LEVELS OF COVID FEAR IN A SAMPLE OF ADOLESCENTS: DOES MENTAL HEALTH LITERACY HELPS?

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ABSTRACT

Background: The Covid-19 pandemic generated great fear and anxiety across the world. Debates concerning mental health promotion and mental illness prevention have reinforced the importance of promoting mental health literacy and providing psychological help to the population. Nonetheless, no study has examined the effect of mental health literacy and psychological help in levels of fear of covid**. Aims:** This study aims to explore the relationship between literacy about mental illness, literacy about mental well-being, having consulted a psychologist/psychiatrist in the past and levels of fear of covid, in a sample of Portuguese adolescents. **Methods:** Using cross-sectional design we collected a sample of 345 adolescents (53.2% of the participants are female) aged between 15-18 years old, that filled during the months of May-June 2021 an online survey composed of a sociodemographic questionnaire, two mental health literacy scales – one measuring literacy about mental illness (Mental Health Literacy Questionnaire - MHLq), one measuring literacy about mental well-being (Positive Mental Health Literacy Questionnaire - PosMHLit) - and two questionnaires measuring coronavirus anxiety and fear of Covid (CAS and FCV-19S). In order to assess professional psychological help, subjects were also asked if they had consulted a psychologist or psychiatrist in the past. **Results:** Fear of covid is related to mental health literacy and having psychological support in the past. Results from multiple regression analysis, on the other hand, suggest that variance in fear of covid is better explained by sociodemographic variables, such as gender, than by mental health literacy. **Conclusions:** Exploring the main findings and the relationships between variables, the implications of the results will be addressed.

Keywords: COVID-19 fear; coronavirus anxiety; mental health literacy; adolescents

RESUMEN

Niveles de miedo de COVID en una muestra de adolescentes: ¿Ayuda la alfabetización en salud mental?. Introducción: La pandemia de Covid-19 ha generado gran temor y ansiedad en todo el mundo. Los debates sobre la promoción de la salud mental y la prevención de las enfermedades mentales han reforzado la importancia de promover la alfabetización en salud mental y proporcionar ayuda psicológica a la población. Sin embargo, ningún estudio ha examinado el efecto de los conocimientos sobre salud mental y la ayuda psicológica en los niveles de miedo de Covid. **Objetivos:** Este estudio tiene como objetivo explorar la relación entre la alfabetización en enfermedades mentales, la alfabetización en bienestar mental, el haber consultado a un psicólogo/psiquiatra en el pasado y los niveles de miedo a Covid, en una muestra de adolescentes portugueses. **Metodología:** Utilizando un diseño transversal, recogimos una muestra de 345 adolescentes (el 53,2% de los participantes son mujeres), de entre 15 y 18 años, que rellenaron durante mayo-junio de 2021 una encuesta online compuesta por un cuestionario sociodemográfico dos escalas de alfabetización en salud mental -una que mide la alfabetización en enfermedad mental (Cuestionario de Alfabetización en Salud Mental - MHLq), la otra que mide la alfabetización en bienestar mental (Cuestionario de Alfabetización en Salud Mental Positiva - PosMHLit)- y dos cuestionarios que miden la ansiedad por coronavirus y el miedo a Covid (CAS y FCV-19S). Para evaluar la ayuda psicológica profesional, también se preguntó a los individuos si habían consultado a un psicólogo o psiquiatra en el pasado. **Resultados:** El miedo a la covida se relaciona con la alfabetización en salud mental y el apoyo psicológico en el pasado. Los resultados de los análisis de regresión múltiple, por otro lado, sugieren que la variación en el miedo a la covida se explica mejor por variables sociodemográficas, como el género, que por los conocimientos de salud mental. **Conclusiones:** se exploran las principales conclusiones y las relaciones entre las variables, y se abordan las implicaciones de los resultados.

