Cogent Mental Health

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/oamh20

Existential concerns in psychopathology: a transdiagnostic network analysis *existential concerns in psychopathology*

UnYoung Chavez-Baldini, Karin J.H. Verweij, Jessy Bergamin, Judy Luigjes, Roel J.T. Mocking, Damiaan Denys, Dorien H. Nieman & Nienke C. Vulink

To cite this article: UnYoung Chavez-Baldini, Karin J.H. Verweij, Jessy Bergamin, Judy Luigjes, Roel J.T. Mocking, Damiaan Denys, Dorien H. Nieman & Nienke C. Vulink (2024) Existential concerns in psychopathology: a transdiagnostic network analysis *existential concerns in psychopathology*, Cogent Mental Health, 3:1, 1-23, DOI: 10.1080/28324765.2024.2313869

To link to this article: https://doi.org/10.1080/28324765.2024.2313869

COGENT MENTAL HEALTH
2024, VOL. 3, NO. 1, 2313869
https://doi.org/10.1080/28324765.2024.2313869

Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

OPEN ACCESS Check for updates

Existential concerns in psychopathology: a transdiagnostic network analysis *existential concerns in psychopathology*

UnYoung Chavez-Baldini, Karin J.H. Verweij, Jessy Bergamin, Judy Luigjes, Roel J.T. Mocking, Damiaan Denys, Dorien H. Nieman and Nienke C. Vulink

Amsterdam UMC, University of Amsterdam, Department of Psychiatry, Meibergdreef 9 Amsterdam, Netherlands

ABSTRACT

Existential concerns, such as autonomy and identity, are often overlooked although they play an important role in psychopathology and clinical practice. The aims of this study are to investigate how existential concerns relate to psychopathological symptoms and to identify important existential concerns. This study used a cross-sectional quantitative design with a transdiagnostic sample. A mixed graphical model of 4 existential and 3 symptom domains with 4 covariates was estimated in a sample of 996 individuals with various psychiatric disorders. Symptom nodes were derived from questionnaires on psychopathological symptoms and existential nodes from questionnaires on transdiagnostic psychiatric dimensions and self-esteem. The centrality metric, expected influence, was calculated to determine nodes' cumulative influence in the network. Existential concerns were related to worse psychopathology overall, but most strongly to depressive and anxiety symptoms. The strongest cross-domain relationship was between anxiety and recognition of psychiatric disorder. Of the existential concerns, autonomy and identity were the most central nodes in the network. Our results advocate the need to address existential concerns in clinical practice and research. Conveying individual responses to experiencing psychopathology, such as recognition of disorder, and supporting autonomy or positive identity formation may be areas for intervention.

ARTICLE HISTORY Received: 18 May 2023; Accepted: 30 January 2024

KEYWORDS Transdiagnostic; psychopathology; existential concerns; network approach

CONTACT UnYoung Chavez-Baldini u.y.chavezbaldini@amsterdamumc.nl; u.chavezbaldini@gmail.com
Amsterdam University Medical Centers (location AMC), Department of Psychiatry, Meibergdreef 5, 1105 AZ Amsterdam, the Netherlands

Shared last author = Dorien H. Nieman and Nienke C. Vulink contributed equally to this paper.

Introduction

Existential concerns have psychological, medical, and philosophical significance, but the increased focus on behavioral psychology and biomedical models over the past decades has largely ignored existential concerns in psychiatry (Koole et al., 2006). Existential psychology is derived from existentialism and largely concerns itself with how people face and cope with the experience of human existence (Koole, 2010; Yalom, 1980). The existential dimension then can broadly refer to the way we relate to and reflect on our experiences and conflicts that may arise thereof (de Haan, 2017; Koole et al., 2006). The existential dimensions can also consist of spiritual, religious, and secular components (Hvidt et al., 2022; Whitley & Drake, 2010). According to existentialism-inspired psychology and psychotherapy, death, freedom, isolation, identity, and meaning are the major overarching existential concerns that humans face, and it is posited that these concerns can have a significant impact on well-being (Greenberg et al., 2004; Yalom, 1980). Existential concerns are complex to define, often encompass a wide range of themes, and can have intricate relationships with psychopathology. For instance, they can play a constitutive or modulatory role in or be an integral part of psychopathology (de Haan, 2017). In this study, we are guided by the conceptualizations of existential concerns from existential psychology and therapy (e.g., Koole, 2010; Yalom, 1980).

Everyone contends with existential concerns to some degree, but more so individuals with psychiatric disorders who express feelings of loneliness and yearning for social connection and belonging, feeling a loss of dignity and self, fearing change and responsibility, needs for personal development, and searching for meaning (Damsgaard et al., 2021; Huguelet, 2014; Søberg et al., 2018; Wagner & King, 2005). Some individuals also report religiosity as an important component of existential concerns, such as faith contributing to meaning of life (Søberg et al., 2018). As such, one could argue that many if not all of the existential concerns are transdiagnostic constructs, meaning that they are not specific to a particular condition or psychiatric disorder. For example, death anxiety (Iverach et al., 2014), existential suffering (Yager, 2021), and emptiness (Herron & Sani, 2022) have been shown to be transdiagnostic existential concerns related to many psychiatric conditions. Of the existential concerns identified by existential psychology, we focus on identity (e.g., the struggle of maintaining a clear sense of who one is while facing uncertainties surrounding self-perception), freedom (e.g., the experience of free will versus constraints and the responsibility of one's choices), and isolation (e.g., the need for social connection versus experiences of rejection and feeling isolated in one's subjective experience of reality) (Koole et al., 2006; Yalom, 1980). Individuals with psychiatric disorders often describe a loss of self and identity and of struggling with reconciling with their illness

identity (Kaite et al., 2015; Wisdom et al., 2008). While identity problems can be a risk factor for psychopathology (Persike et al., 2020), psychopathology can also impact identity as one may question if the psychiatric disorder is part of the self (de Haan, 2017). Additionally, a compromised or lack of autonomy (e.g., Bergamin et al., 2022; Hill & Pettit, 2013; van Bergen & Saharso, 2016) as well as social isolation and loneliness (e.g., Chou et al., 2011; Leigh-Hunt et al., 2017; Yalom, 1980) can be associated with psychopathology. Associated with a sense of will and responsibility, compromised autonomy can have consequences on one's ability to act in accordance with one's goals or desires (Ryan & Deci, 2004). Threats to freedom and autonomy may often be considered external, but psychopathology can itself also be a barrier to autonomy (Bergamin et al., 2022). Lastly, social isolation can be both interpersonal and existential in a way that reflects a lack of social connections or worth therein but also a sense of feeling different from others, misunderstood, or alone in one's experiences (Pinel et al., 2017). Connectedness is often considered necessary for mental health (e.g., Saeri et al., 2018), but connectedness could be hindered by psychopathology, such as through shame of having a psychiatric disorder (de Haan, 2017).

Given that psychopathology can itself be considered an existential experience and entails how patients "evaluatively relate to their disorder" (e.g., de Haan, 2017; Yalom, 1980), we also included the recognition of that experience as an existential concern. In this regard, recognizing a psychiatric disorder is different from experiencing or having a disorder. For instance, the recognition of a mental illness often causes extra stress and suffering since it compromises hope and positive outcome of mental well-being. Although there is no validated instrument or measurement of the experience of psychopathology as an existential concern, capturing this aspect of the lived experience of patients with psychiatric symptoms remains important, especially as this study specifically aims to explore existential themes in a psychiatric population.

Studies that more directly investigate the interrelations between various existential concerns and symptoms are sparse but demonstrate that they are indeed related (Chawla et al., 2022; Kretschmer & Storm, 2018). It remains therefore necessary to further explore relationships between existential concerns and symptoms and do so with a transdiagnostic approach. Depressive, anxious, and psychotic symptoms can be considered core symptom dimensions, and they have been shown to be transdiagnostic in nature. For instance, anxiety and depression can occur in numerous disorders, such as misophonia (Quek et al., 2018), obsessive-compulsive disorder (Nestadt et al., 2001), and psychosis (Wilson et al., 2020), and psychotic symptoms have also been reported in non-psychotic disorders (Hanssen et al., 2003).

