused by goods not meeting their own preferences (Trombetta et al. 2022). In conclusion, moderate online shopping can relieve the psychological pressure of consumers in the post-epidemic era.

Conclusion

The analysis of 500 questionnaires shows that moderate online shopping can alleviate the psychological pressure of consumers in the post-epidemic era and keep consumers happy and positive. The COVID-19 epidemic has resulted in great pressure on consumers' psychology and has caused great changes in consumers' consumption patterns and psychological demands. From the perspective of psychology, based on the data of the questionnaire survey, this study discusses the impact of the Internet economy on consumers' psychology and behaviour in the post-epidemic era, and analyses the influencing factors of consumers' purchase intention. The average SAS scores of consumers with low, medium and high consumption frequency are 65.84, 48.76 and 51.23, respectively. The average SDS scores were 66.23, 45.36 and 50.76, respectively. The analysis of the questionnaire data show that moderate online shopping can relieve the psychological pressure of consumers in the post-epidemic era. Also based on the questionnaire, this article analyses the influencing factors of consumers' purchase intention. The maximum, average and minimum value scores of consumers in the socialisation dimension are 26.74, 24.64 and 35.48, respectively. The maximum, average and minimum scores of consumers in observing the dimension of comprehensive symptoms were 23.08, 22.43 and 28.50, respectively. The results show that, in addition to entertainment, the practical value, interactivity and word-of-mouth of products have a significant positive impact on consumers' purchase intention. In addition, the highest, average and lowest scores of consumers in interpersonal sensitivity dimension are 21.52, 19.89 and 29.56, respectively. The maximum, average and minimum scores of consumers in the dimension of depression were 32.46, 28.26 and 40.12, respectively. The maximum, average and minimum scores of consumers in anxiety dimension are 26.68, 24.97 and 33.42, respectively. The maximum, average and minimum scores of consumers in hostile dimension are 10.74, 8.25 and 17.31, respectively.

The maximum, average and minimum scores of consumers in the dimension of terror are 16.66, 14.32 and 22.54, respectively. The maximum, average and minimum scores of consumers in paranoid dimension are 12.49, 10.30 and 16.84, respectively. The maximum, average and minimum scores of consumers in psychological dimension are 22.74, 19.22 and 28.63, respectively. Among the various factors that affect consumers' purchasing psychology, the correlation coefficient of entertainment variables is -0.034 , and the significance is 0.258 . The correlation coefficient of variable pragmatic value is 0.748 and the significance is 0.000 . The correlation coefficient of variable interaction quality is 0.709 , and the significance is 0.000 . The correlation coefficient of variable word of mouth is 0.816 , and the significance is 0.000 . The average score of each dimension of SCL-90 of consumers with medium consumption frequency and high consumption frequency is significantly lower than that of consumers with low consumption frequency, but the average score of each dimension of SCL-90 of consumers with medium consumption frequency is slightly lower than that of consumers with high consumption frequency. This can show that moderate shopping can keep consumers happy and maintain positive psychology. However, the results of this study are applicable only to the population of the selected age group. This is because the questionnaire survey belongs to citizens' privacy, and the survey results are not sufficient for the purpose of protecting privacy. It is believed that with the increase of volunteers, future research will continue in this direction.

Acknowledgements

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

J.Z. and Q.L. designed the study, performed the research, analysed data, and wrote the article.

Ethical considerations

This article follows all ethical standards for research without direct contact with human or animal subjects.

Funding information

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Data availability

All data generated or analysed during this study are included in this published article.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

