

ORIGINAL ARTICLE

Effect of online counselling on emotional outcomes during the COVID-19 pandemic: An innovative group intervention for university students using the Brain Wave Modulation Technique

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Abstract

Young people's mental health problems are a matter of concern during the COVID-19 pandemic. Counselling services for university students by means of telemental support can help them to deal with psychological issues that they may be facing due to the pandemic. The present study investigated the effects of four once-weekly online counselling sessions based on a mind-body technique (the Brain Wave Modulation Technique; BWM-T) on enhancing positive affect and on reducing negative affect and anxiety in a sample of 54 university students (96.3% females; $M_{\text{age}} = 21.31$ years, $SD = 2.09$). An experimental design was conducted: the participants were randomly assigned to the intervention group, which received 15 min of a guided online BWM-T session, or to the control group, which watched a 15-min video on how to sustain their psychological well-being. The results of a two-factor mixed-design analysis of variance (ANOVA) showed that the participants in the intervention group reported a significant increase in positive affect and a decrease in negative affect over time compared to those in the control group. They also reported a slight decrease in state anxiety compared to the control group, although this was just short of statistical significance. The information provided by this study, regarding emotional outcomes among university students after four brief online counselling sessions, suggests that such interventions could be an effective and sustainable way to reinforce young people's mental health during the COVID-19 pandemic, as well as later in their university careers and adult lives.

KEYWORDS

COVID-19 pandemic, mind-body intervention, positive and negative affect, Telemental health, University students, well-being

1 | INTRODUCTION

1.1 | Mental health during the COVID-19 pandemic

As the numbers of people infected by COVID-19 increase worldwide, concerns are growing about the long-term psychological consequences of the pandemic (Almeda et al., 2021; Cullen et al., 2020; Czeisler et al., 2020), and several studies have indicated that it has negatively affected people's mental health (Almeda et al., 2021; Li et al., 2020). Long and indeterminate periods of lockdown imposed by governments to combat the pandemic could have contributed to a rise in adverse psychological symptoms (Brooks et al., 2020). According to research conducted worldwide, the most common psychological symptoms during the pandemic are increased levels of stress, anxiety, depression and poor quality of sleep (Ahmed et al., 2021; Bruno et al., 2020; Khademian et al., 2021; Lee et al., 2021; Rothe et al., 2021; Santabárbara et al., 2021; Silva et al., 2021; Simon et al., 2020; Sun et al., 2021; Varma et al., 2021; Wang et al., 2021). A study conducted in the United States in June 2020 with a sample of 9,896 people aged ≥ 18 years indicated a considerable increase in anxiety and depression, compared with the same period in 2019 (Czeisler et al., 2020). About 40% of the participants experienced adverse mental health symptoms. These consisted of anxiety or depression (30.9%), trauma- and stressor-related disorders (TSRD) associated with the pandemic (26.3%) and a commencement or increase in substance use to cope with the stress or negative emotions related to COVID-19 (13.3%). As many as 11% of the participants reported having seriously considered suicide in the previous month. The results of a recent meta-analysis based on 43 studies worldwide have confirmed this trend, indicating that the overall incidence of anxiety in the general population during the COVID-19 outbreak has been three times higher than normal (Santabárbara et al., 2021).

1.2 | Young people and mental health during the COVID-19 pandemic

Younger people are exposed to several specific threats to their mental health (Alivernini, Cavicchiolo, et al., 2019; Girelli et al., 2018; Patel et al., 2007), and during the COVID-19 pandemic, they were among the most vulnerable groups, reporting higher levels of stress, anxiety and depression than the general population (e.g. Ahmed et al., 2020; Czeisler et al., 2020; Santabárbara et al., 2021; Varma et al., 2021). A recent nationwide study conducted on 52,730 people in China found that young people between 18 and 30 years old have higher levels of peritraumatic distress than other age groups (Qiu et al., 2020). Furthermore, the percentage of young people (i.e. 18–24) experiencing negative emotions was considerably higher than in older people (Czeisler et al., 2020). This may be due to several different factors such as people's personality traits (Lucidi et al., 2019) and their personal goals, motivations and cognitive strategies (Alivernini et al., 2008, 2018, 2019), as well as difficulties in establishing and

Practical Implications

- The brief online counselling intervention by means of the Brain Wave Modulation Technique proved to be useful for reducing negative affect and increasing positive affect in university students.
- BWM-T is suitable for improving students' mental health when face-to-face meetings are not possible.
- BWM-T can be applied to groups of students and can be administered in minutes, so students are likely to prefer it to other methods that are more time-consuming.

