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Validation of the International Adjustment Disorder Questionnaire in Israel and Switzerland

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Abstract

The ICD-11 has introduced a new conceptualization of adjustment disorder (AjD) as a stress response syndrome with core symptoms of preoccupations and failure to adapt to the stressor. The current study aimed to assess the reliability and validity of the International Adjustment Disorder Questionnaire (IADQ) in two culturally distinct samples from Israel and Switzerland. Two samples were recruited in Israel ($N = 1142$) and Switzerland ($N = 699$) during the initial stages of the COVID-19 pandemic. Confirmatory factor analysis indicated that a correlated two-factor model provided an excellent fit to the Israeli and Swiss sample data. The IADQ scores correlated strongly with another measure of AjD symptoms and with symptoms of depression, anxiety, acute stress and negative emotions, whereas correlations with posttraumatic stress disorder, complex posttraumatic stress disorder and positive emotions were weaker. In the Swiss sample, 18.8% met diagnostic criteria for probable AjD and 10.2% in the Israeli sample. The current study provides the first evidence of the validity of the German and Hebrew versions of the IADQ and can be used for the screening of this debilitating condition.

KEYWORDS

adjustment disorder, psychometrics, stress related disorders, trauma

1 | INTRODUCTION

The diagnosis of adjustment disorder (AjD) describes maladaptive reactions to critical, mostly non-traumatic psychosocial stressors, such as job loss, divorce, family conflicts, financial problems, or severe disease and accidents (Maercker et al., 2013). In the 11th version of the *International Classification of Diseases* (ICD-11; World Health Organization, 2018), AjD is included in the chapter on 'Disorders specifically associated with stress' (code 6B43). For the first time, key diagnostic requirements are specified for this disorder. The core symptoms of ICD-11 AjD are 'preoccupations with the stressor', which includes symptoms such as recurrent and distressing thoughts or preoccupation with the stressor or its implications, and 'failure to

adapt symptoms', which includes difficulties concentrating, sleep disturbances, and an inability to emotionally recover from the stressful experience. For a diagnosis of AjD, the symptoms must emerge within 1 month of the stressor and be associated with significant impairment in functioning. The diagnosis should not be used if co-morbid depressive disorder, prolonged grief disorder, uncomplicated bereavement, burn-out, acute stress reactions or separation anxiety disorder of childhood are present (World Health Organization, 2018).

The ICD-11's explicit diagnostic framework of AjD opens new possibilities to assess AjD symptoms with standardized psychometric tools and has initiated a host of studies about the nature of this stress-response syndrome (Bachem & Casey, 2018). To date, two questionnaires have been developed to measure the symptoms of ICD-11 AjD: The Adjustment Disorder – New Module (ADNM; Einsle et al., 2010) and the International Adjustment Disorder Questionnaire

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(IADQ; Shevlin et al., 2020). The ADNM was constructed first and guided the development of the ICD-11 AjD concept (Maercker et al., 2007). Consequently, much of the current research on ICD-11 AjD is based on the ADNM questionnaire, which exists in different versions.

The most commonly used version of the ADNM is the 20-item version (ADNM-20; Glaesmer et al., 2015) that assesses preoccupations and failure to adapt symptoms as well as 12 accessory symptoms that are not reflected in the current ICD-11 description. Accessory symptoms were included to accommodate characteristics of earlier subtypes of AjD. Studies investigating convergent and discriminant validity, factor structure and internal consistency produce evidence that the ADNM-20 scores have good psychometric properties (Glaesmer et al., 2015; Levin et al., 2021; Liang et al., 2021; Lorenz et al., 2016; Zelviene et al., 2017). Other validated versions of the ADNM include a brief 8-item version, consisting of only the core symptoms (ADNM-8; Kazlauskas et al., 2018) and an ultra-brief measure consisting of only two items of preoccupation and two items of failure to adapt (ADNM-4; Ben-Ezra, Mahat-Shamir, et al., 2018). The ADNM questionnaire has been used as a general measure assessing stress response to any stressful life event a person identifies from the list of 18 acute and chronic life events in general population samples (Glaesmer et al., 2015; Zelviene et al., 2017) but also as a contextualized questionnaire to assess maladaptive reactions to specific events such as job loss (Lorenz et al., 2020), burglary (Bachem & Maercker, 2016), terror attacks (Ring et al., 2018) or organ transplantations (Bachem et al., 2019).

Following the publication of the finalized ICD-11 criteria of AjD, a second self-report questionnaire, the IADQ was developed (Shevlin et al., 2020). The IADQ items correspond more strictly to the wording of the narrative description of AjD in the ICD-11, without the inclusion of accessory symptoms. The IADQ also remedies a weakness of the ADNM questionnaires, which uses a single item as an indicator of both failure to adapt and functional impairment. The IADQ is a parsimonious measure consisting of a broad 9-item stressor list, six items that assess preoccupation with the stressor and failure to adapt symptoms, a single item measuring the timing of symptom onset, and three items that assess functional impairment. It provides a simple and clinically useful diagnostic algorithm that conforms to the principles of ICD-11 to maximize clinical utility and ease of use (First et al., 2015).