References

- Anne-Sophie Anota, B., Christophe Bonnetain, A.M., Florence Piessen, F.R. & Veronique, G.M., 2019, 'The role of trait emotional intelligence in quality of life, anxiety and depression symptoms after surgery for esophageal or gastric cancer: A French national database FREGAT', *Psycho-Oncology* 4(28), 799–806. <https://doi.org/10.1002/pon.5023>
- Ardeshirrouhanifard, S., Dinh, P.C., Monahan, D., Fossa, S., Hordart, R.A., Fung, C. et al., 2021, 'Factors associated with use of medications for anxiety and depression in testicular cancer survivors after platinum-based chemotherapy', *Journal of Clinical Oncology* 15(suppl 39), 5025–5025. https://doi.org/10.1200/JCO.2021.39.15_suppl.5025
- Cai, C., Woolhandler, S., Himmelstein, D.U. & Gaffney, D., 2021, 'Trends in Anxiety and depression symptoms during the COVID-19 pandemic: Results from the us census bureau's household panel survey', *Journal of General Internal Medicine* 6(36), 1841–1843. <https://doi.org/10.1007/s11606-021-0675-9>
- Camerini, B.A., Bal, K.K., Gade, A. & Margolis, R., 2021, 'Hearing voices and seeing things: Symptoms of anxiety and misperceptions as evidence of schizophrenia in an adolescent', *Journal of Psychiatric Practice* 3(27), 232–238. <https://doi.org/10.1007/s1200000000000054>
- Dal Bo, E., Gentili, C., Bellani, A., Tripodi, C., Fischmeister, F.P.S. & Cecchetto, C., 2021, 'Olfactory recognition in individuals with depressive and anxiety symptoms: The differential role of common and social odors', *Journal of Affective Disorders* 308, 25–37. <https://doi.org/10.1016/j.jad.2022.04.071>
- Hoff, M.E., Mueller, N.E., Cogle, J.R. & Joiner, T.E., 2020, 'Perceived burdensomeness uniquely accounts for suicidal ideation severity in social anxiety disorder', *Journal of Affective Disorders* 266, 43–48. <https://doi.org/10.1016/j.jad.2020.01.116>
- Eser, M., Acikgoz, Yildirim, M., Ucar, G. & Uncu, D., 2021, 'Anxiety, insomnia and pandemic awareness of cancer patients receiving chemotherapy during the COVID-19 pandemic period', *UHOD - Uluslararası Hematoloji-Onkoloji Dergisi* 31, 161–169. <https://doi.org/10.4999/uhod.214677>
- Grimpe, L., Murmann, M. & Sofka, W., 2019, 'Organizational design choices of high-tech startups: How middle management drives innovation performance', *Strategic Entrepreneurship Journal* 13(3), 359–378. <https://doi.org/10.1002/sej.1330>
- Hernández-Moreno, L., Senra, H., Moreno N. & Macedo, A.F., 2021, 'Is perceived social support more important than visual acuity for clinical depression and anxiety in patients with age-related macular degeneration and diabetic retinopathy?', *Clinical Rehabilitation* 9(35), 1341–1347. <https://doi.org/10.1177/0269215521997991>
- Kapur, A., Penner, M., Nguyen, J., Wiegmann, J. & Waters, P., 2020, '52 KneuroKnits: Evaluating social participation and anxiety response associated with participation in a knitting group for youth with neurological conditions (pilot study)', *Paediatrics & Child Health* 2(25), e21–e22. <https://doi.org/10.1093/pch/pxaa068.051>
- Kolosowska, K., Lehner, M., Wisłowska-Stanek, A., Gawryluk, A. & Hetmańczyk, K., 2019, 'P.2.03 stress changes amphetamine response and D2 receptor expression parallelly with epigenetic regulation in low-anxiety rats', *European Neuropsychopharmacology* 29, S656–S657. <https://doi.org/10.1016/j.euroneuro.2019.01.034>
- Kribakaran, S., Odrozola, P., Haberman, J.T., Cohodes, E.M. & Gee, D.G., 2019, 'Associations between early-life trauma, anxiety, and safety cue learning across development', *Biological Psychiatry* 10(85), S136–S137. <https://doi.org/10.1016/j.biopsych.2019.03.342>
- Trombello, J.M., Cooper, C.M., Fatt, C.C., Grannemann, B.D., Carmody, T.J., Jha, M.K. et al., 2022, 'Neural substrates of emotional conflict with anxiety in major depressive disorder: Findings from the Establishing Moderators and Biosignatures of Antidepressant Response in Clinical Care (EMBARC) randomized controlled trial', *Journal of Psychiatric Research* 149, 243–251. <https://doi.org/10.1016/j.jpsychires.2022.03.015>
- Wongpakaran, N., Wongpakaran, T., Lertkachatarn, S. & Sirirak, T., 2019, 'Testing for bifactor model and differential item functioning of core symptom index: A tool for depression, anxiety, and somatisation', *European Neuropsychopharmacology* 29, S494–S495. <https://doi.org/10.1016/j.euroneuro.2018.11.738>
- Wtab, C., Dx, A. & Jx, A., 2020, 'Impact of earthquake exposure, family adversity and peer problems on anxiety-related emotional disorders in adolescent survivors three years after the Ya'an earthquake – ScienceDirect', *Journal of Affective Disorders* 273, 215–222. <https://doi.org/10.1016/j.jad.2020.04.044>