Policy Implication

- Brief online counselling sessions can be a feasible, sustainable and efficient way to provide care to young people during the COVID-19 pandemic.

maintaining intimate social relationships, or a lack of rewarding experiences (Elhai et al., 2020). In addition, they may be subject to various sources of worry and uncertainty regarding their professional future (Kazmi et al., 2020) and their financial situation (Horesh et al., 2020). Young people also generally tend to be more exposed to fake news or alarming information and scare-mongering on social media (Ahmed et al., 2020; Alivernini et al., 2021; Cavicchiolo et al., 2021; Elhai et al., 2020; Liu et al., 2020). Studies conducted in a university context have shown that students suffered an increase in symptoms of stress, anxiety and depression during the COVID-19 pandemic (e.g. Alkhamees et al., 2020; Cao et al., 2020; Gritsenko et al., 2020; Liu et al., 2020; Ma et al., 2020; Naser et al., 2020; Patsali et al., 2020; Son et al., 2020; Tang et al., 2020; Wathélet et al., 2020). Although remote learning ensures that university students are able to maintain their regular academic routines (Wang et al., 2021), their mental health is threatened by factors such as long periods of isolation from their peers and their families, reduced access to the places where they had normally studied, worries about their own health or that of loved ones, and forced cohabitation with family members (Copeland et al., 2021).

Several studies conducted in Italy have focussed on the physical and mental health of university students during the COVID-19 pandemic. Initial results have shown that students experienced high levels of anxiety and depression (Giusti et al., 2020; Marelli et al., 2021; Quintiliani et al., 2021; Romeo et al., 2021), changes in sleep rhythms, a deterioration in the quality of sleep and symptoms of insomnia (Cellini et al., 2020; Marelli et al., 2021). Students reported higher levels of anxiety and depressive symptoms compared with the general category of wage earners (Romeo et al., 2021). In a recent study conducted on a sample of 956 university students, 89.4% of them reported an increase in perceived stress (66% moderate and 23.4% high), as well as a decrease in their attention span and difficulties in studying (54.4% and 55%, respectively), leading to anxiety about possible examination results (Quintiliani et al., 2021).

1.3 | University counselling services during the COVID-19 pandemic

During the pandemic, university counselling services could have an essential role in supporting students' health and education, as they are generally considered as one of the first places where students seek formal mental health consultation and support. Since face-to-face psychological sessions have become unsafe due to the risk of transmission of the coronavirus, in many countries, online counselling services are being offered more and more frequently (Zhai & Du, 2020). Digital health services have several advantages over traditional counselling. For example, they are easily provided and instantly accessible to almost all students (Dorsey & Topol, 2020). In addition, they are highly customisable and affordable (Becker & Torous, 2019) and can thus play a prominent role in the context of initiatives aimed at supporting university students.

Telemental health is a form of mental health care administered remotely via electronic devices (Hadler et al., 2021). It is a constantly evolving means for providing counselling, which includes a wide array of mobile and social networking applications, real-time video-teleconferencing and telephone conferencing. Recent studies focusing on digital interventions aimed at young people at university have shown that telemental health care is a promising means for safeguarding their mental health (Lipson et al., 2019) and that it is effective in treating anxiety, depression and stress, while promoting psychological well-being (for reviews of the literature, see Bolinski et al., 2020; Celia & Cozzolino, 2021; Conley et al., 2016; Davies et al., 2014; Farrer et al., 2013; Harrer et al., 2019). Moreover, according to a recent review by Hadler et al. (2021), telemental health services have several specific advantages for students, including convenience, ease of use and less fear of the stigma often associated with mental health problems.

There has been a rapid shift to digital interventions in the wake of the COVID-19 pandemic (Hadler et al., 2021), and the perceived need for online counselling will probably persist for several years, even after the pandemic has ceased or been substantially brought under control. Although the role of telemental health has become increasingly important during the COVID-19 pandemic (Hadler et al., 2021; Naidoo & Cartwright, 2020; Wind et al., 2020), until now, very few studies have investigated its contribution to the mental health of university students (e.g. Erekson et al., 2020; Naidoo & Cartwright, 2020) and more research therefore needs to be conducted in this area.