The IADQ was validated in a nationally representative sample ($N = 1020$) of adults from Ireland (Shevlin et al., 2020). The factorial validity was demonstrated via confirmatory factor analyses which favoured a two-factor structure with separate but highly correlated ($r = 0.94$) factors of preoccupation and failure to adapt. Cronbach's alpha values were excellent for preoccupations ($\alpha = 0.88$), failure to adapt ($\alpha = 0.92$) and the total scale score ($\alpha = 0.94$). Concurrent validity was supported by strong correlations with depression ($r = 0.69$), generalized anxiety ($r = 0.72$), and posttraumatic stress symptoms ($r = 0.61$). These data provided evidence that the IADQ might be a valid and reliable measure of ICD-11 AjD; however, further validation

Key Practitioner Message

- The International Adjustment Disorder Questionnaire showed satisfactory psychometric properties and allows for an economic screening of ICD-11 AjD symptoms.
- The IADQ is freely available on the website of the International Trauma Consortium (<https://www.traumameasuresglobal.com/iadq>).
- The study results support the distinction between preoccupation and failure to adapt symptoms for diagnostic purposes.
- The rates of probable AjD during the COVID-19 pandemic were relatively high (18.8% in Switzerland; 10.2% in Israel). However, for a clinical diagnosis, for example, in a clinical interview, it should be ensured that symptoms persist for a minimum time frame.

studies are required. Specifically, its intercorrelation with the ADNM has not yet been examined. Furthermore, its association with acute stress disorder (ASD), which the ICD-11 considers being a short-lived, non-pathological reaction in the initial stage after exposure, remains to be explored.

AjD is one of the most frequently encountered mental health conditions in clinical practice (Evans et al., 2013; Reed et al., 2011). Using the diagnostic algorithm of the IADQ, AjD prevalence in the general population of Ireland was estimated at 15.6%, although this decreased to 7.0% when cases that also met the criteria for depression and prolonged grief disorder were excluded (Shevlin et al., 2020). Using the diagnostic algorithm of the ADNM-20, estimated rates of AjD in a representative German sample were lower, at 1.4% without fulfilling the impairment criterion and 0.9% fulfilling the impairment criterion (Maercker et al., 2012). In a representative sample of the Israeli general population, the AjD prevalence rate was estimated at 17.5% using the ADMN-20 without employing the exclusion criteria (Lorenz et al., 2018). Similarly, in a representative sample of the general population of Lithuania, Zelviene et al. (2020) found an estimated AjD prevalence rate of 16.5% using the ADMN-8, without exclusionary disorders considered.

The current project was conducted to provide further assessment of the reliability and validity of the IADQ in two culturally distinct samples from Israel and Switzerland. The sample from Israel completed a broad-based assessment of exposure to psychosocial stressors, whereas Switzerland used a contextualized version of the IADQ that assessed AjD symptoms in response to a specific stressor: the COVID-19 pandemic. Our first objective was to test the factorial validity of the IADQ in both samples, and we hypothesized that a correlated two-factor model reflecting symptoms of preoccupation and failure to adapt would fit the sample data well. We also assessed the concurrent validity of the IADQ by assessing how well the IADQ scores correlated with measures of AjD

symptoms from the ADMN scales, symptoms of posttraumatic stress disorder (PTSD), complex posttraumatic stress disorder (CPTSD), acute stress disorder (ASD), depression, generalized anxiety, and positive and negative emotions. We hypothesized that there would be strong, positive associations between the IADQ scores and symptoms of AjD, ASD, generalized anxiety, depression, and negative emotions, and weaker correlations with PTSD/CPTSD symptoms and with positive emotions. Finally, and assuming evidence in support of the reliability and validity of the IADQ scale scores, estimated prevalence rates and symptom scores of AjD were assessed in both samples.

2 | METHOD

All procedures performed in studies involving human participants were following the ethical standards of the Ethics Committee of Ariel university (number AU-SOC-MBE-20200413), and with the Ethics Committee of [blinded] (number 20.4.4). Each participant signed an electronic informed consent form. In both countries, convenience samples of adult participants were recruited via social media (e.g. Facebook) and a snowball technique.

