Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Research paper

Psychological distress among teaching staff during the COVID-19 pandemic: A transdiagnostic perspective on profiles of risk and resilience

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ABSTRACT

Teaching staff are especially vulnerable to COVID-19-related stress, due to the significant demands they have experienced. Yet, many have shown resilience—good mental health despite stress exposure. The current study used a person-centered approach to identify distinct profiles according to individual differences in psychosocial risk and protective factors. Latent Profile Analysis and ANOVAs were employed among 350 Israeli teaching staff during the fourth wave of COVID-19. Two distinct profiles, "risk" (55%) and "resilience" (45%) were identified. While groups showed no differences in COVID-19-related stress outcomes, they consistently differed in their psychological reaction to COVID-19 (psychopathology, compassion fatigue, and compassion satisfaction).

The prolonged COVID-19 pandemic has taken its toll on the mental well-being of children, adolescents, and adults alike. There is mounting evidence of its significant implications for mental health both in the present and in the foreseeable future (for review: Salari et al., 2020; Singh et al., 2020). The characteristics of the pandemic, coupled with the empathic involvement and sense of responsibility for their students' well-being, give rise to extraordinary pressure on teaching staff, making them especially vulnerable to the psychological consequences of the pandemic (Klapproth et al., 2020; Masry-Herzalah & Dor-Haim, 2022). In addition to their personal and family coping, teaching staff must cope with changing professional requirements and frequent changes in the nature and routine of their work (Viac & Fraser, 2020). Defined as a collective trauma, potentially impacting students and teaching staff alike, COVID-19 presents risks for teachers' mental health (Etchells et al., 2021; O'Toole & Simovska, 2021). And, indeed, teachers, have reported elevated stress and psychological difficulties (e.g., Ozamiz-Etxebarria et al., 2021).

In spite of the growing concern about teachers' mental health, there has been minimal empirical exploration of the mechanisms underlying teachers' general and profession-specific psychological distress. Similarly, little is known about protective factors helping prevent or mitigate its development (Lawson et al., 2019), especially in the unique context of the COVID-19 pandemic (Viac & Fraser, 2020). This is important as psychological well-being of teaching staff not only has a direct impact on their own quality of life (Lawson et al., 2019), but it also has a pivotal impact on their ability to meet professional challenges including maintaining quality teaching, organizational involvement, and positive relationships with colleagues, and students and their families (Carver-Thomas & Darling-Hammond, 2017), and aiding their students to cope with COVID-19 pandemic (Viac & Fraser, 2020).

The current study therefore examined the psychological distress experienced by teaching staff during the COVID-19 pandemic. Given that the population of teaching staff is not homogenous and individual differences may play an important role in the varied responses to the current pandemic, we tested whether a sample of Israeli teachers fell into subgroups (profiles) according to their individual differences in well-known psychosocial risk and protective factors and whether these profiles differed in multiple aspects of

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psychological distress during COVID-19. Using such a person-centered approach allows to test psychosocial risk and protective as a dynamic system and provide a better understanding of how a person, rather than isolated characteristics, interacts with their environment, to predict emotional reactions or behavior (Donnellan & Robins, 2010). Establishing profiles of risk and resilience factors and linking these profiles to outcomes (Chen & Bonanno, 2020), may help identify teaching staff at high risk and enable early intervention. Customized strategies and mental health recommendations as well as more cost-effective stepped-care interventions, focusing on facilitating resilience, can be then tailored to the profiles identified, taking into account the specific psychosocial risk and protective factors of the teaching staff.

1. The implications of COVID-19 for teaching staff

During the COVID -19 pandemic teaching staff have had to deal with the stress associated with schools closing down and the rapid transition to online teaching – a new experience for many that added to their workload, raised feelings of incompetence given the difficulty of adapting to technological challenges, and challenged their ability to differentiate and balance between personal and professional lives (Klapproth et al., 2020; Masry-Herzalah & Dor-Haim, 2022). This was accompanied by feelings of loneliness among teachers who found themselves without the daily support of their colleagues (Jakubowski & Sitko-Dominik, 2021; Kim & Asbury, 2020; O'Toole & Simovska, 2021). In Israel, as elsewhere, teaching staff have also had to cope with the stress related to the reopening of schools and face-to-face teaching in small groups, followed by the reopening of all school classes with requirement for daily health reports, facemasks, and social distancing. They have also had to deal with the risk of infection and serious disease and/or quarantine, due to the often only partial following of social distancing rules (Gaffney et al., 2020; Stein-Zamir et al., 2020).

With these effects of COVID-19 on the educational system, it is not surprising that teaching staff worldwide have reported high levels of general psychopathology, including depression, anxiety, and somatization (Collie, 2021; Jakubowski & Sitko-Dominik, 2021; Lizhi et al., 2021; Ozamiz-Etxebarria et al., 2021; Zhou et al., 2021). Regardless of age or gender, teaching staff reported clinical levels of anxiety (17%), depression (19%), and stress (30%) during the pandemic, with anxiety levels varying among countries (for review and meta-analysis: Ozamiz-Etxebarria et al., 2021). Depression, anxiety and somatization are not only the most prevalent mental health disorders observed in primary care, but they also pose significant challenges for the health care system in terms of detection and management (Hanel et al., 2009).

The psychological distress of teaching staff may also be reflected in profession-specific outcomes. One outcome is *compassion fatigue*. This is a state of physical and mental exhaustion caused by a depleted ability to cope with the everyday environment that develops during teachers' involvement and attempts to help in stressful situations faced by their students (Figley, 1995). Compassion fatigue consists of *secondary traumatic stress* component (i.e., posttraumatic symptoms experienced by helping professionals when witnessing the trauma/stress of those they support) and *burnout* (i.e., a response to chronic emotional and interpersonal work-related stressors characterized by loss of interest in work, exhaustion of personal resources, and decline of enthusiasm). Although this issue has yet to be widely investigated among school staff (Borntrager et al., 2012), particularly during the COVID-19 pandemic, compassion fatigue has indeed been reported by teaching staff during these times (Santos et al., 2021; Yang, 2021). Yet, in contrast to compassion fatigue, teaching staff may experience compassion satisfaction (i.e., the fulfillment and pleasure teachers may derive from effectively helping their students). This is considered a positive aspect of professional quality of life (Stamm, 2010).

2. Risk and resilience during the COVID-19 pandemic

Despite consistent findings of the negative effects of the pandemic on individual well-being (Ozamiz-Etxebarria et al., 2021; Yang, 2021), some people have shown no significant psychopathology at all. Indeed, resilience – a stable trajectory of mental health despite exposure to a serious stressor (Bonanno, 2004) – is also a common response to both the pandemic and governmental public health measures (e.g., Bozdağ & Ergün, 2020; Hou et al., 2021). From this perspective, resilience is considered maintenance or rapid recovery of mental health and psychosocial functioning despite exposure to stressors, and its operationalization and quantification necessarily involve an assessment of the stressors individuals are confronted with (Kalisch et al., 2017). Measurement of exposure to stressors is a critical facet of resilience research as resilience is only meaningful when adversity is indeed present. Within this framework, one can then try to identify the social, psychological, and biological factors associated with the resilience outcome (Mancini & Bonanno, 2009). Taken together, an individual's emotional response to stress is significantly determined by perceived or actual exposure to stress but also by the person's internal resources (personality and psychosocial protective factors) and external resources like social support (Bonanno, 2004; Chen & Bonanno, 2020).