In Italy, psychological counselling services at universities were set up relatively recently (Ghilardi et al., 2018), but the number of counselling centres has greatly increased over the last 20 years (Ghilardi et al., 2017). In a recent review conducted in eight Italian universities, Ghilardi et al. (2017) pointed out some elements that these counselling services share; for example, they are generally free for all students and they provide brief interventions while ensuring discretion and protecting the privacy of students. Brief counselling is a type of psychological support that has been shown to be useful in reducing discomfort and promoting well-being (Cape et al., 2010).

Although the Italian students consulted gave a positive evaluation of counselling services, they only regarded 2%–4% of the total student population, with a slightly larger proportion of females (Ghilardi et al., 2017). In fact, very few studies in Italy have investigated the effectiveness of university counselling services (e.g. Biasi et al., 2015, 2017; Cerutti et al., 2020; Ghilardi et al., 2018; Strepparava et al., 2016, 2017), while none have focused on online interventions.

In late autumn 2020, following the second wave of the coronavirus in Italy, the government implemented nationwide restrictive measures and universities were instructed to implement distance education for students and remote working solutions for their employees. Online therapeutic techniques could therefore be extremely relevant for young people who were particularly affected during the pandemic.

1.4 | The Brain Wave Modulation Technique

The Brain Wave Modulation Technique (BWM-T; Celia & Cozzolino, 2021; Cozzolino & Celia, 2016; Cozzolino et al., 2021; Hirai, 1975) is a mind-body intervention that combines mind-body procedures with a neuroscientific perspective (Cozzolino & Celia, 2016, 2021; Cozzolino et al., 2020; Cozzolino, Cocco, et al., 2021). The technique derives from studies on sleep conducted in the 1970s (Hirai, 1975; Hirai et al., 1968, 1969; Kasamatsu & Hirai, 1973), which demonstrated the beneficial effects of a Zen meditation practice (the Zazen practice) in reducing EEG patterns and changing people's mental states. By the 1990s, the techniques used in the studies of Hirai and colleagues were integrated with mind-body procedures, using a neuroscientific and clinical approach. The BWM-T balances the states of physiological activation and relaxation (Cozzolino et al., 2020; Das, 2019; Desai et al., 2015; Lee et al., 2015; Murata et al., 2004), and it remodulates brain waves from fast and short to the slower and longer frequencies that are typical of relaxation and sleep (Celia & Cozzolino, 2021; Cozzolino & Celia, 2016; Desai et al., 2015; Rocco et al., 2018). The BWM-T has some characteristics in common with relaxation therapies, as they are both examples of mind-body interventions (Kwekkeboom et al., 2010), they both elicit a relaxation response (Benson et al., 1974), and they have both proven to reduce anxiety and negative emotions and to increase positive affect (e.g. Celia & Cozzolino, 2021; Chiesa & Serretti, 2009; Gu et al., 2015; Kim & Kim, 2018). However, in the BWM-T, the relaxation response is not the primary desired effect, so much as the balancing out of states of physiological activation, which are often impaired in individuals with high levels of trait anxiety, by activating the parasympathetic system and right hemisphere (Cozzolino et al., 2020; Das, 2019; Desai et al., 2015; Lee et al., 2015; Murata et al., 2004). Compared to several other mind-body therapies that are challenging to learn and that generally require time-consuming lengthy sessions, the BWM-T is brief and easy to learn, which discourages the tendency for people to drop out due to demands on their time and the inconvenience of working in groups (Dobkin et al., 2012).

The BWM-T entails a simple 4-step procedure of finger movements that is easily taught online (see Table 1). In the first session, a clinical psychologist describes the technique, demonstrating each of the four BWM-T finger positions, so that the participants can copy them. Each step involves touching the tip of the thumb to each of the four fingers of the hand: firstly the tip of the little finger, secondly the tip of the ring finger, thirdly the middle finger and finally the tips of both the middle finger and the ring finger. Each of these four positions is maintained for at least 3 min, and when this time has expired, the psychologist tells the participants to move to the next position. While moving through the four positions, the participants' mind-body relationship changes, gradually activating the parasympathetic system. The dominance of the cerebral hemisphere also shifts from left to right, leading to greater muscle relaxation, as well as a slower pulse and rate of breathing (Cozzolino & Celia, 2016; Hirai, 1975).