2.1 | Israel: Participants and procedure

Participants ($N = 1142$) were recruited between 30 March and 30 April 2020 (i.e. 1 week after the Israeli national lockdown due to COVID-19). The participant's mean age was 39.81 years ($SD = 13.69$, range 18–87 years), 67.6% were female ($n = 772$), 76.7% ($n = 876$) were in a committed relationship. The average education was 15.45 years ($SD = 2.84$, range 10–28 years). As for income level, 48.3% ($n = 552$) reported lower than average income, 21.7% ($n = 248$) reported average income and 29.9% ($n = 342$) reported higher than average income. Most of the sample reported excellent subjective health (94.6%) while a minority of 5.4% reported their health as 'not good' or 'not good at all'.

2.2 | Switzerland: Participants and procedure

We considered the pandemic as a global stressor that satisfies the criteria for exposure to a stressful life event that could potentially trigger AjD, as has been suggested (Kazlauskas & Quero, 2020; Taylor, 2021). Data were collected from 24 April to 23 May 2020, during a partial lockdown. While during the time of the data collection the population had not been required to be in quarantine, it was strongly recommended to remain at home. Participants ($N = 699$) consented to participate in a study aiming to uncover psychosocial coping with challenges regarding COVID-19. Questionnaires were distributed electronically in German using Unipark Software. The mean age of the participants was 43.45 years ($SD = 15.09$, range 18–87 years), and 73.8% were female ($n = 516$).

Regarding education, 28.18% ($n = 197$) completed primary/middle school, 16.01% ($n = 114$) completed high school, and 55.51% held a university degree. The majority of the sample was working (67.00%, $n = 468$), 12.73% were students ($n = 89$), 11.87% were retired ($n = 83$), 5.72% ($n = 40$) were homemakers, and 2.71% ($n = 19$) were unemployed. The majority of the sample (70.10%, $n = 490$) reported no financial loss due to the pandemic, 23.18% ($n = 162$) reported small financial loss, and 6.44% ($n = 45$) reported significant financial loss.

2.3 | Measures

2.3.1 | Measures used in both studies

International Adjustment Disorder Questionnaire (IADQ; Shevlin et al., 2020)

The IADQ was applied in both samples. It consists of three main sections. First, the psychosocial stressor checklist is answered using a binary response format (Yes = 1 or No = 0). Second, the symptom list consists of three items measuring preoccupation symptoms and three items measuring failure to adapt symptoms, using a 5-point Likert scale ranging from 0 (*Not at all*) to 4 (*Extremely*). A symptom was deemed to be present based on a score of ≥ 2 (*Moderately*). Respondents are also asked whether these problems started within 1 month of the stressful event and answer using a binary format (Yes = 1 or No = 0). Finally, functional impairment in the domains of social, occupational/educational, and other important areas caused by these symptoms is assessed using three items. The algorithm used to identify probable cases of AjD was as follows: (i) a psychosocial stressor score ≥ 1 , (ii) endorsement of at least one preoccupation symptom and at least one failure to adapt symptoms, (iii) onset of the AjD symptoms within 1 month of the stressor, and (iv) endorsement of at least one functional impairment criteria met (a score of ≥ 2 on any of the three functional items).

Adjustment Disorder–New Module (ADNM; Kazlauskas et al., 2018; Lavenda et al., 2019)

Participants in the Israeli study filled in the ADNM-4 (Lavenda et al., 2019), an ultra-brief measure based on the ADNM-20 (Maercker et al., 2012), whereas Swiss participants filled in the ADNM-8 (Kazlauskas et al., 2018), also based on the ADNM-20. Core symptom clusters assessed were in both versions: preoccupation (e.g. 'I have to think about the stressful situation a lot and this is a great burden to me' and 'I constantly get memories of the stressful situation and can't do anything to stop them') and failure to adapt (e.g. 'I find it difficult to concentrate on certain things' and 'I do not like going to work or carrying out the necessary tasks in everyday life'). Participants rated items on a 4-point Likert scale (1 = *never*; 2 = *rarely*; 3 = *sometimes*; 4 = *often*). Cronbach's alpha calculated for the Israeli sample was $\alpha = 0.87$, whereas for the Swiss sample, it was $\alpha = 0.85$.

2.3.2 | Israel-specific measures

International Trauma Questionnaire (ITQ; Cloitre et al., 2018)

The ITQ is a self-report measure of ICD-11 PTSD and CPTSD. Respondents completed the ITQ concerning their worst traumatic event. Six items measure PTSD symptoms, and six items measure 'Disturbance in Self Organization' (DSO) symptoms, which are specific to CPTSD. The PTSD items are completed in terms of suffering during the past month, and the DSO items are completed in terms of how the respondent typically feels, thinks about oneself, and relates to others. The PTSD and DSO symptoms are accompanied by three items measuring functional impairment. All items are answered on a 5-point Likert scale (ranging from 0 = *not at all* to 4 = *extremely*). A symptom is considered present where a score of ≥ 2 (Moderately) is indicated. The psychometric properties of the ITQ have been demonstrated in multiple general populations (Ben-Ezra, Karatzias, et al., 2018) and clinical (e.g. Hyland et al., 2017) samples. The reliability of the scale for the PTSD ($\alpha = 0.86$) and DSO ($\alpha = 0.85$) items in the Israeli sample was satisfying.