Palabras clave: miedo al COVID-19; ansiedad por el coronavirus; alfabetización en salud mental; adolescentes

INTRODUCTION

After the emergence of the new coronavirus (SARS-CoV-2), in Wuhan, China, at the end of 2019, which led to an epidemic of severe respiratory syndrome (COVID-19) that spread throughout the world, leading to the death of a large number of people, the World Health Organization (WHO) declared a pandemic. This massive global health crisis required important behaviour change and placed various psychological burdens on individuals (Bavel, *et al*., 2020). Among other potentially devastating effects, the Covid-19 pandemic generated great fear and anxiety across the world. In fact, one of the essential emotional responses during a pandemic is fear (*idem*, *ibidem*), which is included in the defensive systems for combating ecological threats (LeDoux, 2012; Mobbs, *et al*., 2015).

There is scientific literature that states that negative emotions resulting from threat can be contagious, especially considering the using of the new technologies of information (Kramer, Guillory, & Hancock, 2014), and fear can contribute to a more imminent perception of threats (Cole, Balcetis, & Dunning, 2013). Considering this scenario, important consequences in terms of mental health may occur. Negative emotions like anxiety and fear about COVID-19 can contribute to the development of psychological disorders (Luchetti, 2020; Serafini, *et al*., 2020) and to other negative implications for people's daily lives (e.g., Beck, & Hensher, 2020; Wen, Kozak, Yang, & Liu, 2021). So, there is a need to identify and early intervene, psychologically, in people with dysfunctional anxiety and high values of fear related to COVID-19.

Preventive and health-promoting approaches, based on health information, can also play an important role in this context. Studies refer that health literacy is important for health outcomes (Sansom-Daly, 2016) and research has shown an association between mental health literacy and the mental health status (Lam, 2014). Mental health literacy (MHL) has been framed as a multi-construct theory that entails both literacy about mental illness and positive mental health (Spike & Hammer, 2019). It includes the knowledge, skills and behaviour that aids mental well-being promotion and mental illness prevention or management (*idem, ibidem*). So, MHL integrates

beliefs and skills about how to prevent, manage and ask for help or to provide help facing mental illness symptoms/diseases (Jorm, 2000; Jorm *et al*., 1997), but also how to achieve and cultivate good mental health (Kutcher, Wei, & Coniglio, 2016; Kutcher *et al*., 2016). It is increasingly being seen as a fundamental tool for mental health promotion, that can be trained in schools, work spaces and national campaigns (Jorm *et al*., 1997; Jorm, Wilson, Allen, McKay-Brown, & Proimos, 2020) though much information is needed regarding who lacks more from MHL.

Debates concerning mental health promotion and mental illness prevention have reinforced the importance of promoting mental health literacy and providing psychological help to the population (BjØrnsen et al., 2017, 2019; Chao et al, 2020; Iasiello, van Agteren, & Muir-Cochrane, 2020; Spiker, & Hammer, 2019; Westerhof, & Keyes, 2010; World Health Organization, 2021). Nonetheless, no study has examined the effect of mental health literacy and psychological help in levels of fear related to COVID-19.

AIMS

This study was conducted in a sample of Portuguese young-people and aimed to: a) describe levels of MHL, COVID-19 anxiety and fear of COVID-19, search for mental health information and history of having mental health support; b) explore the relationship between MHL (literacy about mental illness and positive mental health literacy) and anxiety/fear of COVID-19; c) explore the relationship between sociodemographic variables (e.g. gender, SES, age, having mental health support) and fear of COVID-19; d) to test the predictive effect of gender and MHL in fear of COVID-19.

SAMPLE

The sample was composed of 344 Portuguese adolescents aged between 15-18 years old (M = 16.45; SD = 1.382) and was collected online (Lime Survey platform) during the months of May-June 2021. In this sample, 53.2% of the participants are female and 46.8% are male. All adolescents are students, the majority attending secondary school (from 10th to 12th grade) and only 21.2% were at the previous level (9th grade). From the full sample, 32.8% are in a relationship and 64.2% are not. In terms of family composition, 72.5% live with both parents or one parent and stepfather/stepmother and brothers/sisters and spent lockdown with their family. Concerning socioeconomic status (SES), 20.1% are low SES, 59.6% medium SES, and 20.3% high SES.

METHODS/INSTRUMENTS

Instruments

We asked participants regarding their experience during lockdown, about anxiety and fear during pandemic, about levels of mental health literacy, concerning the search for mental health information and about mental health professional support. For this purpose, several instruments were used.