This technique has been proposed as particularly effective for young students. Cozzolino, Girelli, et al. (2020) tested it on approximately 300 university students in the first year of a bachelor's degree in Sport Sciences (43.1% women, $M_{\text{age}} = 20.5$ years), during in-presence university lessons. Instead, Cozzolino et al. (2021) administered the technique online through a Web-based video conferencing platform, to university students in various academic years ($N = 310$, $M_{\text{age}} = 28.73$ years, 77.8% women). These two experimental studies indicated that the technique helped university students to reduce their perceived levels of stress, anxiety, overall distress and negative affect, while increasing perceived levels of positive affect (Cozzolino, Celia, et al., 2021; Cozzolino, Girelli, et al., 2020). These results are very significant, as many students experience high levels of psychological distress during their university careers (e.g. Beiter et al., 2015; Liu et al., 2019).

The BWM-T has several advantages over other techniques: it is practical and inexpensive, it can be applied to single individuals as well as to groups, it has no side effects, it can be performed in minutes, and it is easy to learn and can then be self-administered after a brief period of training. University students are very likely to prefer the BWM-T to other techniques that are more time-consuming and difficult to learn (Cozzolino, Vivo, et al., 2020). Moreover, the BWM-T is particularly well suited for administration in a digital environment, since it stimulates natural involuntary mind-body processes that do not require a face-to-face setting, as may be the case for traditional methods of therapy.

1.5 | Current study

The aim of the present study was to investigate the effects of a series of innovative online group counselling sessions on the levels of anxiety and positive and negative affects in a sample of Italian university students. This intervention was based on a mind-body technique called the Brain Wave Modulation Technique (BWM-T; Celia & Cozzolino, 2021; Cozzolino & Celia, 2016; Cozzolino, Vivo, et al., 2020) that has shown to be particularly helpful in reducing stress, anxiety and negative affect, while improving positive affect and well-being (e.g. Celia, 2020; Cozzolino, Cocco, et al., 2021; Cozzolino et al., 2017; Rossi et al., 2011). Previous studies had suggested that it would be efficacious in a university population (Cozzolino, Celia, et al., 2021; Cozzolino, Girelli, et al., 2020; Cozzolino, Vivo, et al., 2020).

Our study set out to determine the efficacy of counselling sessions based on a brief mind-body technique by investigating students' emotional responses.

It attempted to answer the following specific research questions:

RQ 1: Is the BWM-T online counselling intervention a suitable and effective technique for reducing negative affect and augmenting positive affect during the COVID-19 pandemic?

RQ 2: Is the BWM-T online counselling intervention a suitable and effective technique for reducing state anxiety during the COVID-19 pandemic?

We focused on emotional health (positive and negative affects and anxiety), as emotional functioning seems to be particularly significant for university students, many of whom were strongly affected by educational and residential disruptions during the COVID-19 pandemic (Copeland et al., 2021). Positive and negative affects are two core dimensions of the structure of affect (Watson et al., 1988), which are seen as inversely related but distinct factors (e.g. Larsen et al., 2017). Positive affect can be described as the individual's experience of pleasurable engagement with the environment, including feelings such as happiness, enthusiasm or tranquillity, while negative affect is described as a general experience of emotional distress, encompassing feelings such as anger, fear or sadness. Affective states are also closely related to psychological well-being and their combination predicts depression and anxiety (e.g. Clark & Watson, 1991; Crawford & Henry, 2004). Specifically,

Steps	Positions	Participant's condition
First step	Touching the tip of the little finger with the extremity of the thumb	Initial relaxed wakefulness
Second step	Touching the tip of the ring finger with the tip of the thumb	Deep relaxed wakefulness
Third step	Touching the tip of the middle finger with the tip of the thumb	Initial mental relaxation
Fourth step	Touching the tips of the middle finger and ring finger with the tip of the thumb	Deep mental relaxation

TABLE 1 The BWM-T online counselling intervention: the four steps, the positions of the fingers and the participant's condition after each of the steps

Note: In all steps, it is important for the fingertips to touch each other precisely and firmly.

high negative affect is a common feature of anxiety and depression, while low positive affect is an important component for depression alone (Laurent & Ettelson, 2001; Miles et al., 2004).