Individuals with psychiatric disorders have expressed that recovery and remission are more than the reduction of symptoms (Binder et al.,

2010; Zimmerman et al., 2006) and that existential concerns are as—or even more—important and urgent than symptom reduction (Kogstad et al., 2011; Wagner & King, 2005). Consequently, there has been renewed recognition that these concerns should be acknowledged and addressed as part of routine care (Koslander et al., 2009; Søberg et al., 2018; Ulland & DeMarinis, 2014) and that the existential dimension should be emphasized in the bio-psycho-social model (de Haan, 2017; Moore & Goldner-Vukov, 2009; van Os et al., 2019). Further understanding of the role of existential concerns in psychiatry and their relation with psychopathological symptoms is therefore of importance. There remains however a dearth of quantitative research on the relationship between psychopathology and existential concerns, especially in a transdiagnostic manner.

A network approach could be useful for investigating how these existential concerns and symptoms interrelate. This approach posits that psychopathology manifests due to a complex interplay of symptoms and other clinically-relevant biopsychosocial factors, such as cognitions and daily functioning (Borsboom & Cramer, 2013), which is represented by a network of nodes (variables) and edges (relationships between nodes). Rather than treating symptoms as passive underlying indicators of a latent disorder with equal weight, the network approach conceptualizes symptoms as individual active agents that can have differential (causal) impacts on other symptoms and the overall psychopathology (Borsboom, 2008; Borsboom & Cramer, 2013). Coupled with the transdiagnostic approach, a network model can be expanded to not only include symptoms but also other elements relevant for psychopathology (McNally, 2021), which also aligns with going beyond just symptom reduction. Although cross-sectional network analyses do not allow for causal inference, they can elucidate numerous relationships between nodes in one model as well as nodes that are most central, or most strongly connected, in the network, and can be useful for hypothesis generation. In this case, we can examine which existential concerns are most influential in the network and how individual existential concerns interact with symptom dimensions within a network model.

The present study aims to explore cross-sectional relationships between existential concerns (i.e., autonomy, identity, recognition of psychiatric disorder, and social connection) and psychopathological symptoms (i.e., depressive, anxiety, and psychotic symptoms) in a transdiagnostic sample of individuals with psychiatric disorders by estimating a network model of existential and symptom domains and performing centrality analysis to detect which variables are important within the network. Considering the agnostic and exploratory nature of the network approach, there were no hypotheses regarding specific relationships or centrality. It was however

generally expected that stronger existential concerns (e.g., lower autonomy) would be related to worse symptom severity (e.g., worse depressive symptoms).

Methods

Sample

The sample consists of 996 patients with psychiatric disorders recruited during intakes at the outpatient clinic of the Department of Psychiatry at the Amsterdam University Medical Centers (UMC), location Academic Medical Center (AMC), which is a public tertiary care medical institution. The Department of Psychiatry is an expertise center for anxious and obsessive-compulsive related disorders, depressive disorders, psychosis, and misophonia and offers a variety of evidenced-based and experimental treatments (e.g., cognitive, behavioral, and trauma therapies, medication, electroconvulsive therapy, deep brain stimulation) as well as supplementary interventions (e.g., creative therapies, lifestyle interventions, and reintegration support). Inclusion criteria were: age 14–75 years, ability to give informed consent, a *DSM-IV-TR* or *DSM-5* diagnosis as determined by a trained psychiatrist, and fluent in Dutch. Exclusion criteria were: acute high risk of suicide (i.e., suicidal behavior requiring immediate and urgent attention), premorbid IQ < 70, history of seizure or clinically significant abnormality of the neurological system.

Procedure

The Across study is an ongoing, longitudinal research project that collects data on cognitive functioning, psychopathology symptoms, and biological parameters. The full study and procedure are described in Nieman et al. (2020). After an intake at the Department of Psychiatry, patients were invited to participate after being briefed about the study, and written informed consent was obtained from participants if they agreed to participate. Participants were able to participate at any point of their clinical trajectory (e.g., before, during, or after treatment); note that one-third to one-half of patients who have an intake at the Department of Psychiatry do not start treatment. Participants could discontinue participation from the study or parts of the study at any time.

The current study used data from baseline questionnaires on psychopathological symptoms and other clinically-relevant factors, such as self-esteem. Questionnaires were administered on a computer during a research session, which took about 30 minutes to an hour to complete.

The study protocol was approved by the Medical Ethical Review Committee of the Amsterdam UMC (no. NL55751.018.15), and data are stored according to European privacy laws.

Measures

At the time the Across study was designed, there was not a validated questionnaire that comprehensively covered different existential concerns. Therefore, items related to existential domains of identity, autonomy, recognition of psychiatric disorder, and social functioning and connection were selected from the Psychiatric Dimensions Questionnaire and the Self-esteem Rating Scale- Short Form (SERS-SR) to create a limited inventory of existential concerns. Given that the authors have backgrounds in psychiatry and (clinical) psychology, the existential concerns are based on the definitions from existential psychology and psychiatry, such as the "Big Five Existential Concerns" (Koole et al., 2006).The Psychiatric Dimensions Questionnaire assesses a variety of transdiagnostic concepts that are commonly affected in patients with a psychiatric disorder: affect, volition, identity, cognition, reality, and vitality (Nieman et al., 2020, 2021). It was developed at the Amsterdam UMC (Nieman et al., 2021) and consists of 26 items. We specifically used items from the volition, identity, and vitality subscales to tap into themes on autonomy/freedom, identity, and recognition of disorder. The SERS-SR measures self-esteem in relation to self-worth, social competence, abilities, self-competence, and worth compared with others (Lecomte et al., 2006). It consists of 20 items that are rated on a scale from 0 (strongly disagree) to 6 (strongly agree). The SERS-SR demonstrates high internal consistency for the positive and negative scales (respectively, $\alpha = 0.91$ and $\alpha = 0.87$) and good test-retest reliability for each scale (respectively, $r = 0.90$ and $r = 0.91$) (Lecomte et al., 2006). We specifically selected items relating to feeling accepted versus rejected and navigating interpersonal relationships to tap into the existential concern of isolation.

Psychopathological symptoms included in this study were assessed with the Hamilton Anxiety Scale (HAM-A), the Inventory of Depressive Symptomatology Self-Report (IDS-SR_{30}), and Prodromal Questionnaire 16 (PQ-16), which are validated and psychometrically-sound questionnaires. The HAM-A measures the severity of somatic, cognitive, and affective symptoms of anxiety (Hamilton, 1959). It consists of 13 items that are rated on a scale of 0 (not present) to 4 (severe). The HAM-A demonstrates satisfactory interrater reliability and concurrent validity (Maier et al., 1988). The IDS-SR measures the severity of depressive symptoms pertaining to mood, cognition, arousal, suicidality, and sleep (Rush et al., 1986). It consists of 30 items that are rated on a scale from 0 (symptom is not present) to 3 (strongest impairment). The IDS-SR also demonstrates

good internal consistency (α = 0.85) and satisfactory psychometric properties (Rush et al., 1996). Because a number of items from the IDS- SR_{30} and HAM-A overlap (e.g., both ask about depressed and anxious mood), total scores of the shortened versions which focus on core symptoms of each domain were used to avoid multicollinearity: Quick IDS-SR (QIDS-SR -16; Rush et al., 2003) and HAM-A_6 (Bech, 2012). Both the QIDS-SR (Rush et al., 2003) HAM- A_6 (Bech, 2011) also demonstrate satisfactory psychometric properties. The PQ-16 assesses the occurrence and severity of At Risk Mental State symptoms for a first psychosis (Ising et al., 2012). It consists of 16 items (2 negative symptoms, 5 unusual thought content/delusional ideas/paranoia, and 9 on perceptual abnormalities/hallucinations) which participants first endorse the presence of a symptom (true or false) and then rate the severity from 0 (no distress) to 3 (severe distress). The PQ-16 demonstrates an all item-total correlations of at least 0.31 and good internal consistency (α = 0.77) (Ising et al., 2012). Anxious, depressive, and subclinical psychotic symptoms were included in this study because they align with the expertise of the study's institution and were the questionnaires from the Across Study that were administered to all participants regardless of diagnosis, symptomology or other demographic or clinical factor, such as treatment status or illness severity.