Sociodemographic Questionnaire: included questions related to age, gender, education level, socioeconomic status, family composition, and romantic relationship status.

Questions related to experience during lockdown, the search for information and mental health support: questions were designed to assess the participants' perceptions concerning the search for mental health information in times of the COVID-19 pandemic, and also to know about the history of having mental health support. In order to assess professional psychological help, subjects were asked if they had consulted a psychologist or psychiatrist in the past.

Mental Health Literacy Questionnaire - MHLq (Campos *et al*., 2016): The MHLq was designed and validated for the Portuguese adolescent population and measures literacy about mental health, although focusing specifically in more disorder-oriented aspects of mental health. The instrument has 7 items of nominal recognition of disorders and a total of 33 items rated in a 5-point Likert type scale. Mental health literacy is measured in a final sum and the factors: First aid skills and help seeking; Knowledge and stereotypes; Self-help strategies. Adequate Cronbach Alphas for the factors rank from 0.72 to 0.79. The Total score presents a .84 Cronbach Alpha.

Positive Mental Health Literacy Questionnaire - PosMHLit (Maia de Carvalho & Vale-Dias, in preparation)**:** This questionnaire measures literacy about positive mental health and mental well-being in a unidimensional scale of 5-point Likert type scale. The instrument is reliable with .93 Cronbach Alpha.

Coronavirus Anxiety Scale - CAS (Portuguese version: Magano *et al*., 2021): this scale assesses distinct physiological reactions of anxiety related to COVID-19. It has 5 items rated in 5-point Likert type scale and ranks .85 Internal Consistency.

Fear of Covid 19 Scale - FCV-19S (Portuguese version: Magano *et al*., 2021): this instrument is considered reliable and valid in assessing fear of COVID-19 among the general population and useful in alleviating COVID-19 fears among individuals. The Portuguese version of FCV-19S has 7 items rated in a 5-pont Likert type scale and ranks .88 Cronbach Alpha.

PROCEDURE

This research is a cross-sectional study anonymously performed. All necessary authorizations were obtained (including informed consent from all participants and their legal tutors) and ethical procedures were followed.

Data was collected online (Lime Survey platform) during the months of May-June 2021.

DATA ANALYSIS

The data was analysed using SPSS Statistics Version 23.0 software. Preliminary data analysis (Skweness and Kurtosis, Multicollinearity, Mahalanobis Distance) were performed to examine the adequacy of data.

In addition to descriptive statistics, such as mean and standard deviation, correlation analyses and t-tests were performed. Regression analyses were also performed.

RESULTS

Descriptives And Internal Consistency Of The Scales

Mean (M) and standard deviation (SD) obtained in each scale are displayed in Table 1. In terms of psychometric properties, internal consistency (Cronbach's) was analysed (Table 1), allowing us to conclude that all instruments are reliable, with Alpha values ranging from .79 (Mental health literacy -TotalMHLq) to .93 (Positive mental health literacy (PosMHLit).

Table 1. Mean (M), Standard Deviation (SD) and Internal Consistency ( ) of each scale (N= 344). Mean (M) and Standard Deviation (SD) of the Portuguese adaptations.

Construct/Scale	M	SD	α	M (SD) Port. adapt.
Mental health literacy (TotalMHLq)	134.85	11.16	.79	131.43 (11.35)
Positive mental health literacy (PosMHLit)	77.09	9.58	.93	78.91 (9.17)
Fear of Covid (FCV-19S)	14.67	6.09	.88	17.20 (5.69)
Covid Anxiety (CAS)	1.47	3.26	.92	6.29 (2.35)

Notes: M = mean; SD = standard deviation; M (SD) Port. adapt. = mean and standard deviation of Portuguese adaptations of the instruments; TotalMHLq = Mental health literacy questionnaire (Total); PosMHLit = Positive mental health literacy questionnaire; CAS = Coronavirus Anxiety Scale; FCV-19S = Fear of Covid-19 Scale.