2 | MATERIALS AND METHODS

2.1 | Participants and procedures

The participants were 75 undergraduate students enrolled in courses at the University of Foggia, in southern Italy. At the time of the study, they did not have physical access to the university and the first semester was being taught online. In March 2020, when the COVID-19 pandemic was beginning to spread rapidly in Italy, the Psychological Counselling Service of the University of Foggia started to offer its entire university population (students, teaching staff and non-teaching personnel) a free online service for coping with stress, anxiety, social maladjustment and negative affects. This counselling service had already been activated, offering brief face-to-face psychological interventions that usually consisted of 3–5 sessions. Then, with the spread of the pandemic, it was moved online. The present study was conducted in connection with this counselling service, and the BWM technique had been offered in this new online setting (Cozzolino, Celia, et al., 2021). The participants were recruited principally in the context of their university classes, and they were all invited to participate, regardless of their psychological situation associated with the pandemic. At the beginning of an ordinary online lesson, a clinical psychologist provided students with some general information about the counselling service, the inclusion criteria and the pertinent contact modalities and persons. They then received an email presenting this information in more detail, as well as a link to an online application form requesting their written informed consent to participate in the research. Those students who gave this consent were then asked to answer an initial set of questionnaires and were enlisted in the study ($N = 75$). The eligibility criteria for inclusion in the study were: (i) being enrolled in a university course; (ii) being able to speak and read Italian; and (iii) having Internet access. The exclusion criteria were: (i) having a severe mental or physical impairment; (ii) being under 18 or over 26 years old; and (iii) not having provided their written informed consent. All the subjects were considered to be eligible ($N = 75$; 93.3% females; $M_{\text{age}} = 21.18$; $SD = 2.01$, $\min_{\text{age}} = 19$ $\max_{\text{age}} = 26$).

Participation in the study was voluntary and confidentiality was assured before collecting the data, with each participant being assigned an anonymous alphanumeric code. The informed consent application form clearly specified that the participants could withdraw from the study at any time, without having to justify this decision and without incurring any consequences. All the procedures conducted in the study were in accordance with the ethical standards approved by the institutional review board of the University of Foggia, the ethical standards of the Italian Association of Psychology (AIP), as well as the 1964 Helsinki

Declaration and its subsequent amendments specifying the ethical principles that ensure the protection of individuals participating in medical research.

2.2 | Study design

The experimental design included an intervention group and a control group, with two measurement assessments (before the intervention, at time 1: mid-November 2020 and after the intervention, at time 2: mid-December 2020). At time 1, the eligible students were invited to complete an online questionnaire, which included demographic information and a set of questions focused on their psychological well-being (i.e. positive and negative affects and anxiety). The participants were then randomly assigned to one of the two (intervention and control) groups and given a personal but anonymous alphanumeric code. All participants were blinded to the study design and to whether they belonged to the intervention or the control group. After the study was completed, all participants received information regarding the research objectives, the BWM-T approach and the study design. At the end of the BWM-T online counselling sessions (time 2), the same questionnaire was administered to the same students. Data collected at time 1 were matched with data at time 2 by using the personal anonymous code. Fifty-four students completed the questionnaire at both times 1 and 2, 29 in the intervention group and 25 in the control group (96.3% females; $M_{\text{age}} = 21.31$ years, $SD = 2.09$; attrition rate = 28%).

The online counselling consisted of group sessions once a week over a period of four weeks. It was decided to hold a total of four sessions because this is the average number of face-to-face meetings normally provided by the counselling service, and because previous studies have shown that the BWM-T can effectively reduce anxiety and negative emotions even in a very short timeframe (e.g. Cozzolino, Celia, et al., 2021; Cozzolino, Girelli, et al., 2020). In each session, the students in both groups joined the same online meeting room. After a very brief welcome, the students in the control group were moved to another specially created online meeting room where they watched 15 min of videos on how to sustain their psychological well-being, supervised by a psychologist. Meanwhile, the students in the intervention group stayed in the other meeting room, where they received a 15-min BWM-T session administered by a trained clinical psychologist. The psychologist could view all the participants on his/her monitor, so that s/he could make sure each participant was effectively performing the task.