Age, gender, diagnostic category, and use of psychotropic medication were included as covariates in the network. Age and gender were obtained from a demographic questionnaire. Diagnostic category and treatment were obtained from the participants' medical records. The diagnosis is determined by a psychiatrist and categorized into 7 categories: schizophrenia spectrum and other psychotic disorders, depressive disorders, anxiety disorders, obsessive-compulsive and related disorders, misophonia (impulse-control disorder NOS), bipolar disorder, and other disorders. Use of psychotropic medication includes antidepressants, antipsychotics, benzodiazepines, psychostimulants, and mood stabilizers and is coded as a binary variable of 0 (no) and 1 (yes).

Nodes that were included in the network can be viewed in Table 1, excluding covariates. Each node represents either an existential factor or a symptom domain. To create the existential concerns nodes, individual items were collapsed with content-based selection and weighted topological overlap approach using the R-package *EGAnet* (Golino et al., 2020), which helps determined which items have a high degree of conceptual overlap based on correlations and can be collapsed together. Nodes in networks usually reflect individual items, and because these items are often taken from questionnaires that are meant to measure a latent construct, node reduction is suggested to reduce the degree of conceptual overlap between items and ensure that nodes represent "autonomous causal agents" and facilitate interpretability of results (Wysocki et al., 2022).

Table 1. Nodes and labels

Node	Label	Items	Measure (item no.)
Aut	Autonomy	Do you feel you are in control of yourself? (reversed); Do you feel that you can choose freely when you have to make a decision? (reversed); Do you have the motivation and drive to start new activities? (reversed)	Dimensions (3 + 8 + 9)
Rec	Recognition of psychiatric disorder	Do you suffer because of your current mental state?; I have a psychiatric disorder	Dimensions (7 + 16)
Id	Identity	Do you feel like you are a stranger to yourself?; I wish that I were someone else	Dimensions (17) + SERS-SR (20)
Soc	Social	I feel confident in my ability to deal with people (reversed); My friends value me a lot (reversed)	SERS-SR (2 + 14)
Anx	Anxiety symptoms	Total score	HAM-A_6 (total score)
Dep	Depression symptoms	Total score	QIDS-SR (total score)
Psy	(Subclinical) psychotic symptoms	Total score (severity)	PQ-16 (severity score)

Note: In the "Measure (item no.)" column, the questionnaire and the item number that each node represents is noted. Variables are coded so that a higher score on an item implies greater severity.
Abbreviations: Dimensions = Psychiatric Dimensions Questionnaire, QIDS-SR= Quick Inventory of Depressive Symptomatology Self-Report, HAM-A= Hamilton Anxiety Scale, PQ-16 = Prodromal Questionnaire 16, SERS-SR= Self-esteem Rating Scale- Short Form.

Data analyses

Analyses were conducted using R version 3.6.1 (R Core Team, 2020). We estimated cross-sectional regularized networks of existential concerns (continuous), psychopathological symptoms (continuous), and covariates (continuous and categorical). In a network, variables are represented by nodes and the relationship between variables are represented by edges. To account for continuous and categorical variables, we estimated mixed graphical models (MGM) using the R-package *mgm* (Haslbeck & Waldorp, 2020), in which edges are statistically defined by the nodewise regression coefficient. Due to the categorical variables in this model, a correlation matrix or partial correlation network would not be suitable. MGM uses casewise deletion for analyses (Haslbeck & Waldorp, 2020), so participants with at least one missing data point were removed. To create sparse networks, models were estimated with the least absolute shrinkage and selection operator (LASSO), using the Extended Bayesian Information Criterion (EBIC) and a gamma of 0.5, which reduces false positive edges by shrinking all edge weights and setting the smallest to zero. This produces a network with non-zero edges, or edges that have a weight greater than zero as an edge weight of zero indicates that there is no edge. Due to this

regularization process, a mixed graphical model is more appropriate than a simple correlation matrix, which does not reduce false positives, for investigating the relationships between numerous variables. After estimation, networks were visualized as undirected networks with the R-package *qgraph* (Epskamp et al., 2012), using the "circle" layout and colorblind theme.

The centrality metric of expected influence (EI) was computed using the R-packages *qgraph* (Epskamp et al., 2012). EI assesses a node's cumulative influence in a network and is calculated as the summed weight of its edges while taking into account negative edges (Robinaugh et al., 2016). By summing up the strengths of its edges, EI can give insight into a node's role in the "activation, persistence, and remission of the network" (Robinaugh et al., 2016) and indicates which node has the most overall impact in the network. Clinically, this may be used to guide hypotheses on potential treatment targets. To check for the influence of variable properties on centrality, EI was correlated with infrequency of endorsement, means, variance, and standard deviations of variables (Spiller et al., 2020; Terluin et al., 2016).

To assess the accuracy of edge weights, differences between edges and centralities, and the stability of centralities, stability checks were conducted using *bootnet* as detailed in Epskamp et al. (2018). This results in bootstrapped non-parametric 95% confidence intervals based on 1,000 bootstrap samples, which are used to indicate the accuracy of the edge weights and differences between edges and centralities. The width of the interval indicates the accuracy of the edge weights. Whether or not an interval contains a zero indicates if there are differences between edges and centralities of nodes. For example, if the interval does not contain zero, this means that the edges or centralities differ at the $\alpha = 0.05$ level. Case-drop bootstrapping, in which a certain percentage of the sample is randomly removed in an iterative manner, based on 1,000 bootstrap samples produces a correlation-stability (CS) coefficient, which indicate the stability of centralities. A CS coefficient should not be below 0.25 and preferably above 0.5 (Epskamp et al., 2018).

As sensitivity analyses, a control network without misophonia was estimated, given that it was the largest group (35.7% of the sample) and may impact the whole sample estimates. Centralities were computed and stability checks were conducted for this control network. Given differences in estimation methods (i.e., differing diagnostic variable levels), a network comparison test cannot be used to compare the main and control network. Therefore, similarities between the main and control network were evaluated using the correlation between edge lists as a global measure of network similarity, the percentage of individual edges that are replicated, correlations of centralities between networks, and replication of the most central symptoms.

Table 2. Demographic and clinical characteristics of participants

Characteristics	Whole sample ($N = 996$)
Age (years), mean (SD)	34.8 (14.0)
Gender, women, No. (%)	548 (55)
Completed education[a], No. (%)	
Low	99 (9.9)
Middle	311 (31.2)
High	585 (58.7)
Unknown	1 (0.1)
DSM diagnostic category[b], No. (%)	
Schizophrenia spectrum and other psychotic disorders	139 (14.0)
Depressive disorder	125 (12.6)
Anxiety disorder	49 (4.9)
Obsessive-compulsive and related disorders	218 (21.9)
Misophonia	356 (35.7)
Bipolar disorder	33 (3.31)
Other disorders	76 (7.6)
Comorbidity, No. (%)	260 (26.1)
Medication use, No. (%)	
Antidepressants	247 (24.8)
Antipsychotics	126 (12.7)
Benzodiazepines	27 (2.7)
Psychostimulants	9 (0.9)
Mood stabilizers	8 (0.8)
Other (non-psychotropic)[c]	165 (16.6)
None	414 (41.6)

Note: DSM= Diagnostic and Statistical Manual of Mental Disorders.
[a]Based on the Dutch Verhage scale (Verhage, 1964): low (1 through 4: less than or equal to primary education or low-level secondary education), middle (5: average-level secondary education), high (6 and 7: high-level secondary education or university degree).
[b]Diagnostic category is only for the primary diagnosis. Specific diagnoses can be viewed in Table S1 in the Supplementary Materials.
[c]Other medication includes: anti-inflammatory, anti-histamines, anti-epilepsy, contraceptives, cholesterol medication, corticosteroids, dopamine-agonists, and various supplements.