Approaches focusing on the fundamental processes underlying multiple mental health disorders have similarly emphasized the key role of transdiagnostic risk factors such as personality dimensions and childhood trauma (e.g., McLaughlin et al., 2020; Nolen-Hoeksema & Watkins, 2011; Stanton et al., 2020). Yet, there is only sparse information on resilience among teaching staff during the COVID-19 pandemic. The current study focuses integratively on well-established transdiagnostic risk and protective factors potentially underling psychological distress or facilitating resilience during the pandemic. As each factor has only a small impact on psychological well-being (Chen & Bonanno, 2020), we have incorporated multiple factors previously identified as risk and protective factors.

A key transdiagnostic factor among *personal resources* is *mentalizing (reflective functioning),* the ability to understand oneself and others in terms of intentional mental states, including beliefs and feelings (Luyten et al., 2020). This capacity is essential for interpersonal functioning and is an effective buffer against a wide array of disorders (Luyten et al., 2020). Mentalizing is not only important in the understanding of vulnerability to psychopathology but also in its treatment. It is an adaptive psychological mechanism that helps coping with COVID-19-related stress (Lassri & Desatnik, 2020). Impairments in mentalizing (e.g., prementalizing modes) are associated with reduced well-being (Luyten et al., 2020). Research on mentalizing in educational settings is scant, but creating a mentalizing environment has been found to promote reflectivity among teaching staff and students (Fonagy et al., 2005; Valle et al., 2016), and teachers' reflective functioning is negatively associated with burnout (Dexter & Wall, 2021) and positively associated with well-being (Schwarzer et al., 2021).

Emotion regulation strategies, including *reappraisal* and *suppression,* are also transdiagnostic factors central for understanding psychopathology (Cludius et al., 2020). Reappraisal is an antecedent-focused strategy of cognitively construing a potentially emotion-eliciting situation so as to change its emotional impact (Gross & John, 2003). This is a well-known protective factor against psychopathology, positively linked with mental well-being and

health (Aldao et al., 2010; Cludius et al., 2020), and also with teachers' functioning (Sutton et al., 2009). Suppression is a response-focused strategy involving an active effort to reduce or inhibit the expression of affect after it is aroused (Gross & John, 2003). This is considered a risk factor for psychopathology (Aldao et al., 2010). It is excessively reported by teaching staff and is linked with their experiences of increased strain and emotional exhaustion (Taxer & Gross, 2018). Researchers emphasize that the ability to modulate emotional response under situational demands is essential for mental health, especially during the COVID-19 pandemic. However, research on helping professionals is scant (Khouri et al., 2022; Santi et al., 2021).

Self-compassion consists of self-kindness while dealing with personal disappointments and painful life events and a sense of shared humanity and mindfulness (Neff, 2003b). It is a robust resilience personality dimension (MacBeth & Gumley, 2012), specifically exemplified among teaching staff (Hwang et al., 2019). Practicing compassion or mindfulness assists teaching staff in dealing with emotional difficulties (Tarrasch et al., 2020), particularly during COVID-19 (Montero-Marin et al., 2021). In contrast, *self-criticism* – a punitive stance toward the self when high personal standards are not met, accompanied by low self-worth (Blatt et al., 1976; Shahar, 2015) – is a key transdiagnostic personality vulnerability dimension for psychopathology (Shahar, 2015; Werner et al., 2019) and a risk factor for psychopathology during COVID-19 (Besser et al., 2020).

Trauma history, particularly childhood trauma, is another well demonstrated transdiagnostic risk factor for psychopathology (McLaughlin et al., 2020; Nolen-Hoeksema & Watkins, 2011). Although contradictory results have emerged when considering type of trauma, personal trauma history is a key risk factor for profession-specific psychological distress among helping professionals (Behnke et al., 2020; Hensel et al., 2015; Yang & Hayes, 2020), and during COVID-19 (Arpacioglu et al., 2020).

The *external resource social* support is a central transdiagnostic protective factor in diverse stressful situations (Ozbay et al., 2007). Teachers report that having caring relationships has helped them cope with the significant changes in routine during the pandemic (Kim & Asbury, 2020) while a decrease in the quality of their interpersonal relationships was linked with elevated psychopathology (Jakubowski & Sitko-Dominik, 2021). Similarly, among teaching staff, professional social support was negatively linked to burnout (Tornuk & Gunes, 2020).

Specialized trauma training is also a key protective factor against the harmful impact of exposure to trauma among helping professionals (Yang & Hayes, 2020). It reduces levels of compassion fatigue and enhances compassion satisfaction among mental health providers (e.g., Sprang et al., 2007). It can thus be seen as a *professional resource.*

3. Person-centered approach

The majority of studies that examined the role of transdiagnostic factors in understanding individuals' responses to COVID-19-related stress have incorporated a variable-centered approach, focusing on isolated personality or psychosocial factors and their relationships to specific outcomes, averaged for the entire population (e.g., Besser et al., 2020). As personality or psychosocial risk and protective factors do not exist in isolation, and since the population is not homogenous, it has been suggested that these factors should be viewed as a dynamic system whose interplay characterizes a person (Donnellan & Robins, 2010). Arguably, using a person-centered approach may shed more light on the underlying mechanisms producing both intrapersonal variation and interpersonal differences across dimensions (Isler et al., 2017, p. 257), and would enable to examine how individuals, rather than isolated factors, interacts with their environment in predicting psychological or behavioral outcomes (Howard & Hoffman, 2018). This approach sees teaching staff as a heterogeneous population, within which homogeneous subgroups (profiles) can be identified (Asendorpf, 2015). While some studies have shown the importance of the person-centered approach in the context of COVID-19 (e.g., Ahmed et al., 2021; Yalçın et al., 2022), this has yet to be examined among teaching staff.

4. The current study

This study uses a resilience framework, in which resilience is defined as maintenance or rapid recovery of mental health and psychosocial functioning during and after times of adversity (Kalisch et al., 2017; Mancini & Bonanno, 2009). Within this framework we suggest that an individual's emotional response to COVID-19 is significantly determined not only by perceived or actual exposure to stress but also by the person's internal and external resources (Chen & Bonanno, 2020). The current study uses a person-centered approach carried out with a latent profile analysis (LPA) to determine whether there are distinct profiles among teaching staff during the COVID-19 pandemic. These profiles are based on their individual differences in levels of multiple transdiagnostic risk and protective factors: the personal resources – mentalizing, reappraisal, suppression, self-compassion, self-criticism, and trauma history; and the external resources, social support and specialized-trauma training. We examine whether such profiles differ in exposure to COVID-19-stress (e.g., COVID-19-related distress and school-related outcomes), general psychopathology (depression, anxiety, somatization), profession-specific distress (compassion fatigue: burnout, secondary traumatic stress) and compassion satisfaction.