2.3 | The BWM-T intervention

The intervention consisted of a 4-step procedure involving simultaneous movements of the fingers on both the left and right hands (see Table 1 for a detailed description of each step). Each position had to be maintained for at least 3 min and the psychologist told the students when to

change to the next position. The positioning of the fingers has the power to involuntarily change participants' physiological mind-body balance by modulating their brain waves (Cozzolino, Celia, et al., 2021). By progressing through these four steps, brain waves with fast and intense frequencies (beta waves) are replaced by the slower (alpha, theta and delta waves) brain waves with a higher amplitude that are typical of relaxation and deep sleep, resulting in a generalised state of psychophysical well-being.

Before starting the BWM-T session, the students in the intervention group were invited to choose a relaxing place in their home, with a comfortable chair where they could sit with their backs resting on a firm support. The psychologist then asked them to rest both their hands on their legs or on the armrests of the chair and to close their eyes (Cozzolino, Girelli, et al., 2020). This position was not mandatory, but it was recommended, in order to ensure that the participants were comfortably seated in a quiet environment during all four steps of the technique. After the intervention, the psychologist asked the students how they were feeling and prompted them to state whether they had experienced any unusual physical, mental or emotional states during the activity.

2.4 | Measures

Questionnaires were given to the students, containing several questions on their emotions and levels of anxiety. All the questionnaires were in Italian, the native language of the participants.

2.4.1 | Emotions

Positive and negative affects were assessed using the Positive and Negative Affect Schedule (PANAS, Terracciano et al., 2003). The Positive Affect Scale consists of 10 items, which measure the degree of pleasant engagement, and the extent to which a person feels enthusiastic, excited, active or determined. The Negative Affect Scale consists of 10 items, which determine the extent of unpleasant sensation and subjective distress, including a broad range of unpleasant affects including fear, nervousness, guilt and shame. The participants rated the intensity with which they had experienced specific positive (e.g. enthusiastic) and negative (e.g. nervous) emotions over the past few weeks (Alivernini et al., 2020), on a scale ranging from 1 ('very slightly') to 5 ('extremely'). The Cronbach's α was 0.88 and 0.89 for positive affect and negative affect, respectively.

2.4.2 | Anxiety

Anxiety was assessed by the Y form of the State-Trait Anxiety Inventory (STAI-Y, Spielberger et al., 1983), which is composed of two separate self-report scales for measuring state and trait anxiety. The S-Anxiety scale (STAI Form Y-1) consists of 20 statements that evaluate how respondents feel 'right now, at this moment', while the T-Anxiety scale (STAI Form Y-2) consists of 20 statements that

assess how they generally feel. On the S-Anxiety scale, the students therefore rated the extent to which they were experiencing feelings like apprehension, tension, nervousness and worry, on a scale ranging from 1 ('not at all') to 4 ('very much so'). On the T-Anxiety scale, they rated the extent to which they commonly experienced apprehension, tension, nervousness and worry, on a scale ranging from 1 ('almost never') to 4 ('almost always'). The Cronbach's α was 0.93 for S-Anxiety and 0.90 T-Anxiety.

2.5 | Analysis

First of all, the differences between the intervention and the control group were estimated with regard to demographic characteristics and the key variables of the study. Then, for descriptive purposes, differences in gender distribution between those who remained and those who dropped out were calculated by performing a chi-square analysis. Univariate analyses of variance on age and all the key variables of the study were computed with study dropout as the independent variable and the baseline assessments as dependent variables (age, positive affect, negative affect, S-anxiety and T-anxiety). In order to evaluate the effects of the BWM-T, a series of two-factor mixed-design analyses of variance (ANOVA) were conducted using time as the within-subjects factor (pre- vs. post-intervention) and group as the between-subjects factor (intervention vs. control). The following variables were included in the analyses: positive affect, negative affect, S-anxiety and T-anxiety. The 2×2 mixed-design ANOVA was conducted separately for each variable of the study, using the IBM SPSS Statistics for Windows, version 23 (IBM Corp.).