Results

Sample characteristics

Data from 996 participants collected between 2012 and 2022 were included in the analyses. 1155 patients participated in the study, but 159 were excluded because of missing data. Data was determined to be missing at random (MAR) through inspection and according to Little's Missing Completely at Random (MCAR) test ($\chi 2 = 36.7$, $DF = 32$, $p = 0.261$). The distribution of the primary diagnosis reflects the naturalistic patient population of the Amsterdam UMC. Sample characteristics can be seen in Table 2. Variables' scores are shown in Table S2 in the Supplementary materials.

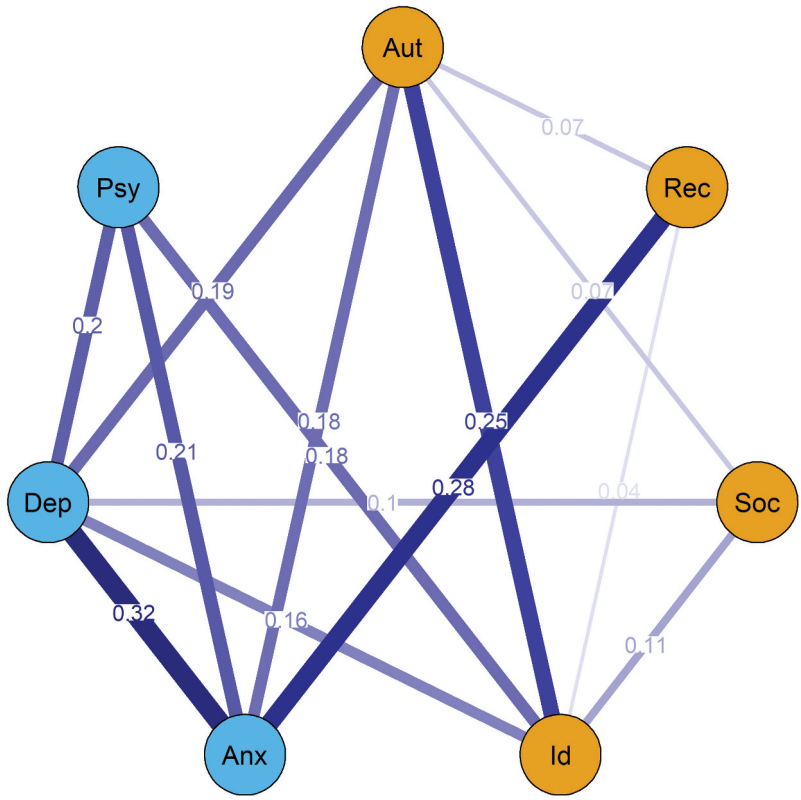

Figure 1. Transdiagnostic networks of existential concerns and psychopathological symptoms. Nodes represent the variables included in the network and edges indicate an association between two nodes. Blue edges represent positive associations whereas red edges represent negative associations, and thickness of an edge represents the strength of association between two nodes. The color of each node indicates to which overarching domain it belongs: existential concerns (yellow) and symptoms (blue). Abbreviations: Anx = Anxiety symptoms, Aut= Autonomy, Dep= Depressive symptoms, Id= Identity, Psy= (Subclinical) psychotic symptoms, Rec= Recognition of psychiatric disorder, Soc= Social.

Network analysis

The network of existential concerns and symptoms is visualized in Figure 1.

The whole sample network contained 14 non-zero edges out of 21 possible edges (excluding edges with and between covariates), 100% of which were positive. This indicates that existential concerns were overall related to worse psychopathology. Generally, the network appears to be stable as indicated by the generally narrow confidence intervals of the edge weights (Figure S1 in the Supplementary materials). The strongest cross-domain edge was between recognition of psychiatric

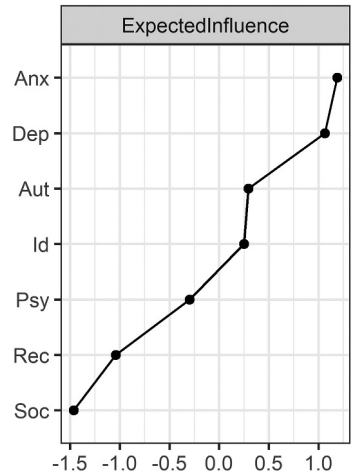

Figure 2. Centrality plots of expected influence. The nodes are denoted on the y-axis and the standardized centrality coefficients are denoted on the x-axis. Higher z-scores indicate higher centrality. Abbreviations: Anx = Anxiety symptoms, Aut= Autonomy, Dep= Depressive symptoms, Id= Identity, Psy= (Subclinical) psychotic symptoms, Rec= Recognition of psychiatric disorder, Soc= Social.

disorder and anxiety (weight= .28), in which stronger recognition of psychiatric disorder was related to worse anxiety. This edge was significantly different from 9 other edges (Figure S2 in the Supplementary materials). Existential concerns were most strongly related to depressive and anxiety symptoms whereas psychosis was related to identity. The edge matrix for the network can be viewed in Table S3 and results of stability checks can be viewed in Figures S1-S4 in the Supplementary materials.

The centrality plot of EI can be viewed in Figure 2. Anxiety had the highest EI overall, meaning that it had the highest cumulative influence in the network as determined by the summed weight of its edges, and the existential factor with the highest EI was autonomy with identity as a close second. Autonomy and identity were significantly different from 4 other nodes, but were not significantly different from each other (Figure S3 in the Supplementary Materials). EI is highly stable with a CS coefficient of 0.75, meaning that 75% of the data could be dropped and retain a correlation of 0.7 with the original dataset with 95% certainty. Furthermore, EI was not significantly correlated with infrequency of endorsement (r= −.07, p = .88), mean (r = .64, p = .12), variance (r = .59, p = .16), or standard deviation (r = .63, p = .13) of nodes, indicating the EI was not influenced by variable properties.

Effects of covariates can also be viewed in Table S3. Across all networks, diagnosis had the most relationships with the existential concerns and

symptoms. Diagnosis had the strongest relationship with recognition of psychiatric disorder and depressive symptoms.

The control network without misophonia ($n = 640$) resulted in 13 non-zero edges, 100% of which were positive. The control network also appears to be stable as indicated by the narrow confidence intervals of the edge weights (Figure S7 in the Supplementary materials). The edges of the main and control network were strongly correlated ($r = .96$, $p < .001$). 91% of the edges in the control network were replicated in the main network and 86% of the edges in the main network were replicated in the control network. The edge between recognition of psychiatric disorder and anxiety as the strongest (weight= .32) was replicated, which was significantly different from 9 other edges (Figure S8 in the Supplementary materials). Autonomy and identity also had the highest EI out of the existential concerns, which were significantly different from 3 other nodes, but were not significantly different from each other (Figure S9 in the Supplementary materials), and the overall EI is significantly correlated between the main and control networks ($r = .98$, $p < .001$). EI demonstrated high stability (CS coefficient = .75). The control network, centrality plots, and stability and difference tests can be viewed in the Supplementary materials (Figures S5-S10).

Discussion

This study for the first time investigated existential concerns and symptoms in patients with various psychiatric disorders from a transdiagnostic perspective using network analysis. In a large naturalistic cohort, we found that worse symptom severity was related to worse existential concerns and that autonomy and identity were highly influential nodes in the network. The findings highlight the importance of including existential concerns in psychiatric research.

Overall, we found that existential concerns were mostly related to anxiety and depressive symptoms. This is in line with previous existential works in which existential concerns are an integral part of psychiatric suffering and especially deeply intertwined with anxiety and depression (Bygstad Landro & Giske, 2018; Yalom, 1980). The literature on the general population and patients with cancer also shows a clear relation between existential concerns and negative emotional states, such as anxiety and depression (e.g., Berman et al., 2006; Chen et al., 2022; Mascaro & Rosen, 2005; Vehling & Kissane, 2018). Some consider anxiety and depression to be existential states in and of themselves and numerous existential philosophers and psychiatrists (e.g., Paul Tillich (1952), Viktor Frankl (1985), Irvin Yalom (1980), and Martin Heidegger (1927), among others) have posited that psychopathology is a reaction to or extension of existential concerns.