5. Method

5.1. Participants and procedure

The sample comprised 350 teaching staff (teachers, heads of year, and school principals) from schools in the Israeli Ministry of Education's Jewish (n = 165), Jewish-religious (n = 50), and Arab (n = 135) sectors. The demographic characteristics of the sample are detailed in Table 1.

Data were collected in Hebrew or Arabic from August to October 2021 during the fourth wave of the COVID-19 pandemic in Israel. The invitation to take part in the study included information about the research project and its goals. Initially, the invitation was sent to 126 schools from different locations (e.g., city, village) from the Jewish (102 schools) and Arab (24 schools) sectors, which were sampled using a probability stratified sampling method that was based on the locality SES index reported by the Central Bureau of Statistic. The SES index is an often used measure to describe the SES of localities in Israel based on various social and economic indicators such as level of income, education, housing characteristics, employment, and receipt of social benefits. Schools were randomly chosen from all SES clusters. The researchers also contacted the schools' principals and administration by phone to provide detailed information about the research and its goals. The invitation to participate was subsequently distributed by the school principals and administration to their staff through email and WhatsApp groups. Of the 126 sampled schools, 10 schools declined to participate in the study. Because of ethical requirements, and in order to assure anonymity and confidentiality, the actual response rate of teaching staff from each school cannot be known. Due to an unsatisfying response rate from the stratified random sampling

Table 1
Demographic characteristics of the sample.

Characteristic	All ($N = 350$(, %
Age	Age M = 43.08. SD = 9.93, ranges 18-66
Gender	Gender 14.39% men, 84.6% women, 0.1% other
Marital Status	9.6% single
	82.1% married
	0.5% separated
	5.8% divorced
	1.2% widowed
	0.5% other
Living Area	22.9% North
	14.7% Haifa
	30.3% Center
	5.9% Tel-Aviv
	18.5% Jerusalem
	5.3% South
	2.2% Other
Children yes/no	83.4% yes
No. of Children	M = 2.96, SD = 1.1 range 1–7
Type of area of residence	60.8% city
	3.0% kibbutz
	2.3% community settlement
	22.4% countryside
	11.1% other
Nation/Religion	54.2% Jewish
	43.4% Arab
	2.3% Other
Education (more than one answer possible)	16.8% high school
	21.4% matriculation
	35.3% BA
	54.4% BA in education
	6.2% MA
	8.5% PhD
Income SES	12.5% a lot below average
	21.6% below average
	29.7% average
	29.7% above average
	6.5% a lot above average
Health	2.0% very poor
	5.4% not very good
	16.0% average
	55.1% good
	21.2% excellent
School type	47.1% Jewish nonreligious
	14.3% Jewish religious
	3.5% Arab
Years of job experience	M = 16.29, SD = 10.02, range 1–48
Type of job	43.9% educator
	19.9% teacher (specific subjects)
	37.9% head of year
	25.6% principal
	13.7% other
Work percentage	77.5% full
	22.5% part time
School level	42.8% primary school
	21.4% middle school
	35.8% high school
School special education (mostly)	22.5% yes

method, we also used convenience sampling via social media (e.g., Facebook, WhatsApp), enabling to directly approach to teaching staff. Thus, the invitation for the survey was also published in social media– including teaching staff Facebook groups and a dedicated project Facebook page. In addition, we used the snowball technique.

Participation in the survey was strictly anonymous and confidential. The survey was accessible through Qualtrics, a secured web-based survey data collection system. Clicking on the link to the anonymous survey guided potential respondents to a page that provided information about the study and a consent form. Only after agreeing to participate were they transferred to the questionnaire. A list of online resources and telephone hotlines for mental health issues and the researcher's contact information were provided. The study was approved by the Ethics Committee of the Chief Scientist of the Israeli Ministry of Education.

For the current investigation, participants with missing data in all the risk and protective factors variables were excluded from the analysis, resulting in a final sample of 251 teaching staff.

5.2. Measures

Demographic characteristics included gender, age, marital, health and socioeconomic status, education, religion and religiosity, professional seniority, workplace position/role, area of residence, location of school, school sector, and the school age group (elementary, middle and high school).

5.2.1. Risk and protective factors

General mentalizing was assessed by the short 8-item version of Reflective Functioning Questionnaire (RFQ8; Fonagy et al., 2016), a reliable and valid instrument for assessing individuals' self-reported tendencies to consider mental states as relevant to understanding their own and others' behavior. The RFQ8 uses 7-point Likert-type scales (1 = *completely disagree*, 7 = *completely agree*) that yield two subscales: certainty (RFQc) and uncertainty (RFQu) about mental states. The RFQc subscale reflects an adaptive facet of genuine and effective mentalizing. Here good reliability was found only for the RFQc ($\alpha = 0.83$), RFQu yielding an unsatisfying reliability ($\alpha = 0.67$). Therefore, consistent with a previous study (Castillo et al., 2020), only the RFQc was used as a measure of general mentalizing capacity.

Teacher mentalizing towards students was assessed using the Teacher Reflective Functioning Questionnaire (TRFQ; Lassri et al., 2023) based on the items of the Parental Reflective Functioning Questionnaire (Luyten et al., 2017). This is a validated 18-item scale assessing parental mentalizing on Likert scales ranging from 1 to 7 (1 = *disagree very much*, 7 = *agree very much*). Items were adapted to fit the teacher-student interaction. The questionnaire yields three subscales of 6 items each: (1) *certainty about the mental states of the student* (e.g., "I always know why my students act the way they do"). Very high scores reflect teachers' tendency to be overly confident about students' mental states (hypermentalizing), while very low scores reflect almost complete insecurity about students' mental states (hypomentalizing); (2) *interest in and curiosity about students' mental states* (e.g., "I am often curious to find out how my students feel"). Very low scores reflect a lack of interest in students' mental states and very high scores reflect hypermentalizing; and (3) *prementalizing modes* (e.g., "When my students are difficult, they do that just to annoy me"), examines difficulty in acknowledging mental states and their influence on behavior. Cronbach's α for this sample was .81. for certainty about mental states, 0.77 for interest and curiosity and 0.78 for prementalizing modes.

Emotion regulation was assessed using the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), a validated 10-item self-report measure assessing reappraisal (e.g., "I control my emotions by changing the way I think about the situation I am in") and suppression strategies (e.g., "I control my emotions by not expressing them"). The ERQ uses 7-point Likert scales (*1* = strongly disagree, *7* = strongly agree). The reliability here was acceptable for reappraisal ($\alpha = 0.81$) and suppression ($\alpha = 0.78$).

Self-compassion was assessed using the Self-Compassion Scale–Short Form (Neff, 2003a), a 12-item self-report questionnaire assessing traits reflecting self-kindness, common humanity, and mindfulness. The SCS-SF uses 5-point Likert scales (1 = *almost never*, 5 = *almost always*) and has good psychometric properties (Neff, 2003a). The reliability here was good ($\alpha = 0.81$).

Self-criticism was assessed using the DEQ-SC6, a validated 6-item measure of self-criticism (see Rudich et al., 2008) based on the self-criticism subscale drawn from the original 66-item scale of the Depressive Experiences Questionnaire (Blatt et al., 1976). The DEQ-SC6 uses a 7-point Likert scale (1 = *completely disagree*, 7 = *completely agree*) for each item. The reliability here was good ($\alpha = 0.80$).