3 | RESULTS

3.1 | Preliminary descriptive analysis

No significant differences were detected between the two groups (intervention and control) before the intervention, regarding demographic characteristics (gender: $\chi^2_{(1)} = 0.30$; $p = .57$; age: $F_{(1,75)} = 1.393$; $p = .24$), or positive affect ($F_{(1,75)} = 1.859$; $p = .17$), trait anxiety ($F_{(1,75)} = 2.856$; $p = .09$) or state anxiety ($F_{(1,75)} = 0.722$; $p = .39$). A statistically significant difference was, however, found between the two groups for negative affect ($F_{(1,75)} = 4.995$; $p < .05$; $\eta^2 = 0.06$), with the participants in the intervention group reporting higher levels of negative emotions than those in the control group (intervention group: $M = 2.78$; $SD = 0.91$; control group: $M = 2.30$; $SD = 0.96$).

3.2 | Effects of the BWM-T online counselling intervention

The results of the 2×2 mixed-design factorial ANOVA are presented in Table 2. They show a statistically significant effect of the interaction between time and group in participants' positive

TABLE 2 Means and standard deviations of the key variables of the study for both groups (intervention vs. control) and time (pre- vs. post-Intervention) and results of the 2 × 2 mixed-design factorial ANOVA

	Intervention group		Control group		Interaction effect group × time		
	M	SD	M	SD	F	df	η^2
Positive affect							
Pre	2.68	0.71	3.15	0.69	6.801*	1;52	0.11
Post	3.14	0.67	3.10	0.84			
Negative affect							
Pre	2.89	0.91	2.26	0.99	8.028**	1;52	0.13
Post	2.09	0.76	2.18	0.82			
S-Anxiety							
Pre	2.42	0.66	2.17	0.68	3.411 ^a	1;52	0.06
Post	2.02	0.67	2.06	0.62			
T-Anxiety							
Pre	2.54	0.44	2.23	0.58	0.790	1;52	0.01
Post	2.35	0.51	2.13	0.54			

* $p < .05$; ** $p < .01$; ^a $p = .07$.

and negative affects that goes in the direction we had expected. In fact, the students in the intervention group participating in the BWM-T online counselling sessions reported an increase in positive affect and a decrease in negative affect compared to those in the control group. No statistically significant interactions were found between time and group regarding the participants' S-anxiety and T-anxiety. However, the results for S-anxiety approached the level of significance, indicating that there was a reduction in S-anxiety in the experimental group, compared to the control group.

4 | DISCUSSION

At present, there is a lack of empirical evidence concerning the impact of telemental health interventions on the mental health of students in the context of university counselling services during the COVID-19 pandemic. The present study investigated the emotional responses of a sample of 75 undergraduate Italian students by comparing the levels of positive and negative affect and anxiety before and after an online counselling intervention using a randomised controlled design. We investigated the impact of a brief mind-body technique, the BWM-T, which has been shown to be effective for university students and on online platforms (Cozzolino, Girelli, et al., 2020; Cozzolino et al., 2017; Rossi et al., 2011).

Our results show that participants in the BWM-T online counselling sessions reported an increase in positive affect and a decrease in negative affect, compared to those in the control group (RQ 1). This result is consistent with previous studies that indicated the effectiveness of mind-body interventions aimed at reducing mental health problems in university students (e.g. Chiesa & Serretti, 2009; Regehr et al., 2013; Stillwell et al., 2017), some of which were administered online (Conley et al., 2016).

Moreover, our results indicate that there was a reduction in students' state anxiety after the intervention, although this fell short of the level of significance ($p = .07$) (RQ 2). This evidence is in line with previous research indicating the benefits of mind-body-based approaches in reducing negative emotional responses to stressors among students (Rocco et al., 2018; Salvatore et al., 2021; Yusufov et al., 2019). Despite the benefits regarding state anxiety, the intervention group had no apparent improvements concerning trait anxiety. It is worth noting that this result is in line with previous findings, showing that the reduction of trait anxiety rather than state anxiety is generally non-significant or milder after brief mind-body interventions on university students (e.g. Deckro et al., 2002). Nevertheless, our result may simply have been due to the small sample used in this research and a larger sample might have provided more significant results.