For instance, anxiety can manifest when one confronts existential concerns, such as death (e.g., Tillich, 1952), or depression can be an outcome of a sense of meaninglessness (e.g., Frankl, 2005). Over time, these experiences of anxiety or depression can become pathological and pathologized (Nieman, 2016). However, not all psychopathology results from existential concerns. Experiencing a chronic illness, including a psychiatric disorder, can make one more acutely aware of existential concerns as one grapples with what it means to live with a disorder, though (Kaite et al., 2015; Yalom, 1980).

The strongest cross-domain relationship was between recognition of psychiatric disorder and anxiety symptoms. This could potentially reflect the "insight paradox", in which increased insight can have positive effects, such as better clinical and psychosocial outcomes, while also having negative effects, such as decreased well-being and depression (Gonzalez, 2008; Lysaker et al., 2006; Sorgaard et al., 2011). Shame and self-stigma can be related to insight (Buchman-Wildbaum et al., 2020), and studies have shown relationships between shame, self-stigma, and anxiety symptoms (Busby Grant et al., 2016; Szentágotai-Tătar et al., 2020). As observed in the clinic, recognition could increase also anxiety as patients realize the severity of their situation and the uncertainty of their trajectory and outcomes, especially if they have a family history of mental illness- an observation that merits further investigation. Additionally, psychopathology can cause suffering beyond symptomology due to negative effects, such as impaired functioning, losses in several life domains, and thwarted motivations (Yager, 2021). For instance, one can perceive oneself as worthless for being depressed or worry about potential consequences of having a disorder (Hanson & Young, 2012). Suffering due to psychopathology can be considered transdiagnostic and related to negative mood and anxious apprehension (Yager, 2021). Altogether, this finding further supports the importance of targeting not only symptoms but the behaviors, thoughts, and outcomes in response to the symptoms and their meaning to the patient.

Autonomy and identity had the highest expected influence and were nodes that most strongly related to all other existential concerns and symptoms, except for (subclinical) psychotic and anxiety symptoms, respectively. Autonomy can be described as the capacity of an individual that enables them to live a meaningful life of their own making (Bergamin et al., 2022) and is considered a basic psychological need to function effectively and for well-being (Deci & Ryan, 2000). Compromised autonomy, including perceived lack of control and avolition, can be related to depression and negative affect (Rouse et al., 2020; Vansteenkiste et al., 2006). Additionally, a possible relation is seen between autonomy and mental disorders, in which autonomy can be differently affected in mental disorders according to the underlying psychopathology (Bergamin et al., 2022).

As found in previous literature, many individuals with psychiatric disorders struggle with a loss of self and identity (Kaite et al., 2015; Wisdom et al., 2008). Identity disturbance has been associated with numerous psychiatric disorders (Kaufman et al., 2015; Neacsiu et al., 2015) and could be considered a transdiagnostic construct. It has also been shown to be specifically related to depression severity (Sokol & Eisenheim, 2016) and psychosis or psychotic-like experiences (Cicero, 2017; Cowan et al., 2021). Bergamin et al. (2022) posit that in depression and psychosis, a loss of autonomy relates more to an affected sense of identity and motivations. Interestingly, autonomy and identity were the most strongly related of all other existential concerns. Supporting autonomy and positive identity formation may therefore be areas for intervention. For instance, self-stigma can thwart both autonomy and identity (Bergamin et al., 2022; Buchman-Wildbaum et al., 2020) and could be a potential mechanism to intervene on.

Whether existential concerns overlap with, lead to or arise from psychopathology, addressing these concerns in psychiatric research and practice is important (Moore & Goldner-Vukov, 2009), especially because many patients find that symptom-reduction alone is insufficient as treatment outcome (Binder et al., 2010; Zimmerman et al., 2006). Addressing existential concerns may sometimes fall out of the scope or capacity of conventional care. Existential psychotherapy and social prescribing are examples of supplementary or alternative interventions that address existential and social needs (e.g., South et al., 2008; Yalom, 1980). Third-wave therapies, such as Acceptance and Commitment therapy (ACT), and the emerging process-based therapies and approaches are also turning their attention to more existential themes. Recovery-oriented frameworks and interventions may also prove fruitful, such as the CHIME model, which focuses on empowerment and meaning in life (Van Weeghel et al., 2019). There has also been an increased attention to considering religiosity or spirituality of patients within care to aid recovery (Koslander et al., 2009). It could also be possible to address existential concerns in standard psychotherapy by targeting underlying psychological constructs (e.g., self-efficacy for autonomy) (Bergamin et al., 2022). Existential concerns should be treated as part of the lived experience and not pathologized, however. Peer support workers can in this case be instrumental in aiding existential recovery (Whitley & Drake, 2010). Further research is necessary to differentiate between general existential concerns and psychopathology to avoid overtreatment and give opportunity for personal growth (Nieman, 2016).

The main strengths of the study pertain to the naturalistic and transdiagnostic nature of the sample and instruments and the relatively large sample size. Our results were stable, and we included some demographic and clinical characteristics as covariates to limit confounding effects. Furthermore, we performed sensitivity and control analyses to check for the effect of

misophonia and variable properties on our main findings, lending support to the validity of our results.

Nonetheless, the results of this study should be interpreted with a number of limitations. First, the cross-sectional design prevents any directional or causal interpretations of relationships and decreases robust interpretation of centrality as it does not always translate to mechanisms of change nor can we ascertain directionality of influence (Spiller et al., 2020). However, cross-sectional networks have exploratory value and may be useful to investigate the co-occurrence of symptoms or other clinical factors and generate hypotheses (Bos et al., 2017; von Klipstein et al., 2021). Furthermore, existential concerns were not derived from questionnaires specifically measuring existential concerns, which may reduce validity of the items included in this network. The Across study was also not specifically designed to investigate existential themes, meaning that our operationalization of these themes is not thorough and that not all potential existential themes are included in this study. It also remains necessary to further investigate existential themes that specifically pertain to patients with psychiatric disorders, such as the experience of psychopathology itself, and develop validated instruments. As a result, our hypotheses and analyses of these themes remained exploratory. Sum scores of symptom questionnaires were also used, which can lead to a loss of information about relationships between individual items. This was done to reduce the number of nodes in the network due to the exploratory nature of this study.

Additionally, sample bias may have played a role, such that those with worse psychopathology were less likely to participate. The overrepresentation of misophonia in the sample could be a reflection of this, but we conducted a sensitivity analysis for this. Lastly, while the sample size was relatively large, the diagnostic categories were not large enough to compare individual diagnosis networks. Support for the transdiagnostic nature of our findings is therefore less robust. We did however include diagnosis as a covariate in the network in order to control for potential diagnostic effects. Lastly, we were not able to take into account the potential impact of somatic diseases and conditions, such as cancer, which have been shown to affect existential concerns. As psychiatric disorders and somatic diseases regularly co-occur, it is necessary for future research on existential concerns and psychopathology to include somatic diseases as a potential factor. Another factor we were not able to take into account was religiosity. As existential concerns can have a religious or spiritual component or be impacted by one's religiosity or spirituality, investigating these factors in future research is necessary to gain a more comprehensive understanding on the relationship between existential concerns and psychopathology.

Overall, the findings of this study further support the importance of including existential concerns in psychiatric research. While there is evidence that individuals with psychiatric disorders grapple with existential concerns, further

research is needed to investigate the interplay of existential concerns and dimensions of psychopathology, especially with dynamic and longitudinal designs to determine directionality of relationships and more robustly elucidate potential treatment targets.

Acknowledgments

We would like to thank all the participants for partaking in the study and all psychiatry staff and interns responsible for recruitment and data collection. We would also like to thank the Across Consortium, which among others include Claudi L.H. Bockting, Anja Lok, Dirk J. Smit, Guido van Wingen, Arjen L. Sutterland, and Pelle de Koning. K.J.H.V. is supported by the Foundation Volksbond Rotterdam.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

ORCID

UnYoung Chavez-Baldini http://orcid.org/0000-0001-5613-513X
Karin J.H. Verweij http://orcid.org/0000-0001-9868-7821
Judy Luigjes http://orcid.org/0000-0002-9395-9426
Roel J.T. Mocking http://orcid.org/0000-0003-3543-3810
Damiaan Denys http://orcid.org/0000-0002-3191-3844
Dorien H. Nieman http://orcid.org/0000-0002-9846-4254
Nienke C. Vulink http://orcid.org/0000-0001-8991-9627

Data availability statement

The data that support the findings of this study are available on request from the Across Consortium Scientific Coordinator at across@amsterdamumc.nl. The data requests will be discussed in the Across Executive board. The data are not publicly available due to the clinical and confidential nature of the data.