Trauma history two items assessed the frequency of personal traumatic events (Have you experienced a traumatic event during your life? No/Once/More than once) and their timing (When did the traumatic event/s occur? Childhood/Adulthood/Both).

Perceived social support was assessed using the 12-item Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) assessing perceived support from family, friends, and significant others, and eight additional questions developed for this study, five questions examining the degree of support from the organization (e.g., "during COVID-19 I felt support from the my colleagues at school"), and three questions examining the sense of belonging to the organization (e.g., "during COVID-19 there was a group of people at work (circle of friends, clique) that I feel I belong to"). All items were on a 7-point Likert scale (1 = *very unsuitable*, 7 = *very suitable)*. The overall social support scale score was calculated using an average of all 20 items. The reliability here was high ($\alpha = 0.93$).

Specialized trauma training was assessed via a single item ("Have you been professionally trained for working with children in the context of trauma or crisis situations?" Yes/No).

5.2.2. General psychopathology and profession-specific distress outcomes

Depression symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) a 9-item validated measure assessing symptoms corresponding to the diagnostic criteria for major depression disorder. Each item is rated on a 4-point scale (0 = *never,* 3 = *nearly every day during the last two weeks*). Total scores range from 0 to 27, higher scores indicating more severe depression symptoms. PHQ-9 has clinical cut-off points: a score of 0–5 reflects the absence of depression, 5–9 sub-threshold/low depression, 10–14 moderate depression, 15–19 moderate-severe depression, and 20–27 severe depression (Kroenke et al., 2001). The reliability was high ($\alpha = 0.88$).

Anxiety symptoms was assessed using the General Anxiety Disorder (GAD-7; Spitzer et al., 2006), a 7-item validated measure assessing worry and anxiety symptoms scored on 4-point Likert scales (0 = *not at all*, 3 = *nearly every day*). The questionnaire is widely used for research and diagnostic purposes both in the general and clinical populations. Total scores range from 0 to 21, with higher scores reflecting greater anxiety. Scores above 10 are considered to be in the clinical range, while scores above 15 are considered a high risk for generalized and other anxiety disorders (Spitzer et al., 2006). Here $\alpha = 0.92$.

Somatization symptoms was assessed using the 6-item somatization symptoms dimensions of the Brief Symptom Inventory-18 (BSI-18; Derogatis & Fitzpatrick, 2004). Respondents are asked to indicate on a 5-point Likert scale how often (0 = *not at all* to 4 = *frequently*) they have experienced a symptom within the past month. The total score is calculated by averaging all items. Reliability was high ($\alpha = 0.91$).

Compassion fatigue and compassion satisfaction were assessed using the Professional Quality of Life Scale, Version 5 (ProQOL-5; Stamm, 2010). The 30-item ProQOL-5 comprises three 10-item subscales: compassion satisfaction, burnout, and secondary traumatic stress. Compassion fatigue is determined by the scores in burnout and secondary traumatic stress subscales. Items are rated on 5-point Likert scales (1 = *never*, 5 = *very often*). A total score of less than 22 on each subscale reflects low levels, a score between 23 and 41 medium levels, and a score above 42 reflects high levels. Cronbach's α here was 0.91 for compassion satisfaction, 0.70 for burnout, and 0.84 for secondary traumatic stress.

5.2.3. COVID-19 exposure: impact, distress, and school-related outcomes

The impact of COVID-19 was assessed via four items measuring the extent to which the ability to perform various activities was impaired due to the COVID-19 pandemic (Khouri et al., 2022) on 5-point Likert scales (Khouri et al., 2022). Here $\alpha = 0.79$.

COVID-19-related distress was assessed using the 13-item COVID-19 Concern Questionnaire (Khouri et al., 2022). Participants were asked to rate how concerned they were about various COVID-19 related topics on 5-point Likert scales (1 = *not at all*, 5 = *very much*). The questionnaire yields a general score by averaging all items and 4 subscales: health concerns (own and relatives), financial concerns (own and relatives), concerns about psychological and interpersonal aspects, and concerns about the implications of COVID-19 on the students. Here $\alpha = 0.86$.

Back-to-school distress because of COVID-19 was assessed using a 4-item questionnaire developed for this study asking teaching staff to report on 5-point Likert scales (1 = *not at all*, 5 = *very much*) how concerned they were about returning to face-to-face teaching. The questionnaire yields a general score by averaging all items. Here $\alpha = 0.88$.

Difficulties in teaching because of COVID-19 was assessed through the 7-item "Difficulties in Teaching during the Corona Period" questionnaire, which is based on the validated questionnaire "Difficulties in Teaching" (Regev & Sagi, 2002). Participants were asked to assess on 9-point Likert scales (1 = *had a very positive impact*, 9 = *had a very negative impact*) the extent to which COVID-19 impacted discipline and classroom management, relationships with parents, organizing class activities, relationships with students, relationships with colleagues, addressing cultural diversity in the classroom, and violence (also online). The questionnaire yields a general score by averaging all items. The internal reliability was $\alpha = 0.81$.

Motivation was assessed by the 4-item "Motivation for Teaching" questionnaire (Ezer et al., 2010) using 6-point Likert scales (1 = *completely disagree*, 6 = *completely agree*). A general score was obtained by averaging all items. The internal reliability was $\alpha = 0.82$.

Tendency to leave teaching was assessed using two items from the Turnover Intention Scale (Okubanjo, 2014) and one item developed for this study ("I plan to stay in my current job for the next few years") measured on 6-point Likert scales (1 = *completely disagree*, 6 = *completely agree*). A general score was obtained by averaging all items. The internal reliability was $\alpha = 0.81$.

5.3. Data analysis

In Part I, Latent profile analysis (LPA) was used for estimating distinct profiles in the risk (i.e., teacher prementalizing modes, suppression, self-criticism, and trauma history) and protective (i.e., general mentalizing, certainty about mental states, interest and curiosity about mental states, reappraisal, self-compassion, perceived social support, specialized trauma training) factors of teaching staff. Participants were excluded from the analysis if they had missing data in all these variables, the final sample comprised 251 teaching staff. For the analysis we used *tidyLPA* R package

(Rosenberg et al., 2019) with MPlus integration (Muthén & Muthén, 2019) and full information maximum likelihood (FIML) to handle partially missing data. We examined 1 to 5 possible profiles and determined the optimal number of profiles by the analytic hierarchy process (AHP) bootstrapped likelihood ratio test (BLRT) (Akogul & Erisoglu, 2017), the sample size of each profile, classification efficacy (i.e., entropy) and theoretical plausibility. The information criteria used in the AHP decision tree were Akaike's information criterion (AIC), approximate weight of evidence (AWE), Bayesian information criterion (BIC), classification likelihood criterion (CLC), and Kullback information criterion (KIC). Latent Profile Analysis (LPA) approaches clustering in a unique way by considering an individual's profile membership as a latent (unobserved) categorical variable with a specific degree of probability. Unlike traditional clustering methods such as k-means and hierarchical clustering, LPA has several key benefits. Individuals are classified into profiles based on their estimated membership probabilities directly from the model. Additionally, LPA is versatile and can handle variables of various types, including continuous, categorical, counts, or a combination of them. Furthermore, demographics and other covariates can be used to describe the profiles further (Spurk et al., 2020).