Comparing mean and standard deviation values obtained in this study with the values of the Portuguese adaptations of the instruments (Table 1), we can see that results are not very different in terms of MHL. Our sample has a slightly higher value in Mental health literacy (TotalMHLq) and slightly lower in Positive mental health literacy (PosMHLit). Considering, on the other hand, the comparison relating to COVID-19 fear and anxiety, our subjects have lower results, especially with regard to the level of COVID-19 anxiety.

Frequencies Of Answers Related To Experience During Lockdown, The Search For Information And Mental Health Support

Regarding to the question "How did you feel during lockdown?", the majority of participants reported feeling worst during lockdown (41.3%; N=142). About a third (30.8%; N=106) of the subjects revealed to feel the same, and there were some who felt better (17.2%; N=59) (Table 2).

Table 2. Frequencies of answers to the question "How did you feel during lockdown?" (N=344)

How did you feel?	%	N
Same	30.8	106
Better	17.2	59
Worst	41.3	142
Other	1.7	6
Missing	9.0	31
TOTAL	100	344

With regard to the question "Have you ever consulted a mental health professional?" (Table 3), it is possible to verify that approximately half (45.9%) of the participants consulted a psychologist. Only a few (18.9%) have consulted a psychiatrist.

Table 3. Frequencies of answers to the question "
Have you ever consulted a mental health professional?" (N= 344)

	Psychologist	Psychiatrist
Yes	45.9%	18.9%
No	50.9%	73.0%
Missing	3.2%	8.1%
TOTAL	100%	100%

As indicated in Table 4, during lockdown, most of the participants searched more information about well-being (62.8%). Only a few (17.4%) searched more information about mental illness.

Table 4. Frequencies of answers to the question "Did you search MORE for mental health information during lockdown?" (N= 344)

	About mental well-being	About mental illness
Yes	62.8%	17.4%
No	28.2%	73.5%
Missing	9 %	9,1%
TOTAL	100%	100%

CORRELATIONS

Literacy about mental illness was correlated with fear of COVID-19 (r = .116*; p<0.05) and positive mental health literacy was negatively related with COVID-19 anxiety (r=. -.128*; p< 0.05). No SES were significantly correlated with fear of COVID-19 or COVID-19 anxiety (Table 5).

Table 5. Pearson's Correlation between all variables (N=344)

	1	2	3	4	5	6.
1.TotalMHLq	-	.691**	-.065	.116*	-.012	.018
2.PosMHLit		-	-.128*	.005	.098	.053
3.CAS			-	.450**	-.068	-.006
4. FCV-19S				-	-.001	-.020
5. Age					-	-.064
6. SES						-

Notes: * *p*< 0.05; ** *p*<. 0.01; TotalMHLq = Mental health literacy questionnaire (Total); PosMHLit = Positive mental health literacy questionnaire; CAS = Coronavirus Anxiety Scale; FCV-19S = Fear of Covid-19 Scale; SES = socioeconomic status.

GENDER DIFFERENCES IN CAS AND FCV-19S (T-TEST)

There are gender differences in both COVID-19 anxiety (T = 2.813; p< 0.05) and fear of COVID-19 (T=5.107; p< 0.001), with girls reporting higher levels on both variables (Table 6).

Table 6. Gender differences in CAS and FCV-19S: T-Test (N= 322)

	Male		Female			
	M	*SD*	M	*SD*	*T*	*p*
CAS	.9470	2.41602	1.9357	3.80888	2.813	.005*
FCV-19S	12.8940	5.44567	16.2398	6.21439	5.107	.000*

Notes: M = mean; SD = standard deviation; CAS = Coronavirus Anxiety Scale; FCV-19S = Fear of Covid-19 Scale.

DIFFERENCES IN CAS AND FCV-19S IN FUNCTION OF CONSULTING OR NOT A MENTAL HEALTH PROFESSIONAL (T-TEST)

T-test suggests differences between the group of young people who reported consulting a psychologist in the past and those who did not (T =3.283; p< 0.05) in terms of COVID-19 anxiety. Subjects who have consulted a psychologist report less anxiety (Table 7).