Patient Health Questionnaire-2 (PHQ-2; Kroenke et al., 2003)

This measure assesses two core criteria for depressive disorders that have been shown to have excellent operating characteristics (Li et al., 2007). Respondents indicate how often they have been bothered by each symptom over the last 2 weeks using a 4-point Likert scale ranging from 0 (*Not at all*) to 3 (*Nearly every day*). Possible scores range from 0 to 6, with higher scores indicative of higher levels of depression. At a cutoff score of 2, the PHQ-2 had a sensitivity of 83% and a specificity of 92% for detecting major depressive disorders (Kroenke et al., 2003). The reliability of the scale among the Israeli sample was excellent ($\alpha = 0.85$).

Generalized Anxiety Disorder 7-item Scale (GAD-7; Spitzer et al., 2006)

In the GAD-7, respondents indicate how often they have been bothered by each symptom over the last 2 weeks on a 4-point Likert scale (0 = *Not at all* to 3 = *Nearly every day*). Possible scores range from 0 to 21, with higher scores indicative of higher levels of anxiety. The GAD-7 is a reliable and valid measure in multiple studies (Kertz et al., 2013), and exhibited excellent reliability among the Israeli sample ($\alpha = 0.91$).

2.3.3 | Switzerland-specific measures

Acute Stress Disorder Scale (ASDS; Bryant et al., 2000)

The ASDS was employed to specifically assess the reaction to COVID-19. It consists of 19 symptoms of acute stress disorder across four symptom clusters of dissociation ('emotional numbness' and 'things seem unreal'), re-experiencing ('sense of re-experiencing' and 'intrusive memories'), avoidance ('avoid reminders of COVID-19' and 'avoid thinking about COVID-19'), and arousal symptoms ('feeling irritable' and 'difficulty concentrating'). Participants were asked to rate,

on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*), how frequently they experienced each symptom since the COVID-19 outbreak. Previous findings revealed the scale's validity (Bryant et al., 2000). Cronbach's alpha for the Swiss sample was 0.90.

Positive and Negative Affect Schedule - Short form (PANAS; Mackinnon et al., 1999)

A self-rating scale consisting of two subscales assessing positive and negative affect with five items each. The items represent emotional states (e.g. enthusiastic, alert for positive affect; afraid, upset for negative affect). Participants rate the extent to which they experienced each of the emotions during the last 2 weeks on a 5-point Likert scale ranging between 1 (*very little*) to 5 (*very much*). The PANAS positive and negative affect scores were calculated by summing the items, with higher scores indicating higher positive or negative affect. Previous findings have documented the scale's validity and reliability (Mackinnon et al., 1999). The internal consistency of the positive ($\alpha = 0.78$) and negative ($\alpha = 0.81$) emotions in the Swiss sample was good.

2.4 | Statistical analysis

The analyses were conducted in four linked phases. First, in the Israeli sample, the IADQ psychosocial stressor list was used to identify participants who had endorsed at least one life stressor. In the Swiss sample, this stressor was defined as the outbreak of the COVID-19 pandemic. Second, the descriptive statistics and endorsement rates for each of the six symptom indicators of AjD as assessed by the IADQ were calculated in both samples. Third, the latent structure of the symptom scores was tested using CFA in both samples. Two models were tested: a one-factor model and a two-factor model. The one-factor model specified all six AjD indicators to load on a single latent variable labelled 'Adjustment Disorder'. The two-factor model specified a 'Preoccupation' latent variable on which the three preoccupation items loaded, and a 'Failure to Adapt' latent variable on which the three failure to adapt items loaded. The latent variables were correlated and all unique variances (measurement errors) were uncorrelated. The models were fitted using the 5-point Likert scale data, treating the indicators as continuous, and using robust maximum likelihood (MLR) estimation. As the items were also used to estimate probable AjD based on the cut-off of ≥ 2 (*Moderately*), the two models were also fitted to the binary variables representing symptom endorsement, and these models were estimated using robust weighted least squares estimator (WLSMV) based on the polychoric correlation matrix of latent continuous variables. The use of the two methods was previously used for the IADQ in Shevlin et al.'s (2020) study.