In Part II, we next examined differences among the profiles in general psychopathology (depression, anxiety, and somatization symptoms), profession-specific distress (compassion fatigue—burnout, and secondary traumatic stress symptoms; and compassion satisfaction) and COVID-19 outcomes, related to impact, distress, and school-related outcomes (the impact of COVID-19, COVID-19-related distress, back-to-school distress, difficulties in teaching because of COVID-19, motivation, and tendency to leave teaching). To do this, we conducted a series of analysis of variance tests while correcting the significance tests for the multiple comparisons by a false discovery rate of 5%. Missing data in Part II were handled using Multiple Imputation (Rubin, 2009) with the *mice* R package (Buuren & Groothuis-Oudshoorn, 2010) using 50 datasets and random forest as the estimation algorithm.

6. Results

6.1. Part I: risk and resilience profiles among Israeli teaching staff

The latent profile analysis solution with the best indices (excluding the AWE) was the 3-profile solution (Table 2). As the smallest profile comprised only 7 teachers (2.79% of the sample), we selected the 2-profile solution, which had the second-best indices, was theoretically plausible and had large groups (Fig. 1). The 2-profiles comprised the "Risk" (n = 137) and "Resilience" (n = 114) groups. The risk group had higher self-criticism, pre-mentalizing modes, and suppression, and lower self-compassion, general mentalizing, perceived social support, certainty about mental states, interest and curiosity, and reappraisal. The risk group also had less specialized trauma training than the resilience group. Finally, the risk group had experienced *fewer* traumatic events, but these events occurred during childhood as opposed to adulthood.

6.2. Part II: general differences between the risk and resilience groups

Mean, standard deviations, and effect sizes for the differences between the risk and resilience groups are presented in Table 3. We report only on differences that survived FDR adjustment for multiple comparisons.

6.2.1. General psychopathology, compassion fatigue, and compassion satisfaction

Significant differences were revealed in all psychopathology outcomes and profession-specific outcomes (Fig. 2). Thus, the resilience group reported significantly less general psychopathology in the form of depression, anxiety, and somatization symptoms, as well as significantly lower levels in compassion fatigue components (burnout, and secondary traumatic stress) than the risk group. The resilience group also reported significantly higher levels of compassion satisfaction than the risk group. These differences were all weak-to-moderate, with no differences in effect sizes between these effects, as noted in the 95% confidence intervals.

6.2.2. COVID-19 exposure: impact, distress, and school-related outcomes

In contrast to the significant differences demonstrated in general psychopathology, compassion fatigue, and compassion satisfaction measures, no significant differences were revealed in all COVID-19-related outcomes and/or school-related outcomes—i.e., the impact of COVID-19, COVID-19-related distress, back-to-school distress, difficulties in teaching because of COVID-19, motivation, and tendency to leave teaching (Fig. 3). That is, the resilience and risk groups experienced the COVID-19 pandemic similarly with respect to COVID-19-related distress and the impact of COVID-19 and school-related outcomes.

7. Discussion

The COVID-19 pandemic has generated a great deal of stress in education systems and among teaching staff. Worldwide, teachers show high levels of general psychopathology, including symptoms of depression, anxiety, and somatization (Ozamiz-Etxebarria et al., 2021) and profession-specific outcomes like compassion fatigue (Santos et al., 2021; Yang, 2021). However, there are few empirical data for understanding the mechanisms underlying general psychopathology and profession-specific distress among teachers. Similarly, little is known about protective factors that may help explain the diverse emotional responses to the challenges of COVID-19, and more specifically, the existence of resilience in many individuals—the maintenance of mental health and psychosocial functioning despite exposure to a serious stressor (Viac & Fraser, 2020). The study here is one of the few studies addressing the implications of COVID-19 for the mental health of teaching staff by employing a transdiagnostic perspective of risk and resilience.

The current study employed a person-centered approach by

Table 2
Results of the latent profile analysis.

	AIC	AWE	BIC	CLC	KIC	BLRT	Entropy
1 profile	5983.98	6271.21	6068.59	5937.98	6010.98		1.00
2 profile	5871.20	6315.93	6001.64	5798.35	5911.20	<.01	0.78
3 profile	5800.86	6401.99	5977.14	5702.28	5853.86	<.01	0.71
4 profile	Model did not compile						
5 profile	Model did not compile						

Note. AIC = Akaike's Information Criterion; AWE = Approximate Weight of Evidence.
BIC = Bayesian Information Criterion; CLC = Classification Likelihood Criterion; KIC = Kullback Information Criterion; BLRT = bootstrapped likelihood ratio test.