Geolocation information

Amsterdam, The Netherlands

Statement of contribution

UCB: Conceptualization, Formal analysis, Data Curation, Writing—Original Draft, Project administration. **KJHV**: Writing—Review & Editing, Project administration. **JB, JL, & RJTM**: Writing—Review & Editing. **DD**: Supervision, Funding acquisition, Writing—Review & Editing. **DHN & NCV**: Supervision, Writing—Original Draft, Project administration. All authors contributed to the final manuscript.

References

Bech, P. (2011). Measuring states of anxiety with clinician-rated and patient-rated scales. *Different Views of Anxiety Disorders Rijeka, New York, Shanghai: InTech*, *4*(2), 169–184.

Bech, P. (2012). *Clinical psychometrics*. John Wiley & Sons.

Bergamin, J., Luigjes, J., Kiverstein, J., Bockting, C. L., & Denys, D. (2022). Defining autonomy in psychiatry [conceptual analysis]. *Frontiers in Psychiatry*, *13*, 13. https://doi.org/10.3389/fpsyt.2022.801415

Berman, S. L., Weems, C. F., & Stickle, T. R. (2006). Existential anxiety in adolescents: Prevalence, structure, association with psychological symptoms and identity development. *Journal of Youth and Adolescence*, *35*(3), 285–292. https://doi.org/10.1007/s10964-006-9032-y

Binder, P.-E., Holgersen, H., & Nielsen, G. H. S. (2010). What is a "good outcome" in psychotherapy? A qualitative exploration of former patients' point of view. *Psychotherapy Research*, *20*(3), 285–294. https://doi.org/10.1080/10503300903376338

Borsboom, D. (2008). Psychometric perspectives on diagnostic systems. *Journal of Clinical Psychology*, *64*(9), 1089–1108. https://doi.org/10.1002/jclp.20503

Borsboom, D., & Cramer, A. O. (2013). Network analysis: An integrative approach to the structure of psychopathology. *Annual Review of Clinical Psychology*, *9*(1), 91–121. https://doi.org/10.1146/annurev-clinpsy-050212-185608

Bos, F. M., Snippe, E., de Vos, S., Hartmann, J. A., Simons, C. J. P., van der Krieke, L., de Jonge, P., & Wichers, M. (2017). Can we jump from cross-sectional to dynamic? Interpretations of networks implications for the network perspective in psychiatry. *Psychotherapy and Psychosomatics*, *86*(3), 175–177. https://doi.org/10.1159/000453583

Buchman-Wildbaum, T., Váradi, E., Schmelowszky, Á., Griffiths, M. D., Demetrovics, Z., & Urbán, R. (2020). The paradoxical role of insight in mental illness: The experience of stigma and shame in schizophrenia, mood disorders, and anxiety disorders. *Archives of Psychiatric Nursing*, *34*(6), 449–457. https://doi.org/10.1016/j.apnu.2020.07.009

Busby Grant, J., Bruce, C. P., & Batterham, P. J. (2016). Predictors of personal, perceived and self-stigma towards anxiety and depression. *Epidemiology and Psychiatric Sciences*, *25*(3), 247–254. https://doi.org/10.1017/S2045796015000220

Bygstad Landro, M., & Giske, T. (2018). Risking existence: The experience and handling of depression. *Journal of Clinical Nursing*, *27*(3–4), e514–e522. https://doi.org/10.1111/jocn.14056

Chawla, S., Menzies, R. E., & Menzies, R. G. (2022). Existential concerns in OCD with aggressive and sexual obsessions. *Journal of Obsessive-Compulsive and Related Disorders*, *32*, 100710. https://doi.org/10.1016/j.jocrd.2022.100710

Chen, W., Chen, Y., & Xiao, H. (2022). Existential distress in cancer patients: A concept analysis. *Cancer Nursing*, *45*(2), E471–E486. https://doi.org/10.1097/ncc.0000000000000925

Chou, K.-L., Liang, K., & Sareen, J. (2011). The association between social isolation and DSM-IV mood, anxiety, and substance use disorders: Wave 2 of the National

Epidemiologic Survey on alcohol and related conditions. *The Journal of Clinical Psychiatry*, *72*(11), 0–0. https://doi.org/10.4088/JCP.10m06019gry
Cicero, D. C. (2017). Self-concept clarity and psychopathology. In J. Lodi-Smith & K. G. DeMarree (Eds.), *Self-concept clarity* (pp. 219–242). Springer.
Cowan, H. R., Mittal, V. A., & McAdams, D. P. (2021). Narrative identity in the psychosis spectrum: A systematic review and developmental model. *Clinical Psychology Review*, *88*, 102067. https://doi.org/10.1016/j.cpr.2021.102067
Damsgaard, J. B., Overgaard, C. L., & Birkelund, R. (2021). Personal recovery and depression, taking existential and social aspects into account: A struggle with institutional structures, loneliness and identity. *International Journal of Social Psychiatry*, *67*(1), 7–14. https://doi.org/10.1177/0020764020938812
Deci, E. L., & Ryan, R. M. (2000). The"what" and"why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
de Haan, S. (2017). The existential dimension in psychiatry: An enactive framework. *Mental Health, Religion & Culture*, *20*(6), 528–535. https://doi.org/10.1080/13674676.2017.1378326
Epskamp, S., Borsboom, D., & Fried, E. I. (2018). Estimating psychological networks and their accuracy: A tutorial paper. *Behavior Research Methods*, *50*(1), 195–212. https://doi.org/10.3758/s13428-017-0862-1
Epskamp, S., Cramer, A. O., Waldorp, L. J., Schmittmann, V. D., & Borsboom, D. (2012). Qgraph: Network visualizations of relationships in psychometric data. *Journal of Statistical Software*, *48*(4), 1–18. https://doi.org/10.18637/jss.v048.i04
Frankl, V. (2005). *On the theory and therapy of mental disorders: An introduction to logotherapy and existential analysis*. Routledge.
Frankl, V. E. (1985). *Man's search for meaning*. Simon and Schuster.
Golino, H., Christensen, A., & Moulder, R. (2020). *R Package Version 0.9*.
Gonzalez, V. M. (2008). Recognition of mental illness and suicidality among individuals with serious Mental illness. *The Journal of Nervous and Mental Disease*, *196*(10), 727–734. https://doi.org/10.1097/NMD.0b013e3181879deb
Greenberg, J., Koole, S. L., & Pyszczynski, T. A. (2004). *Handbook of experimental existential psychology*. Guilford Press.
Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology*, *32*(1), 50–55. https://doi.org/10.1111/j.2044-8341.1959.tb00467.x
Hanson, B., & Young, M. A. (2012). Why depressive symptoms cause distress: The clients' perspective. *Journal of Clinical Psychology*, *68*(7), 860–874. https://doi.org/10.1002/jclp.21872
Hanssen, M., Peeters, F., Krabbendam, L., Radstake, S., Verdoux, H., & Van Os, J. (2003). How psychotic are individuals with non-psychotic disorders? *Social Psychiatry and Psychiatric Epidemiology*, *38*(3), 149–154. https://doi.org/10.1007/s00127-003-0622-7
Haslbeck, J. M. B., & Waldorp, L. J. (2020). mgm: Estimating Time-Varying Mixed Graphical Models in High-Dimensional Data. *Journal of Statistical Software*, *93*(8), 1–46. https://doi.org/10.18637/jss.v093.i08
Heidegger, M. (1927). *Sein und Zeit [Being and time]* (p. 458). Max Niemeyer.
Herron, S. J., & Sani, F. (2022). Understanding the typical presentation of emptiness: A study of lived-experience. *Journal of Mental Health (Abingdon, England)*, *31*(2), 188–195. https://doi.org/10.1080/09638237.2021.1922645
Hill, R. M., & Pettit, J. W. (2013). The role of autonomy needs in suicidal ideation: Integrating the interpersonal-psychological theory of suicide and self-determination Theory.