For both methods of estimation, standard recommendations were followed to assess model fit (Hu & Bentler, 1999): a non-significant chi-square result (χ^2) indicates good model fit, Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) values above 0.95 reflect excellent fit and values above 0.90 reflect acceptable fit; root-mean-square

error of approximation with 90% confidence intervals (RMSEA 90% CI) and standardized root-mean-square residual (SRMR) values of 0.06 or less reflect excellent fit and values less than 0.08 reflect acceptable fit, values lower or equal to 0.10 suggest acceptable fit (Browne & Cudeck, 1992). For the models based on MLR estimation, the Bayesian information criterion (BIC) (Schwarz, 1978) was used to evaluate and compare models with the smallest value indicating the best fitting model. Raftery (1995) suggested that a 2–6 point difference offers evidence of model superiority, a 6–10 point difference indicates strong evidence of model superiority, and a 10-point difference between two BIC values is strong evidence (odds ratio = 150:1) that the lower BIC model is statistically superior.

These analyses were performed using Mplus version 8.2 (Muthén & Muthén, 2017). The third phase involved assessing concurrent validity in the Israeli sample by correlating the IADQ scale scores with AjD scores from the ADN-4, PTSD, and DSO subscale scores from the ITQ, as well as depression and generalized anxiety symptoms scores from the PHQ-4 and GAD-7, respectively. In the Swiss sample, the IADQ scales scores were correlated with AjD symptom scores from the ADN-8, ASD symptom scores, and negative/positive emotions from the PANAS. Cohen's (1988) guidelines for determining the magnitude of association were followed where r values less than 0.30 indicate a small association, r values from 0.30 to 0.50 indicate a moderate association, and r values greater than 0.50 indicate a strong association.

3 | RESULTS

3.1 | Descriptive statistics

3.1.1 | Israel

Most of the participants experienced 1–3 stressful life events (66.4%, $n = 758$), while 16.6% ($n = 190$) experienced between 4–6 events

and 1% ($n = 11$) experienced 7–9 events. The most commonly endorsed stressors were work/employment problems (43.6%), followed by a loved one's health problems (27.1%), caregiving problems (26.2%), and financial problems (26%). Educational problems (21.1%) and relationship problems (20.1%) were quite similar in their prevalence. Personal health problems (16.9%) and housing problems (10.9%) were the least experienced. The range of total stressor endorsement ranged from 0 to 8 with a mean of 2.07 ($SD = 1.61$) and a median of 2.00.

3.1.2 | Switzerland

Most of the participants reported they had never been infected by COVID-19 themselves ($n = 691$, 98.9%) and that no one in their family had been infected ($n = 661$, 94.6%). This is as opposed to 1.1% ($n = 8$) who reported that they had been infected with COVID-19 themselves whereas 5.4% ($n = 38$) reported that a family member had been infected. Similarly, only 17.9% ($n = 125$) reported that they had been in quarantine. As for subjective threat (i.e. fear of COVID-19), 27.8% reported that they felt no fear of being infected, while the rest reported at they felt fear sometimes (53.2%), often (16.3%) or always (2.7%).

3.2 | Confirmatory factor analyses

3.2.1 | Israel

The fit statistics for the one- and two-factor models are reported in Table 1. When using the 5-point Likert data to estimate the models with MLR, the two-factor model had an excellent fit. The two-factor model provided superior fit as the χ^2 was significantly lower for the two-factor model compared to the one-factor model ($\Delta\chi^2(\Delta df = 1) = 400.43, p < 0.001$). The RMSEA and SRMR were closer to zero, and

TABLE 1 Fit statistics for the one- and two-factor model of adjustment disorder items for the Israeli ($n = 1142$) and Swiss ($n = 699$) samples

Model	χ^2	df, p	RMSEA	CFI	TLI	SRMR	AIC	BIC	ssBIC
Israel									
1 factor MLR	417.03	9, $p < 0.001$	0.199 (0.183, 0.216)	0.919	0.866	0.048	14,876.01	14,967.02	14,909.84
2 factors MLR	16.60	8, $p = 0.034$	0.03 (0.008, 0.052)	0.998	0.997	0.008	14,477.85	14,573.62	14,513.27
Switzerland									
1 factor MLR	194.80	9, $p < 0.001$	0.172 (0.151, 0.193)	0.912	0.854	0.050	9785.49	9867.38	9810.23
2 factors MLR	62.09	8, $p < 0.001$	0.098 (0.076, 0.122)	0.974	0.974	0.033	9618.26	9704.70	9644.37
Israel									
1 factor WLSMV	113.12	9, $p < 0.001$	0.10 (0.085, 0.118)	0.993	0.998				Diff test $\chi^2(1) = 105.91 p < 0.001$
2 factors WLSMV	7.21	8, $p = 0.514$	0.00 (0.000, 0.030)	1.00	1.00				
Switzerland									
1 factor WLSMV	74.76	9, $p < 0.001$	0.10 (0.080, 0.120)	0.990	0.990				Diff test $\chi^2(1) = 37.81 p < 0.001$
2 factors WLSMV	36.95	8, $p < 0.001$	0.072 (0.049, 0.096)	0.997	0.995				

the CFI and TLI were closer to 1 for the two-factor model. Additionally, the BIC was lower, with difference a greater than 10 points, which suggests it was statistically superior to the one-factor model. AIC and ssBIC were also lower in the two-factor model. The standardized factor loadings for preoccupation (0.82, 0.87, 0.83) and the failure to adapt (0.81, 0.94, 0.88) items were all high, positive, and statistically significant ($p < 0.01$). The correlation between the factors was high ($r = 0.84$, $p < 0.001$).