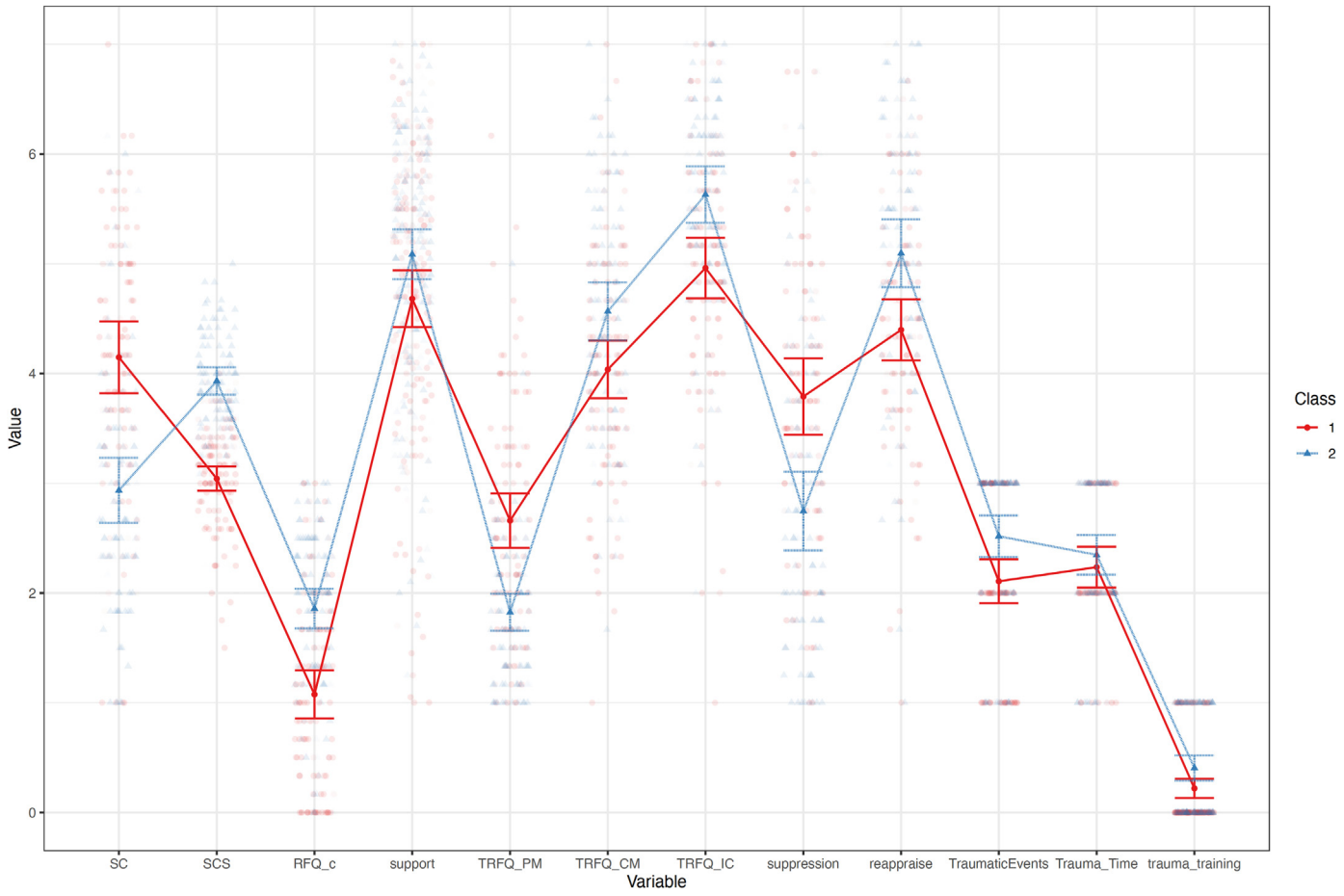

Fig. 1. The 2-profile Solution of the Latent Profile Analysis. *Note.* SC = self-criticism, SCS = self-compassion, RFQ_c = general mentalizing, TRFQ_PM = prementalizing modes, TRFQ_CM = certainty about mental states, TRFQ_IC = interest and curiosity in mental states. Classes: 1 – Risk, 2 – Resilience.

Table 3
Differences between profiles in psychopathology, compassion fatigue and satisfaction, COVID-19-related and school-related outcomes.

Characteristic	Risk, N = 137[a]	Resilience, N = 114[a]	p-value[b]	q-value[c]	Hedges's g (95% CI)
Depression	9.72 (7.58)	7.18 (6.50)	0.005	0.023	0.36 (.11, .61)
Anxiety	7.90 (7.08)	5.82 (5.87)	0.012	0.028	0.32 (.07, .56)
Somatization	0.93 (1.08)	0.65 (0.86)	0.025	0.049	0.28 (.03, .53)
Compassion satisfaction	32.51 (14.98)	37.63 (14.96)	0.007	0.023	−0.34 (−.59, −.09)
Burnout	22.76 (10.02)	19.46 (8.87)	0.006	0.023	0.35 (.10, .59)
Secondary traumatic stress	21.26 (10.92)	17.95 (8.64)	0.008	0.023	0.33 (.08, .58)
COVID-19-related distress	3.27 (0.82)	3.13 (0.77)	0.2	0.3	0.18 (−.07, .42)
Motivation	3.88 (1.43)	4.11 (1.47)	0.2	0.3	−0.16 (−.41, .09)
Tendency to leave teaching	2.54 (1.08)	2.44 (1.23)	0.5	0.6	0.09 (−.16, .33)
Back-to-school distress	3.26 (1.19)	3.24 (1.20)	>0.9	>0.9	0.01 (−.24, .26)
Impact of COVID-19	3.50 (1.01)	3.37 (1.12)	0.4	0.5	0.12 (−.13, .37)
Difficulties in teaching because of COVID-19	4.67 (1.64)	4.75 (1.42)	0.7	0.7	−0.05 (−.30, .20)

[a] Mean (SD).
[b] Welch Two Sample *t*-test.
[c] False discovery rate correction for multiple testing; Hedges' g = unbiased effect size (.2 = weak, .5 = moderate, .8 = strong). 95% CI = 95% confidence interval.

integratively using multiple transdiagnostic personality and psychosocial risk and protective factors to examine whether a sample of Israeli teaching staff fell into distinct profiles according to their individual differences in these factors. We also tested whether these profiles differed in multiple aspects of mental health, i.e., general and profession-specific psychological distress during COVID-19 as well as in COVID-19-related and school-related outcomes. The current data were best fitted by a two-profile solution, allowing classification of the research sample into two conceptually meaningful latent profiles reflecting individual differences in risk and protective factors: the "risk" (55%) and "resilience" (45%) groups.

The participants in each profile reported similar patterns. Individuals in the risk group reported high levels of risk factors: self-criticism, prementalizing modes, and suppression, alongside low levels of protective factors: self-compassion, general mentalizing, teacher certainty about mental states, teacher interest and curiosity in mental states, reappraisal, and social support. They also tended