Archives of Suicide Research: Official Journal of the International Academy for Suicide Research, *17*(3), 288–301. https://doi.org/10.1080/13811118.2013.777001

Huguelet, P. (2014). The contribution of existential phenomenology in the recovery-oriented care of patients with severe mental disorders. *The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine*, *39*(4), 346–367. https://doi.org/10.1093/jmp/jhu023

Hvidt, N. C., Assing Hvidt, E., & la Cour, P. (2022). Meanings of "the existential" in a Secular country: A survey study. *Journal of Religion and Health*, *61*(4), 3276–3301. https://doi.org/10.1007/s10943-021-01253-2

Ising, H. K., Veling, W., Loewy, R. L., Rietveld, M. W., Rietdijk, J., Dragt, S., Klaassen, R. M., Nieman, D. H., Wunderink, L., & Linszen, D. H. (2012). The validity of the 16-item version of the prodromal questionnaire (PQ-16) to screen for ultra high risk of developing psychosis in the general help-seeking population. *Schizophrenia Bulletin*, *38*(6), 1288–1296. https://doi.org/10.1093/schbul/sbs068

Iverach, L., Menzies, R. G., & Menzies, R. E. (2014). Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. *Clinical Psychology Review*, *34*(7), 580–593. https://doi.org/10.1016/j.cpr.2014.09.002

Kaite, C. P., Karanikola, M., Merkouris, A., & Papathanassoglou, E. D. E. (2015). "An ongoing struggle with the self and illness": A meta-synthesis of the studies of the lived experience of severe mental illness. *Archives of Psychiatric Nursing*, *29*(6), 458–473. https://doi.org/10.1016/j.apnu.2015.06.012

Kaufman, E. A., Cundiff, J. M., & Crowell, S. E. (2015). The development, factor structure, and validation of the self-concept and identity measure (SCIM): A self-report assessment of clinical identity disturbance. *Journal of Psychopathology and Behavioral Assessment*, *37*(1), 122–133. https://doi.org/10.1007/s10862-014-9441-2

Kogstad, R. E., Ekeland, T. J., & Hummelvoll, J. K. (2011). In defence of a humanistic approach to mental health care: Recovery processes investigated with the help of clients' narratives on turning points and processes of gradual change. *Journal of Psychiatric and Mental Health Nursing*, *18*(6), 479–486. https://doi.org/10.1111/j.1365-2850.2011.01695.x

Koole, S. L. (2010). Existential Psychology. In I. B. Weiner, &W. E. Craighead (Eds.),*Corsini Encyclopedia of Psychology* (pp. 1–2). https://doi.org/10.1002/9780470479216.corpsy0329

Koole, S. L., Greenberg, J., & Pyszczynski, T. (2006). Introducing science to the psychology of the Soul: Experimental existential psychology. *Current Directions in Psychological Science*, *15*(5), 212–216. https://doi.org/10.1111/j.1467-8721.2006.00438.x

Koslander, T., da Silva, A. B., & Roxberg, Å. (2009). Existential and spiritual needs in mental health care: An ethical and holistic perspective. *Journal of Holistic Nursing*, *27*(1), 34–42. https://doi.org/10.1177/0898010108323302

Kretschmer, M., & Storm, L. (2018). The relationships of the five existential concerns with depression and existential thinking. *Int J Existent Psychol Psychother*, *7*(1), 20.

Lecomte, T., Corbière, M., & Laisné, F. (2006). Investigating self-esteem in individuals with schizophrenia: Relevance of the self-esteem rating scale-short form. *Psychiatry Research*, *143*(1), 99–108. https://doi.org/10.1016/j.psychres.2005.08.019

Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*, *152*, 157–171. https://doi.org/10.1016/j.puhe.2017.07.035

Lysaker, P. H., Roe, D., & Yanos, P. T. (2006). Toward understanding the insight paradox: Internalized Stigma moderates the association between insight and social

functioning, hope, and self-esteem among people with schizophrenia spectrum disorders. *Schizophrenia Bulletin*, *33*(1), 192–199. https://doi.org/10.1093/schbul/sbl016

Maier, W., Buller, R., Philipp, M., & Heuser, I. (1988). The Hamilton Anxiety Scale: reliability, validity and sensitivity to change in anxiety and depressive disorders. *Journal of Affective Disorders*, *14*(1), 61–68. https://doi.org/10.1016/0165-0327(88)90072-9

Mascaro, N., & Rosen, D. H. (2005). Existential meaning's role in the enhancement of hope and prevention of depressive symptoms. *Journal of Personality*, *73*(4), 985–1014. https://doi.org/10.1111/j.1467-6494.2005.00336.x

McNally, R. J. (2021). Network analysis of psychopathology: Controversies and challenges. *Annual Review of Clinical Psychology*, *17*(1), 31–53. https://doi.org/10.1146/annurev-clinpsy-081219-092850

Moore, L. J., & Goldner-Vukov, M. (2009). The existential way to recovery. *Psychiatria Danubina*, *21*(4), 453–462.

Neacsiu, A. D., Herr, N. R., Fang, C. M., Rodriguez, M. A., & Rosenthal, M. Z. (2015). Identity disturbance and problems with emotion regulation are related constructs across diagnoses. *Journal of Clinical Psychology*, *71*(4), 346–361. https://doi.org/10.1002/jclp.22141

Nestadt, G., Samuels, J., Riddle, M. A., Liang, K. Y., Bienvenu, O. J., Hoehn-Saric, R., Grados, M., & Cullen, B. (2001). The relationship between obsessive–compulsive disorder and anxiety and affective disorders: Results from the Johns Hopkins OCD family study. *Psychological Medicine*, *31*(3), 481–487. https://doi.org/10.1017/S0033291701003579

Nieman, D. H. (2016). *Prevention in mental health care: Time for a new approach*. Routledge.

Nieman, D. H., Chavez-Baldini, U., Vulink, N. C., Smit, D. J. A., van Wingen, G., de Koning, P., Sutterland, A. L., Mocking, R. J. T., Bockting, C., Verweij, K. J. H., Lok, A., & Denys, D. (2020). Protocol across study: Longitudinal transdiagnostic cognitive functioning, psychiatric symptoms, and biological parameters in patients with a psychiatric disorder. *BMC Psychiatry*, *20*(1), 212. https://doi.org/10.1186/s12888-020-02624-x

Nieman, D. H., Vulink, N. C., Chavez-Baldini, U., Verweij, K., & Denys, D. (2021). *Psychiatric Dimensions Questionnaire*. https://osf.io/6s48a/

Persike, M., Seiffge-Krenke, I., Cok, F., Głogowska, K., Pavlopoulos, V., Tantaros, S., Perchec, C., Rohail, I., & Saravia, J. C. (2020). Emerging adults' psychopathology in seven countries: The impact of identity-related risk factors. *Emerging Adulthood*, *8*(3), 179–194. https://doi.org/10.1177/2167696818791108

Pinel, E. C., Long, A. E., Murdoch, E. Q., & Helm, P. (2017). A prisoner of one's own mind: Identifying and understanding existential isolation. *Personality and Individual Differences*, *105*, 54–63. https://doi.org/10.1016/j.paid.2016.09.024

Quek, T. C., Ho, C. S., Choo, C. C., Nguyen, L. H., Tran, B. X., & Ho, R. C. (2018). Misophonia in Singaporean psychiatric patients: A cross-sectional study. *International Journal of Environmental Research and Public Health*, *15*(7), 1410. https://doi.org/10.3390/ijerph15071410

R Core Team. (2020). *R: A language and environment for statistical computing*. In R Foundation for Statistical Computing. https://www.R-project.org

Robinaugh, D. J., Millner, A. J., & McNally, R. J. (2016). Identifying highly influential nodes in the complicated grief network. *Journal of Abnormal Psychology*, *125*(6), 747–757. https://doi.org/10.1037/abn0000181