When the item scores were recoded to be binary, and the models were estimated using WLSMV, the two-factor model was judged to be significantly better ($\Delta\chi^2(\Delta df = 1) = 105.91$, $p < 0.001$) and with excellent fit (values of CFI and TLI were closer to 1.00 and RMSEA decreased substantially). The standardized factor loadings for preoccupation (0.73, 0.85, 0.76) and failure to adapt (0.77, 0.91, 0.84) items were all high, positive, and statistically significant ($p < 0.01$). The correlation between the factors was high ($r = 0.96$).

3.2.2 | Switzerland

The fit statistics for the one- and two-factor models are reported in Table 1. When using MLR, the two-factor model had a better fit than the one-factor model. Specifically, CFI and TLI were closer to 1.00, BIC decreased by more than 10 points and both AIC and ssBIC decreased. It was revealed that the model fit improved significantly ($\Delta\chi^2(\Delta df = 1) = 132.71$, $p < 0.001$) for the two-factor model compared to the one-factor model. The two-factor model had acceptable model fit with an RMSEA in the range of acceptable to marginally acceptable. The standardized factor loadings for preoccupation (0.84, 0.79, 0.77) and the failure to adapt (0.78, 0.94, 0.93) items were all high, positive, and significant ($p < 0.01$). The correlation between the factors was high ($r = 0.84$, $p < 0.001$).

When the item scores were recoded to be binary, and the models were estimated using WLSMV, the two-factor model was judged to be significantly better ($\Delta\chi^2(\Delta df = 1) = 37.81$, $p < 0.001$), with an excellent fit (values of CFI and TLI were closer to 1.00 and RMSEA decreased to 0.072 which indicates excellent-acceptable fit). The standardized factor loadings for the preoccupation (0.92, 0.87, 0.84) and failure to adapt (0.90, 0.98, 0.98) items were high, positive, and

significant ($p < 0.01$). The correlation between the factors was high ($r = 0.95$).

3.3 | Internal consistency

The reliability (Cronbach's alpha) of the scale among the Israeli sample was excellent: 0.88 for the preoccupation, 0.91 for the failure to adapt, and for 0.92 for the total score. The reliability of the scale among the Swiss sample was excellent: 0.84 for the preoccupation and 0.91 for the failure to adapt, and for 0.92 for the total score.

3.4 | Concurrent validity

3.4.1 | Israel

The preoccupation, failure to adapt, and total IADQ scores had strong, positive correlations with the ADNM-4 AjD symptom scores, and with PTSD, DSO, depression, and generalized anxiety scores (see Table 2). The magnitude of the correlations was similar across all criterion variables and did not differ for preoccupation and failure to adapt. Moderate correlations existed between the IADQ scores and the PTSD and DSO.

3.4.2 | Switzerland

The preoccupation, failure to adapt, and total IADQ scores were strongly and positively correlated with the ADNM-8 AjD symptom scores, as well as with negative affect and ASD scores. The IADQ scores were negatively and moderately correlated with positive affect scores.

3.5 | Frequencies of AjD

The mean scores and endorsement rates for the IADQ items are reported in Table 3. The rates of probable AjD in Switzerland ($n = 135$, 18.8%) was higher than in Israel ($n = 116$, 10.2%). The

TABLE 2 Correlations between study's variables in the Israeli sample

Israel	AjD (ADNM-4)	Depression (PHQ-2)	General anxiety (GAD-7)	PTSD (ITQ)	DSO (ITQ)
Preoccupation	0.66***	0.51***	0.65***	0.44***	0.40***
Failure to adapt	0.70***	0.59***	0.66***	0.46***	0.44***
Total score	0.72***	0.59***	0.70***	0.48***	0.45***
Switzerland	AjD (ADNM-8)	Acute stress reaction (ASD)	Negative emotions (PANAS)	Positive emotions (PANAS)	
Preoccupation	0.81***	0.75***	0.67***	-0.30***	
Failure to adapt	0.74***	0.74***	0.71***	-0.35***	
Total score	0.82***	0.79***	0.73***	-0.35***	

*** $p < 0.001$.

TABLE 3 Mean scores and endorsement rates (≤ 2) for the adjustment disorder and functional impairment items ($n = 1142$)