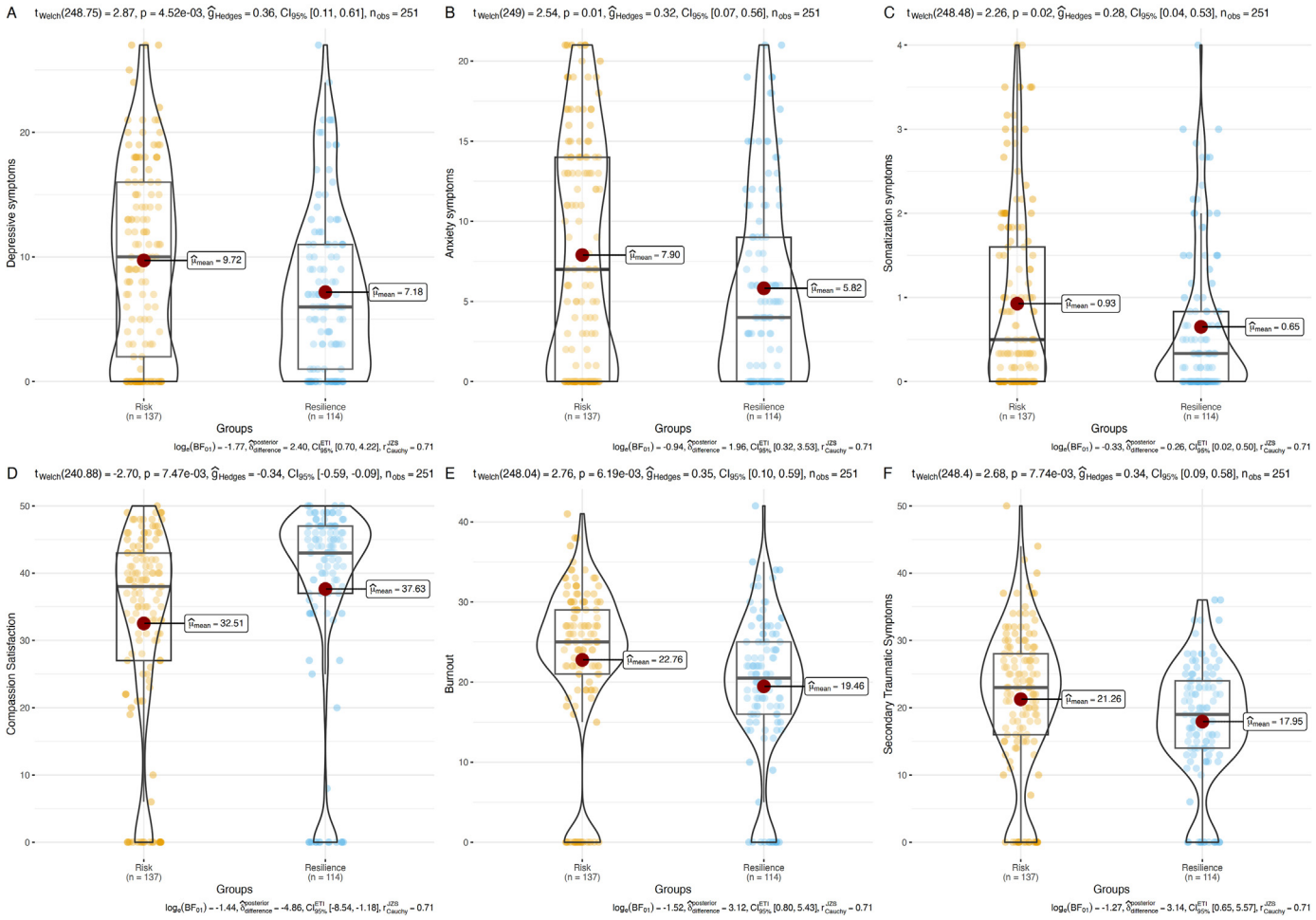

Fig. 2. Differences between profiles in psychopathology, compassion fatigue, and compassion satisfaction.

to have less specialized trauma training than the resilience group. The risk group tended to have experienced fewer traumatic events, but these events happened during childhood rather than adulthood. In comparison, individuals in the resilience group reported high levels of protective factors: self-compassion, general mentalizing, teacher certainty about mental states, teacher interest and curiosity in mental states, reappraisal, and social support, and exhibited low levels of risk factors: self-criticism, prementalizing modes, and suppression. They also tended to have more specialized trauma training than the risk group. Although the resilience group tended to have more traumatic events, these events did not happen during childhood, rather they accrued during adulthood.

No differences were found between the risk and the resilience groups in all COVID-19 exposure outcomes - COVID-19-related impact on different activities, and COVID-19-related distress. Similarly, no differences were found between the groups in COVID-19 school-related outcomes, namely, back-to-school (face-to-face teaching) distress because of COVID-19, difficulties in teaching because of COVID-19, motivation, tendency to leave teaching. These data indicate that the teaching staff in the risk and the resilience groups experience the stresses of the pandemic in a similar fashion. COVID-19 is indeed stressful for all teaching staff alike; they heightened concerns about their own health and that of their loved ones, financial hardship, concerns about their students, concerns about going back to face-to-face teaching, as well as in their difficulties in teaching during COVID-19.

Yet, there were consistent significant differences between the risk and resilience groups in all general psychopathology and profession-specific distress, and compassion satisfaction, indicating that, although both groups similarly experience COVID-19 as a robust stressor, the groups varied in their psychological reactions to this stress. These results fit with the notion of resilience arising in adversity (e.g., Bonanno, 2004; Chen & Bonanno, 2020; Kalisch et al., 2017; Mancini & Bonanno, 2009). Those in the resilience group possessed high levels of personal and interpersonal (external) resources which appear to have assisted them in dealing with the stress caused by the pandemic and thus they exhibit less psychological distress. That is, personality dimensions and individual psychosocial differences may indeed play an important role in the varied responses to the current pandemic.

The resilience group reported a high ability to reflect (mentalize) on how they perceive COVID-19-related stressors and to understand their own as well as their students' mental states and were also certain about their ability to do so. They remained interested in and curious about their own and their students' mental states and reported a lower tendency to resort to prementalizing modes. This may provide them with the flexibility to respond adaptively, thereby allowing better self-care and nurturing of self and others (Lassri & Desatnik, 2020). Similarly, their high level of reappraisal allows them to cognitively interpret the challenges they encounter so as to change their emotional impact, allowing a better emotional reaction to COVID-19 challenges (Santi

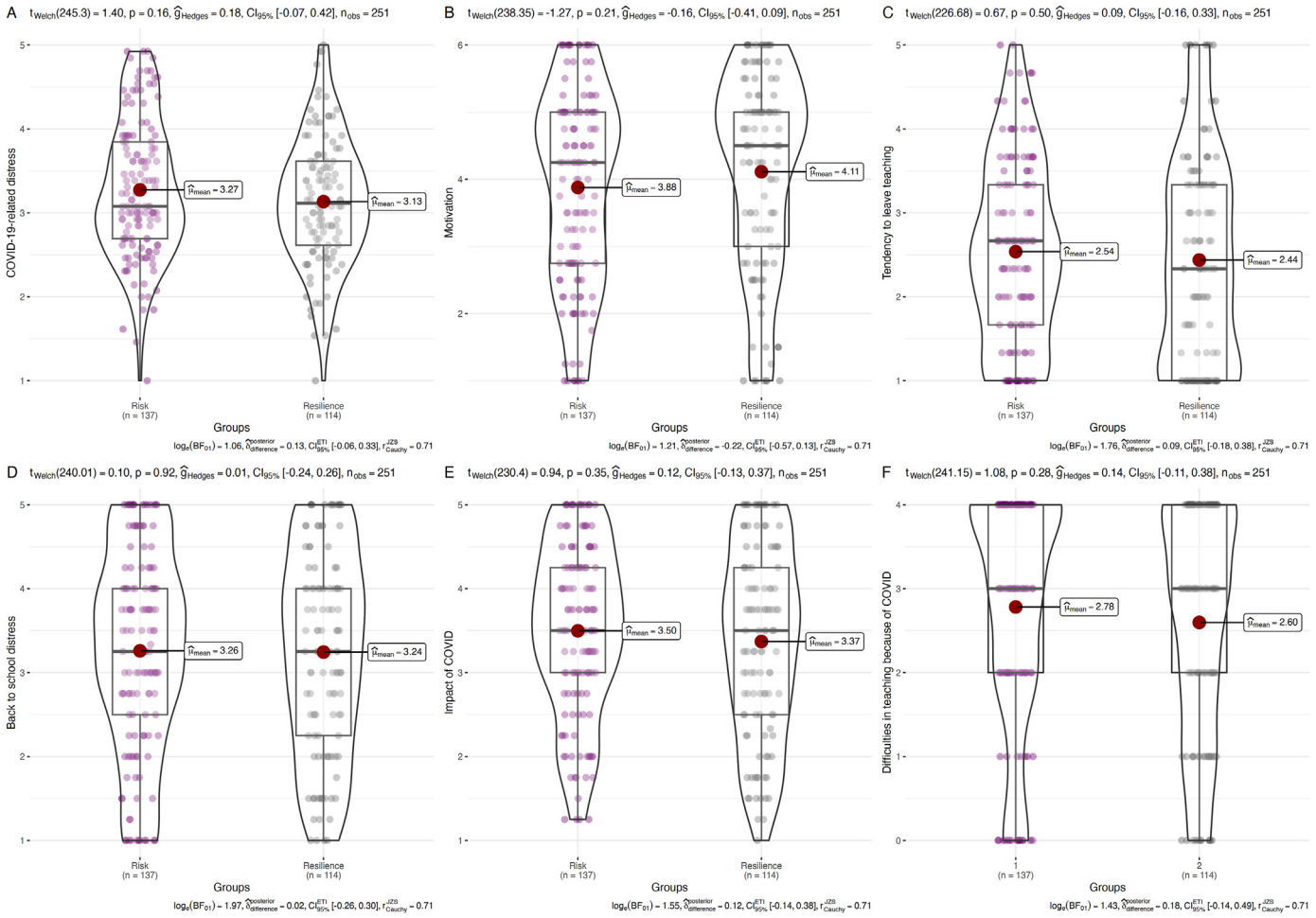

Fig. 3. Differences between profiles in COVID-19-related and school-related outcomes.