Table 7. Differences in CAS and FCV-19S by consulting a psychologist: T-Test (N=311)

	Yes		No			
	M	*SD*	M	*SD*	*T*	*p*
CAS	2.1806	4.14029	.9162	2.21281	3.283	.001*
FCV-19S	14.9028	6.50478	14.6766	5.67203	.328	.744

Notes: M = mean; SD = standard deviation; CAS = Coronavirus Anxiety Scale; FCV-19S = Fear of Covid-19 Scale.

There are no differences in COVID-19 anxiety or fear of COVID-19 between those who did consult a psychiatrist in the past and who did not (Table 8).

Table 8. Differences in CAS and FCV-19S by consulting a psychiatrist: T-Test (N=305)

	Yes		No			
	M	*SD*	M	*SD*	*T*	*p*
CAS	1.9839	4.01429	1.1545	2.62977	1.541	.127
FCV-19S	14.1935	6.76742	14.9399	5.81732	-.867	.387

Notes: M = mean; SD = standard deviation; CAS = Coronavirus Anxiety Scale; FCV-19S = Fear of Covid-19 Scale.

REGRESSION ANALYSIS

To assess the predictive effect of gender and mental health literacy in fear of COVID-19, a multiple regression analysis was performed (Table 9). The results of this analysis suggest that gender is the variable (entered in block 1) that explains most variance in fear of COVID-19 (7%). As we enter MHL in the second block, the variance explained increases (9%) but gender remains the variable with more predictive power (= -.26; < 0.001).

Table 9. Multiple Regression: Predictive effect of gender and mental health literacy in fear of covid (FCV-19S)

Predictive effect of gender and mental health literacy in fear of covid (N=322)

Step 1	β	*p*	*sr*	R^2
1. Gender	-.27	< 0.001	-.151	0.07
Step 2				
2. Gender.	-.26	< 0.001	-.169	0.09
TotalMHLq.	.16	.025	.009	
PosMHLit	-.14	.047	-.118	

Notes: TotalMHLq = Mental health literacy questionnaire (Total); PosMHLit = Positive mental health literacy questionnaire; FCV-19S = Fear of Covid-19 Scale.

DISCUSSION

This study, conducted with a very balanced sample regarding the gender of the subjects, allowed the analysis of the levels of mental health literacy (MHL), COVID-19 anxiety and COVID-19 fear of Portuguese adolescents assessed during the period of May/June 2021. Comparing mean and standard deviation values obtained in the present research with the values of the Portuguese adaptations of the instruments, results are similar in terms of MHL (literacy about mental illness and positive mental health literacy). However, when we consider the comparison relating to COVID-19 fear and anxiety, our subjects present lower results, particularly with regard to the level of COVID-19 anxiety, which is much lower in our sample of adolescents. This result can be explained, in part, by the time when data on COVID-19 anxiety and COVID-19 fear were collected. Indeed, in May/June 2021 there was relief from restriction and containment measures in Portugal, and there was already a considerable percentage of people vaccinated, at least with one dose of the COVID-19 vaccine.

As predictable, most participants reported feeling worst during lockdown. Interestingly, most of the participants searched more information about well-being than about mental illness, showing the importance of positive aspects for mental health (e.g, BjØrnsen *et al*., 2019).

As expected, fear of COVID-19 is related to mental health literacy and having psychological support in the past. In terms of professional mental health support, psychological help was more important for subjects than psychiatric help. Considering that psychiatric help seems to be more linked to stigma of mental illness and help-seeking intention (cf. Lally *et al*, 2013) and taking into account the developmental period of our subjects (adolescents), this result is also understandable.

Positive mental health literacy was negatively related with COVID-19 anxiety, emphasising the importance of positive aspects for mental health (e.g, BjØrnsen *et al*., 2019; Kutcher *et al*., 2016; Lam, 2014).

There are gender differences in both COVID-19 anxiety and fear of COVID-19, with girls reporting higher levels on both variables. Previous literature already reported a greater tendency of female towards negative emotionality (e.g., Brody, & Hall, 2008).

Reinforcing this latter outcome, results from multiple regression analysis suggest that, although MHL is also a predictor, variance in fear of COVID-19 is better explained by sociobiographic variables, such as gender, than by mental health literacy.