	Israel		Switzerland	
	M (SD)	n (%)	M (SD)	n (%)
Preoccupation				
I worry a lot more since the stressful event(s)	1.18 (1.03)	339 (29.7%)	2.17 (1.10)	454 (66.9%)
I cannot stop thinking about the stressful event(s)	0.94 (1.02)	283 (25.1%)	1.97 (1.05)	394 (57.1%)
I often feel afraid about what might happen in the future since the stressful event(s)	1.25 (1.10)	376 (33.4%)	2.31 (1.09)	504 (75.2%)
Subscale score	3.39 (2.82)	482 (25.1%)	6.46 (2.82)	579 (80.4%)
Failure to adapt				
I find it difficult to adapt to life since the stressful event(s)	0.62 (0.97)	192 (17.1%)	1.86 (1.08)	329 (48.2%)
I find it difficult to relax and feel calm since the stressful event(s)	0.77 (1.01)	209 (18.6%)	1.85 (1.10)	315 (46.7%)
I find it difficult to achieve a state of inner peace since the stressful event(s)	0.85 (1.04)	217 (19.4%)	1.90 (1.14)	326 (48.2%)
Subscale score	2.32 (2.78)	281 (14.6%)	5.61 (3.06)	408 (56.7%)
Total AjD score	5.74 (5.24)	116 (10.2%)	12.07 (5.53)	135 (18.8%)
Did these problems start within 1 month of the stressful event(s)?		476 (46.9%)		389 (55.7%)
Functional impairment				
Affected your relationships or social life?	0.21 (0.41)	245 (21.1%)	2.41 (1.25)	266 (38.1%)
Affected your ability to work or your educational life?	0.22 (0.41)	254 (22.0%)	1.97 (1.18)	184 (26.3%)
Affected any other important part of your life?	0.27 (0.44)	311 (27.0%)	2.33 (1.20)	265 (37.9%)

endorsement rates of preoccupation ranged from 25.1% to 33.4% in Israel and 57.1 to 75.2% in Switzerland. Similarly, the endorsement rates of failure to adapt ranged from 17.1% to 19.4% in Israel and 46.7% to 48.2% in Switzerland. The mean scores and endorsement rates were generally higher for Switzerland than Israel for both preoccupation and failure to adapt items. Failure to adapt had more endorsement than preoccupation.

4 | DISCUSSION

The primary objective of the current study was to test the validity of the IADQ in a stressor-specific sample (Switzerland) and a non-stressor-specific sample (Israel). The factor structure in both samples was best described by two correlated dimensions representing preoccupation and failure to adapt symptoms. The two-factor models were favoured over the one-factor models in both samples. Reliabilities were excellent for the total score of AjD as well as for the two subscales. As hypothesized, the concurrent validity of the IADQ was demonstrated, specifically by high correlations with other stress response syndromes such as the ADNMAjD and ASD, and with non-stress related disorders of anxiety, depression, and negative emotions. Lower associations were found with positive emotions in the Swiss sample and with PTSD and DSO in the Israeli sample, indicating good discriminant validity. The rates of probable AjD in Switzerland (18.8%) were higher than in Israel (10.2%).

4.1 | Factor structure

The two-factor structure provided statistically superior fit compared to the one-factor model, which is consistent with the concept of ICD-11 and the previous validation work by Shevlin et al. (2020). The very high correlations between factors provide similar results to the correlations reported in Shevlin et al. (2020) as well as in studies that examined AjD using ADNMAjD (Glaesmer et al., 2015; Liang et al., 2021; Zelviene et al., 2017). This finding is in line with prior network analysis results which showed that the two AjD clusters of preoccupations and failure to adapt, though manifested clearly, were highly interrelated (Levin et al., 2021). Thus, much of the literature shows that AjD could also be perceived as a unidimensional construct, which accentuates the need to consider avoiding multicollinearity between symptoms in research. However, for diagnostic purposes, the ICD-11 conceptualization of AjD is quite clear in its distinction between preoccupation and failure to adapt. This gets full support in the current research showing preference of the two-factor model both when symptoms were referred to as continuous as well as categorical. Moreover, the internal consistencies of the IADQ total and subscale scores were excellent in both samples. In summary, with regard to the dimensionality of AjD symptoms, the current results indicate the plausibility of a unidimensional conceptualization for research as well as support for the clinical definition of ICD-11 that suggests criteria for two core symptom clusters.

4.2 | Concurrent validity

As expected, robust and high correlations were found between IADQ and ADN8, both intended to assess the same construct of ICD-11 AjD core symptoms. However, this was substantially more prominent for the ADN8 in the Swiss sample than for the ADN4 in the Israeli sample where the strength of correlation between the two AjD questionnaires was similar to the correlation between IADQ and depression and anxiety. This finding challenges the *discriminability* of the core symptoms of the ADN4 from symptoms of depression and anxiety and implies that ADN8 may capture the core symptoms more specifically. When using the ADN4 as an economic, a brief screening tool of AjD its relatedness to depression and anxiety should be considered.