Rouse, P. C., Turner, P. J. F., Siddall, A. G., Schmid, J., Standage, M., & Bilzon, J. L. J. (2020). The interplay between psychological need satisfaction and psychological need frustration within a work context: A variable and person-oriented approach. *Motivation and Emotion*, *44*(2), 175–189. https://doi.org/10.1007/s11031-019-09816-3

Rush, A. J., Giles, D. E., Schlesser, M. A., Fulton, C. L., Weissenburger, J., & Burns, C. (1986). The inventory for depressive symptomatology (IDS): Preliminary findings. *Psychiatry Research*, *18*(1), 65–87. https://doi.org/10.1016/0165-1781(86)90060-0

Rush, A. J., Gullion, C. M., Basco, M. R., Jarrett, R. B., & Trivedi, M. H. (1996). The inventory of depressive symptomatology (IDS): Psychometric properties. *Psychological Medicine*, *26*(3), 477–486. https://doi.org/10.1017/s0033291700035558

Rush, A. J., Trivedi, M. H., Ibrahim, H. M., Carmody, T. J., Arnow, B., Klein, D. N., Markowitz, J. C., Ninan, P. T., Kornstein, S., & Manber, R. (2003). The 16-item quick inventory of depressive symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): A psychometric evaluation in patients with chronic major depression. *Biological Psychiatry*, *54*(5), 573–583. https://doi.org/10.1016/s0006-3223(02)01866-8

Ryan, R. M., & Deci, E. L. (2004). Autonomy is No Illusion: Self-determination theory and the empirical study of authenticity, awareness, and Will. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 449–479). Guilford Press.

Saeri, A. K., Cruwys, T., Barlow, F. K., Stronge, S., & Sibley, C. G. (2018). Social connectedness improves public mental health: Investigating bidirectional relationships in the New Zealand attitudes and values survey. *The Australian and New Zealand Journal of Psychiatry*, *52*(4), 365–374. https://doi.org/10.1177/0004867417723990

Søberg, A. I. B., Kjørven Haug, S. H., Danbolt, L. J., Lien, L., & Sørensen, T. (2018). Existential themes in the treatment of people at suicide risk. Understandings and practices of specialist healthcare professionals. *Mental Health, Religion & Culture*, *21*(6), 588–600. https://doi.org/10.1080/13674676.2018.1524860

Sokol, Y., & Eisenheim, E. (2016). The relationship between continuous identity disturbances, negative mood, and suicidal ideation. *The Primary Care Companion for CNS Disorders*, *18*(1), 26150. https://doi.org/10.4088/PCC.15m01824

Sorgaard, K. W., Nivison, M., Hansen, V., & Øiesvold, T. (2011). Acknowledging illness and treatment needs in first-time admitted psychiatric patients. *European Psychiatry*, *26*(7), 446–451. https://doi.org/10.1016/j.eurpsy.2011.02.006

South, J., Higgins, T. J., Woodall, J., & White, S. M. (2008). Can social prescribing provide the missing link? *Primary Health Care Research & Development*, *9*(4), 310–318. https://doi.org/10.1017/S146342360800087X

Spiller, T. R., Levi, O., Neria, Y., Suarez-Jimenez, B., Bar-Haim, Y., & Lazarov, A. (2020). On the validity of the centrality hypothesis in cross-sectional between-subject networks of psychopathology. *BMC Medicine*, *18*(1), 297. https://doi.org/10.1186/s12916-020-01740-5

Szentágotai-Tătar, A., Nechita, D.-M., & Miu, A. C. (2020). Shame in anxiety and obsessive-compulsive disorders. *Current Psychiatry Reports*, *22*(4), 16. https://doi.org/10.1007/s11920-020-1142-9

Terluin, B., de Boer, M. R., & de Vet, H. C. W. (2016). Differences in connection strength between mental symptoms might be explained by differences in variance: Reanalysis of network data did not confirm staging. *PloS One*, *11*(11), e0155205. https://doi.org/10.1371/journal.pone.0155205

Tillich, P. (1952). *The courage to be*. Yale University Press.

Ulland, D., & DeMarinis, V. (2014). Understanding and working with existential information in a Norwegian adolescent psychiatry context: A need and a challenge. *Mental Health, Religion & Culture*, *17*(6), 582–593. https://doi.org/10.1080/13674676.2013.871241

van Bergen, D. D., & Saharso, S. (2016). Suicidality of young ethnic minority women with an immigrant background: The role of autonomy. *European Journal of Women's Studies*, *23*(3), 297–311. https://doi.org/10.1177/1350506815609740

van Os, J., Guloksuz, S., Vijn, T. W., Hafkenscheid, A., & Delespaul, P. (2019). The evidence-based group-level symptom-reduction model as the organizing principle for mental health care: Time for change? *World Psychiatry*, *18*(1), 88–96. https://doi.org/10.1002/wps.20609

Vansteenkiste, M., Lens, W., Soenens, B., & Luyckx, K. (2006). Autonomy and relatedness among Chinese Sojourners and applicants: Conflictual or Independent predictors of well-being and adjustment? *Motivation and Emotion*, *30*(4), 273–282. https://doi.org/10.1007/s11031-006-9041-x

Van Weeghel, J., van Zelst, C., Boertien, D., & Hasson-Ohayon, I. (2019). Conceptualizations, assessments, and implications of personal recovery in mental illness: A scoping review of systematic reviews and meta-analyses. *Psychiatric Rehabilitation Journal*, *42*(2), 169. https://doi.org/10.1037/prj0000356

Vehling, S., & Kissane, D. W. (2018). Existential distress in cancer: Alleviating suffering from fundamental loss and change. *Psycho-Oncology*, *27*(11), 2525–2530. https://doi.org/10.1002/pon.4872

Verhage, F. (1964). *Intelligentie en leeftijd: Onderzoek bij Nederlanders van twaalf tot zevenenzeventig jaar*. van Gorcum.

von Klipstein, L., Borsboom, D., & Arntz, A. (2021). The exploratory value of cross-sectional partial correlation networks: Predicting relationships between change trajectories in borderline personality disorder. *PloS One*, *16*(7), e0254496. https://doi.org/10.1371/journal.pone.0254496

Wagner, L. C., & King, M. (2005). Existential needs of people with psychotic disorders in Pôrto Alegre, Brazil. *British Journal of Psychiatry*, *186*(2), 141–145. https://doi.org/10.1192/bjp.186.2.141

Whitley, R., & Drake, R. E. (2010). Recovery: A dimensional approach. *Psychiatric Services*, *61*(12), 1248–1250. https://doi.org/10.1176/ps.2010.61.12.1248

Wilson, R. S., Yung, A. R., & Morrison, A. P. (2020). Comorbidity rates of depression and anxiety in first episode psychosis: A systematic review and meta-analysis. *Schizophrenia Research*, *216*, 322–329. https://doi.org/10.1016/j.schres.2019.11.035

Wisdom, J. P., Bruce, K., Auzeen Saedi, G., Weis, T., & Green, C. A. (2008). 'Stealing me from myself': Identity and recovery in personal accounts of mental illness. *Australian and New Zealand Journal of Psychiatry*, *42*(6), 489–495. https://doi.org/10.1080/00048670802050579

Wysocki, A., van Bork, R., Cramer, A., & Rhemtulla, M.(2022). Cross-lagged network models. https://doi.org/10.31234/osf.io/vjr8z

Yager, J. (2021). Addressing suffering in patients with psychiatric disorders. *The Journal of Nervous and Mental Disease*, *209*(9), 615–621. https://doi.org/10.1097/nmd.0000000000001348

Yalom, I. D. (1980). *Existential psychotherapy*. Basic Books.

Zimmerman, M., McGlinchey, J. B., Posternak, M. A., Friedman, M., Attiullah, N., & Boerescu, D. (2006). How should remission from depression Be defined? The depressed Patient's perspective. *American Journal of Psychiatry*, *163*(1), 148–150. https://doi.org/10.1176/appi.ajp.163.1.148