CONCLUSION

In conclusion, this study provides interesting data concerning levels of MHL, COVID-19 anxiety and fear of COVID-19, and also about search for mental health information and history of having mental health support, in a sample of adolescents. It was possible to explore and found a relationship between MHL (literacy about mental illness and positive mental health literacy) and anxiety/fear of COVID-19. Results allow to strengthen the importance of positive aspects for mental health, suggesting that those aspects must be considered in mental health prevention and intervention, both in the educational/family context and in the clinical context. This study also reveals some gender differences that should be taken into account in prevention/intervention strategies for mental health promotion.

As far as it is known, this is the first attempt to study the relationship between MHL and anxiety/fear of COVID-19. Some strengths of this study may be referred: considerable sample size; balance between subsamples (gender, SES, mental health support); data collected concerning mental health information search; reliability of instruments; use of a new instrument on Positive Mental Health Literacy (PosMHLit). Yet, this study has some limitations. It is a cross-sectional design not allowing interpreting causality, and it is based on self-report measures. Future studies should overcome these limitations and also include clinical samples.

REFERENCES BIBLIOGRAPHIC

Bavel, J.J.V., Baicker, K., Boggio, P.S. *et al.* (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nat Hum Behav*, 4, 460–471. https://doi.org/10.1038/s41562-020-0884-z

Beck, M.J., & Hensher, D.A. (2020). Insights into the impact of COVID-19 on household travel and activities in Australia-The early days under restrictions. *Transp. Policy, 96*, 76–93. https://doi.org/10.1016/j.tranpol.2020.07.001

BjØrnsen, H. N., Eilertsen, M. E. B., Ringdal, R., Espnes, G. A., & Moksnes, U. K. (2017). Positive mental health literacy: development and validation of a measure among Norweguian adolescentes. *BMC Public Health*, *17*, 717. https://doi.org/10.1186/s12889-017-4733-6

BjØrnsen, H. N., Espnes,G.A., Eilertsen, M.E.B., Ringdal,R., & Moksnes, U.K. (2019). The relationship between positive mental health literacy and mental well-being among adolescents: implications for school health services. *The Journal of School Nursing*, *20*(10), 1-10. https://doi.org/10.1177/1059840517732125

Brody, L. R., & Hall, J. A. (2008). Gender and emotion in context. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 395–408). The Guilford Press.

Campos, L., Dias, P., Palha, F., Duarte, A., & Veiga, E. (2016). Development and psychometric properties of a new questionnaire for assessing Mental Health Literacy in young people. *Universitas Psychologica*, *15*(2), 61-72. https://doi.org/10.11144/Javeriana.upsy15-2.dppq

Chao, H.-J., Lien, Y.-J., Kao, Y.-C., Tasi, I.-C., Lin, H.-S., & Lien, Y.-Y. (2020). Mental Health Literacy in Healthcare Students: An Expansion of the Mental Health Literacy Scale. *Int. J. Environ. Res. Public Health*, *17*, 948. https://doi.org/10.3390/ijerph17030948

Cole, S., Balcetis, E. & Dunning, D. (2013). Afective signals of threat increase perceived proximity. *Psychol. Sci*.,

24, 34–40. https://doi.org/10.1177/0956797612446953

Iasiello, M., van Agteren, J., & Muir-Cochrane, E. (2020). Mental Health and/or Mental Illness: a Scoping Review of the Evidence and Implications of the Dual Continua Model of Mental Health. *Evidence Base*, *(1)*. https://doi.org/10.21307/ed-2020-001

Jorm, A. F. (2000). Mental health literacy, public knowledge and beliefs about mental disorders. *British Journal of Psychiatry*, *177*, 396-401. https://doi.org/10.1192/bjp.177.5.396

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollit, P. (1997). "Mental health literacy": a survey of the public's ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia*, *166*, 182-186. https://doi.org/10.5694/j.1326-5377.1997.tb140071.x

Jorm, A. F., Wilson, C., Allen, N. B., McKay-Brown, L., & Proimos, J. (2020). Twelve-month outcomes of MAKINGtheLINK: A cluster randomized controlled trial of a school-based program to facilitate help-seeking for substance use and mental health problems. *EClinicalMedicine*, *18*, 100225. https://doi.org/10.1016/j.eclinm.2019.11.018

Kutcher S., Wei Y., & Coniglio, C. (2016). Mental health literacy; past, present and future. *Canadian Journal of Psychiatry*, *61*(3), 154–158. https://doi.org/10.1177/0706743715616609.