The finding that the IADQ was highly correlated with ASD provides further support for the validity of the new questionnaire as both concepts are considered to be less severe stress reactions in the hierarchy of stress-related disorders. The ICD-11 describes acute stress reaction as transient emotional, somatic, cognitive, or behavioural symptoms after exposure to an extremely threatening event or situation. However, it is considered a normal, non-pathological reaction in the initial stage after exposure to a significant stressor which usually begins to subside within a few days after the event or following removal from the threatening situation. Similarly, AjD symptoms emerge within 1 month of the stressor and typically resolve within 6 months unless the stressor persists for a longer time. Given the temporary nature of both conditions, it would be interesting for future research to examine if ASD and AjD follow the same trajectory and which cases may develop from ASD into AjD versus other stress-related disorders.

The fact that IADQ scores were associated to a lesser degree with symptom scores from other ICD-11 stress-related disorders (i.e. PTSD and CPTSD) provides evidence of the scale's discriminant validity. Before ICD-11 was finalized, there was a debate about the distinguishability of PTSD and the new AjD concept which emphasizes the similarity of the two disorders (Bachem & Casey, 2018). For example, preoccupation is conceptually close to intrusions, which raised questions about the distinction of the two syndromes. A partial answer to these concerns was provided by a field study conducted in the course of preparations for the ICD-11, using a case-control design with vignettes based on the proposed ICD-11 definition of AjD. The results showed that psychiatrists were indeed able to distinguish AjD from PTSD (Keeley et al., 2016). The current study further supports the distinctness of these stress response syndromes. Moreover, the significant but relatively small associations between IADQ and positive affect provide further evidence for the IADQ's discriminant validity.

4.3 | Prevalence

The prevalence rates of AjD (Switzerland 18.8% and Israel 10.2%) were roughly similar to the ones found in the Irish sample (15.6%)

when no exclusion diagnoses were considered. It was surprising, however, that Israelis reported relatively lower prevalence rates of AjD as previous research had established extremely high numbers of stressful life events in the Israeli population (Lorenz et al., 2018). It could be due to the political context of Israel where the entire population is confronted with potentially traumatic experiences due to recent conflicts and terror attacks (e.g. Ben-Ezra, Karatzias, et al., 2018). This could "mask" the effects of stressors of a lesser magnitude, such as the ones in the list, which may be perceived as less horrifying. On the other hand, the higher prevalence of the probable diagnosis in Switzerland may be related to the reference to COVID-19, which was very topical when the study was conducted.

Relatively high rates of AjD were found in Switzerland (18.8%) where participants were instructed to describe their reaction to the COVID-19 pandemic. These numbers correspond to the prevalence of 15.9% AjD in a sample collected in the United Kingdom, which also used the IADQ to assess AjD in response to the pandemic (Ben-Ezra et al., 2021). The prevalence seem high, however, in the early stages of the pandemic uncertainty about the magnitude of the disaster accompanied by massive media coverage made it almost impossible not to think about it constantly. For example, research conducted in the general population of Germany showed that COVID-19 related media consumption was associated with more symptoms of anxiety, depression, and COVID-19 related fear (Bendau et al., 2020). Nevertheless, future research should consider the stability of COVID-19 related AjD over time, which is not assessed by the IADQ. Early COVID-related preoccupations and failure to adapt symptoms may be particularly volatile due to the unprecedented nature of the stressor. For a clinical diagnosis, for example, in a clinical interview, it should be ensured that symptoms persist for a minimum time frame.

This study has some limitations. First, we did not use a structured clinical interview to examine the diagnostic validity of the IADQ but rather relied on exploring concurrent validity by comparison with another self-report questionnaire. Future studies should examine the validity of the IADQ against clinical diagnosis and/or to demonstrate the clinical utility of the IADQ with a recently published structured interview (Perkonig et al., 2020). Second, in both samples, more females participated in the study. Third, AjD in the Swiss sample was referenced to a uniform stressful event, namely, the COVID-19 pandemic in its early stages whereas the Israeli sample referred to general stressful events. While this provided the option of validating the IADQ both in stressor-specific and stressor-unspecific forms, this discrepancy renders the samples not directly comparable. Fourth, we were unable to apply the exclusion criteria mentioned in ICD-11, such as depressive disorder or prolonged grief disorder. Moreover, we did not collect representative samples and thus the interpretability of prevalence rates is limited.

Notwithstanding these limitations, the current study replicated the validity of the IADQ in two culturally different samples from Israel and Switzerland. The satisfactory psychometric properties of the Hebrew and German versions of the IADQ, freely available on the website of the International Trauma Consortium (<https://www.traumacenter.org/>)

traumameasuresglobal.com/iadq) should facilitate future research and clinical usage of this novel screening tool.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, (Y. L.), upon reasonable request.

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