et al., 2021). Their high self-compassion may promote psychological and behavioral flexibility essential for successful adaptation to stress and frequent changes, as it allows a mindful, nonjudgmental acknowledgment of one's distress and feelings of connectedness, which are especially important during COVID-19 (Montero-Marin et al., 2021). Teachers in the resilience group reported high social support, implying that when facing challenges, they may rely on others as a stable source of support and strength (Tornuk & Gunes, 2020). Also, many were trained for dealing with students' trauma and stress, another key protective factor against the potentially harmful impact of trauma exposure among helping professionals (Yang & Hayes, 2020).

In contrast, although teachers in the risk group experienced similar COVID-related stress to those in the resilience group, their higher risk factors make them more likely to develop psychopathology and compassion fatigue, and to experience less compassion satisfaction. Based on our knowledge of the role of transdiagnostic risk factors in predicting an individual's well-being (Nolen-Hoeksema & Watkins, 2011; Stanton et al., 2020), it is not surprising that this group also exhibited more vulnerability in the face of COVID-19. Thus, high levels of self-criticism accompanied by low levels of self-compassion may lead these teachers to experience more emotional distress while facing the negative emotions related to the changing challenges of COVID-19 (Besser et al., 2020; Hwang et al., 2019; Shahar, 2015). Also, the tendency of self-critical individuals to mistrust others and to overemphasize autonomy at the expense of interpersonal relatedness may "degenerate" their support network (Shahar, 2015), as indeed implied by their low levels of social support. Thus, they may have reduced external resources to rely on in times of stress. Not receiving training to deal with the trauma-related emotional distress of their students may also increase feelings of helplessness, burnout, and secondary traumatic stress during these times of collective trauma (Etchells et al., 2021; O'Toole & Simovska, 2021; Sprang et al., 2007).

The teachers in the risk group reported low levels of general mentalizing, certainty about students' mental states, and interest and curiosity in the mental states of their students. It appears that in these stressful times these teachers may display a lower capacity to understand their own, as well as their students' mental states. They experience difficulty in using mental states as a reliable source of information and may therefore experience more confusion and difficulties in adapting to the changing reality (Lassri & Desatnik, 2020; Luyten et al., 2020). In their interactions with their students they are consistently more inclined to resort to "prementalizing modes", that are strongly associated with elevated psychological distress (Luyten et al., 2020).

Teaching staff reporting high levels of suppression and low levels of reappraisal may struggle with the emotional processing of traumatic or negative events, increasing their emotional burden (Eftekhari et al., 2009; Taxer & Gross, 2018). The risk group is also characterized by fewer traumatic events than the resilience group, however, these events happened during childhood rather than

adulthood. This fits previous studies demonstrating that the type of trauma plays a key role in understanding helping professionals' psychological distress (Hensel et al., 2015), and that a history of childhood adversities is associated with lower mental health outcomes (Behnke et al., 2020), particularly during COVID-19 (Arpacioglu et al., 2020).

7.1. Limitations

The results here should be evaluated in light of several limitations. First, although our sample included a representation of the diverse groups in the Israeli educational system, the nature of the convenience sampling and the relatively small sample size were potentially underpowered to estimate the true group differences (choosing 2-profile solution over a 3-profile solution). This limits the generalizability of results. Second, the use of self-report measures, although valid and reliable, may represent reporting biases as well as shared method variance, in turn inflating the associations between the study variables. Third, due to the cross-sectional study design, we cannot determine whether risk and protective dimensions measures here preceded COVID-19-related psychological distress or were caused by it. Thus, these dimensions may have been affected by COVID-19-related psychological distress, suggesting that teaching staff with high psychopathology, for example, might have reported higher levels of risk and low levels of protective factors. Future research should include additional assessments waves to track changes in psychological distress and risk and protective factors over time. This is especially important given the dynamic nature of the COVID-19 pandemic. Including different assessment methods, i.e., physiological measures and experimental and longitudinal designs would enhance the strength of future studies.

8. Conclusions and practical implications

General and profession-specific psychological distress among teaching staff is a key problem for society, as these professionals provide essential services to the general population. The psychological distress of teaching staff is not only significant in itself, being closely related to their quality of life and physical, and mental health (Lawson et al., 2019), but it also has a pivotal impact on their ability to fulfill their central role of assisting students to cope with various life events, including COVID-19 pandemic (Viac & Fraser, 2020). Psychological distress among teaching staff may also be implicated in their motivation, turnover intentions, and their ability to meet multiple professional challenges, such as maintaining the quality of teaching, exhibit organizational involvement, and sustaining positive relationships with students and their parents (Borntrager et al., 2012; Lawson et al., 2019). These aspects are even more relevant in times of COVID-19, where students and their parents are experiencing elevated levels of stress (Singh et al., 2020).

By establishing profiles of risk (i.e., teacher prementalizing modes, suppression, self-criticism, and trauma history) and resilience (i.e., general mentalizing, certainty about mental states, interest and curiosity about mental states, reappraisal, self-compassion, perceived social support, specialized trauma training) factors via an integrative person-centered approach and linking these profiles to diverse outcomes (Chen & Bonanno, 2020), we were able to identify teaching staff at high-risk for general and profession-specific psychological distress. Identifying a high-risk profile can be translated into prevention and intervention programs for teaching staff to foster resilience according to their personal and interpersonal resources, as well as to more apt recommendations for mental health among teaching staff. More particularly, this might imply the ability to implement more cost-effective stepped-care interventions, focusing on facilitating strengths and resilience, that are tailored to the specific needs of each group (profile), rather than providing the same programs and interventions to all teaching staff.

Moreover, the results suggest that, despite a consistent impact of COVID-19 on teaching staff, their psychological reactions to the COVID-19 pandemic may be related to detectable individual differences in personality and psychosocial transdiagnostic risk and protective factors. With their focus on the underlying mechanisms of various mental health disorders, transdiagnostic models may facilitate more effective assessments, diagnosis, and prevention and intervention programs addressing teachers' emotional reaction to COVID-19 and possibly to stressful events generally. These supportive interventions include mentalizing approaches aimed at supporting teaching staff reflective functioning (Fonagy et al., 2005; Valle et al., 2016) and self-compassion training (Hwang et al., 2019). Another effective model of support is supervision (Gürsoy et al., 2013), which has been adapted from psychotherapy and provides peer and professional support for teaching staff (Acheson & Gall, 2003).

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Ethical statement

The study was approved by the Ethics Committee of the Chief Scientist of the Israeli Ministry of Education, that has approved all procedures and instruments.

Author statement

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

I have shared the link to my data in the manuscript.

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