4.1 | Limitations

It is important to acknowledge some limitations of the present study, the first of which is the small sample size of the students, all of whom were enrolled in one particular academic course. We would have preferred to have a broader sample, which could have extended the applicability of the results, but this limitation was due to the difficulty of getting more students involved during the COVID-19 pandemic, when all courses were being taught at a distance. A second limitation concerns the demographics of the students, since the majority of the participants in our sample were females, largely due to the particular gender balance of the course that they attended. Nevertheless, as previous studies have indicated, this gender distribution is typical of many online as well as face-to-face interventions of this kind (Räsänen et al., 2016). A previous study has shown that the BWM technique is effective

also in non-gender-biased samples (Cozzolino, Vivo, et al., 2020); however, including more males in the present study would have augmented the validity of our results by establishing a less homogeneous sample. We recognise that future studies should attempt to establish the optimal practices for evidence-based health care across genders, with the possible aim of implementing gender-specific counselling (Holdcroft, 2007). Third, the attrition rate in this study was quite high (28%), although such high dropout rates are usual for online interventions (Day et al., 2013; Melville et al., 2010). According to a recent meta-analysis, almost a third of young people generally do not complete participation in a clinical intervention (Farris et al., 2020) and this rate can be even higher in the case of Web-based interventions (Välämäki et al., 2017). It has been shown that in order for an intervention to be successful, it is important for the participants to find the treatment interesting, engaging and personally meaningful (Alfonsson et al., 2016; Rice et al., 2014). Future studies could promote greater levels of engagement and intrinsic motivation in order to encourage participants to complete the intervention and the prescribed assignments, thereby reducing attrition rates. A fourth limitation is the lack of a follow-up study, which restricts the applicability of the results to a proximal timescale. We believe that future longitudinal studies will be necessary in order for us to understand how to maintain the benefits of this type of intervention over time, even without repeated or ongoing support. Finally, while this study focused on psychological variables, it might have been relevant to measure other variables related to students' physical, biological and neural patterns such as their heart rate or EEG. In fact, previous studies have shown that the BWM-T involves complex relationships between psychological mechanisms, biological pathways and genomic effects (Rossi et al., 2011).

5 | CONCLUSION

Despite the above-mentioned limitations, we believe that this study makes an effective contribution to the literature. It provides initial data regarding possible emotional outcomes among university students after a brief online counselling intervention conducted during the COVID-19 pandemic. The BWM-T can help to improve students' mental health in a concrete way, especially in periods when academic activities are conducted online. Firstly, it is easily administered online, as it requires no specific equipment or special training. Secondly, it can be conducted in group sessions, thereby helping psychologists to reach a larger number of participants. Thirdly, it is very easy to learn and can be carried out in a few minutes, so students are likely to prefer it to other methods that are more time-consuming and difficult to learn, especially when taught at a distance. Finally, it ensures the security and confidentiality of the participants.

The present study investigates the efficacy of a brief guided intervention, which is easily accessible to all students and simple to implement as part of a counselling service. The risk of being infected by COVID-19 and the introduction of physical distancing measures

have led to a significant shift in attitudes and behaviour, including among young people. Telemental health seems to be a promising tool to address the short- and long-term psychological effects of quarantine and isolation. Providing viable, sustainable and effectual psychological care and support to young people should be a priority of university counselling services, not only at times of emergency but also as a routine process of mental health support (Venuleo et al., 2020). In this regard, the BWT-T is a very promising means of counselling, as it is easy to learn and its versatility makes it simple to adopt online at a distance. In fact, the participants merely have to copy the gestures of the psychologist and follow the steps of the procedure by watching a monitor or smartphone screen. Moreover, in the BWM-T, the role of the therapist is less central to the process compared to other techniques, which means that the BWM-T can be effective even when there is poor connectivity due to a slow or unstable Internet connection.

We therefore believe that the integration of telemental health with more traditional forms of university counselling could be a feasible and efficient way to benefit and reinforce young people's psychological well-being and mental health during their university careers as well as later in their adult lives.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

AUTHOR CONTRIBUTION

All authors have seen the final draft of the manuscript, have approved its submission to the Journal and are willing to take responsibility for it in its entirety.

ETHICAL APPROVAL

All procedures performed in this study were in accordance with the 1964 Helsinki Declaration and its later amendments.

DATA AVAILABILITY STATEMENT

The data sets analysed during this study are not publicly available but are available from the corresponding author on reasonable request.

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