Kutcher, S., Wei, Y., Costa, S., Gusmão, R., Skokauskas, N., Sourander, A. (2016). Enhancing mental health literacy in young people. *European Child and Adolescent Psychiatry*, *25*, 567–569. https://doi.org/10.1007/s00787-016-0867-9

Kramer, A. D. I., Guillory, J. E. & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proc. Natl Acad. Sci. USA*, *111*, 8878–8790. https://doi.org/10.1073/pnas.1320040111

Lally, J., ó Conghaile, A., Quigley, S., Bainbridge, E., & McDonald, C. (2013). Stigma of mental illness and help-seeking intention in university students. *The Psychiatrist*, *37*(8), 253–260. https://doi.org/10.1192/pb.bp.112.041483

Lam, L. T. (2014). Mental health literacy and mental health status in adolescents: A population-based survey. *Child and Adolescent Psychiatry and Mental Health*, *8*, 26. https://doi.org/10.1186/1753-2000-8-26

LeDoux, J. (2012). Rethinking the emotional brain. *Neuron*, *73*, 653–676. https://doi.org/10.1016/j.neuron.2012.02.004

Luchetti, M., Lee, J. H., Aschwanden, D., Sesker, A., Strickhouser, J. E., Terracciano, A., & Sutin, A. R. (2020). The trajectory of loneliness in response to COVID-19. *American Psychologist, 75*(7), 897-908. http://dx.doi.org/10.1037/amp0000690

Magano, J., Vidal, D., Sousa, H., Dinis, M., & Leite, A. (2021). Validation and Psychometric Properties of the Portuguese Version of the Coronavirus Anxiety Scale (CAS) and Fear of COVID-19 Scale (FCV-19S) and Associations with Travel, Tourism and Hospitality. International *Journal of Environmental Research and Public Health*, 18(2):427. https://doi.org/10.3390/ijerph18020427

Mobbs, D., Hagan, C. C., Dalgleish, T., Silston, B. & Prévost, C. (2015). The ecology of human fear: survival optimization and the nervous system. *Front. Neurosci., 9*, 55. https://doi.org/10.3389/fnins.2015.00055

Sansom-Daly, U. M., Lin, M., Robertson, E: G., Wakefield, C. E., McGill, B. C., Girgis, A., & Cohn, R. J. (2016). Health literacy in adolescents and young adults: An updated review. *Journal of Adolescent and Young Adult Oncology*, 5(2), 106-118. https://doi.org/10.1089/jayao.2015.0059

Serafini, G., Parmigiani, B., Amerio, A., Aguglia, A., Sher, L., & Amore, M. (2020). The psychological impact of COVID-19 on the mental health in the general population. *QJM An Int. J. Med., 113*, 531–537. https://doi.org/10.1093/qjmed/hcaa201

Spiker, D. A., & Hammer, J. H. (2019). Mental health literacy as theory: current challenges and future directions. *Journal of mental health (Abingdon, England)*, *28*(3), 238–242. https://doi.org/10.1080/09638237.2018.1437613

Westerhof, G. L. & Keyes, C. L. M. (2010). Mental illness and mental health: the two continua model across the lifespan. *Journal of Adult Development*, *17*, 110 - 119. https://doi.org/10.1007/s10804-009-9082–y

Wen, J., Kozak, M., Yang, S., & Liu, F. (2021). COVID-19: potential effects on Chinese citizens' lifestyle and travel, *Tourism Review*, 76(1), 74-87. https://doi.org/10.1108/TR-03-2020-0110

World Health Organization. (2021). *Guidelines on mental health promotive and preventive interventions for adolescents: helping adolescents thrive*. Executive summary. WHO.