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Schizophrenia, expressed emotion, and relapse: a systematic review across cultures

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SCHIZOPHRENIA, EXPRESSED EMOTION, AND RELAPSE: A SYSTEMATIC REVIEW ACROSS CULTURES

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by

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DEDICATION

This dissertation is dedicated to my parents, aunt, and husband. You push me to be a better person. None of this is possible without you.

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VITA

EDUCATION

Pepperdine University, Graduate School of Education and Psychology (Los Angeles, CA)
Doctorate in Clinical Psychology May 2024 (Expected)

University of Southern California (Los Angeles, CA)
Master of Social Work May 2012

East China University of Science and Technology (Shanghai, CN)
Bachelor's in Law Jun. 2010

CLINICAL TRAINING

Columbia University New York Presbyterian Hospital (New York, NY) Jul. 2023 - Present
Adult Track Doctoral Psychology intern
Setting: Academic Medical Center
● Join a multidisciplinary treatment team, participate in the unit milieu, and serve as a primary psychotherapist for hospitalized patients at the New York State Psychiatric Institute Eating Disorders Inpatient Unit.
● Work with people who are pregnant, postpartum, or parenting young toddlers or have experienced a miscarriage or infant loss in the Triciclo/Maternal and Child Integrated Mental Health Program.
● Conduct individual therapy, group therapy, intake evaluation, and psychological testing.

West Los Angeles Department of Veterans Affairs (Los Angeles, CA) Aug. 2022 - May 2023
Doctoral Psychology Pre-intern
Setting: VA Medical Center
● Conducted Cognitive Behavioral Therapy for Psychosis (CBT-p) and Cognitive Processing Therapy (CPT) with culturally diverse veterans weekly, presenting various mental health issues.
● Wrote comprehensive progress notes to aid treatment planning and appropriate client care.
● Co-facilitated the CBT Group with veterans who encounter unusual experiences.
● Coordinated veterans' care with their primary providers and programs within the VA system.
● Facilitated family consults with veterans and their families to assist in treatment planning.
● Attended didactics with the psychiatry residents on various topics, including psychopharmacology.

Los Angeles LGBT Center (Los Angeles, CA) Sep. 2021 - Aug. 2022
Doctoral Mental Health Extern
Setting: Community Mental Health Clinic
● Conducted weekly individual psychotherapy with culturally diverse clients, presenting various mental health issues.
● Conducted psychosocial history and intake interviews and wrote comprehensive intake reports and progress notes to aid treatment planning and appropriate client care provision.
● Co-facilitated the Gay Men's Crystal Meth Group and the Intimate Partner Survivor Empowerment Group.
● Observed the Gender Affirming Surgery Letter-Writing Group and the Anger Management Intimate Partner Abusers Group.

Framework Associates (North Hollywood, CA) Aug. 2021 - Aug. 2022
Doctoral Practicum Counselor
Setting: Assessment Private Practice
● Administered psycho-diagnostic, cognitive, and personality assessments.
● Wrote integrated assessment reports for ADHD in adults.
● Held assessment intake and feedback sessions with culturally diverse clients.
● Co-facilitated the Adult "Refocus" ADHD CBT group.

Rich & Associates, Social Skills Intensive Program (Los Angeles, CA) Jun. 2021 - Jul. 2021
Doctoral Extern
Setting: Summer Intensive Program
● Co-facilitated intensive outpatient social skills summer program for children and adolescents with social skills deficits and various diagnoses, including Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, and Oppositional Defiant Disorder.
● Utilized behavioral strategies, psychoeducation, group process discussions, and mindfulness to support social skills and behavior management.
● Tracked client behavioral and social skills goals and provided feedback and recommendations.
● Assisted with planning, preparing, and adapting interventions to meet client needs.

Pepperdine West Los Angeles Clinic (Los Angeles, CA) Nov. 2020 - Sep. 2021
Doctoral Psychology Extern
Setting: Outpatient Mental Health Clinic
● Conducted individual psychotherapy with culturally diverse clients weekly, presenting a broad range of mental health issues.
● Completed psychosocial history and intake interviews and wrote comprehensive intake reports and progress notes to aid treatment planning and appropriate client care provision.
● Administered, scored, and interpreted psychodiagnostic assessments and provided feedback.

Union Rescue Mission (Los Angeles, CA) Sep. 2020 - Sep. 2021
Doctoral Psychology Extern
Setting: Homeless Shelter/Residential Treatment Program
● Conducted weekly individual psychotherapy with culturally diverse clients, presenting a broad range of psychiatric disorders and comorbid drug and alcohol dependency.
● Completed psychosocial history and intake interviews and wrote comprehensive intake reports and progress notes to aid treatment planning and appropriate client care provision.
● Collaborated with clients' chaplains at the URM, made medical referrals, facilitated medication adherence/compliance, and coordinated legal services as necessary.
● Provided crisis management and safety planning on suicidal ideation and relapse prevention.
● Participated in ongoing training, didactic seminars, and supervision related to multicultural clientele, homeless populations, and best treatment practices.
● Administered, scored, and interpreted psychodiagnostic assessments and provided relevant feedback to clients. Co-facilitate the Mindfulness Group.
● Co-facilitated the Mindfulness Group.

Families In Schools (Los Angeles, CA) Aug. 2011 - May 2012
MSW Intern
Setting: Nonprofit Organization for Underserved Children to Better Approach Academic Success
● Coordinated family literacy roundtable among Los Angeles County literacy stakeholders.
● Organized county-wide family literacy campaign, "Million Word Challenge."

● Co-facilitated workshops for parents on popular education topics in local schools.
● Co-chaired an organization-wide Employee Assistance Program to strengthen staff development.

Los Angeles Unified School District (LAUSD) (Los Angeles, CA) Aug. 2010 - May 2011
MSW Intern
Setting: Public School for Early Education
● Developed early education curriculum for LAUSD local District Five.
● Referred low-income families to various kinds of resources within their community.
● Assessed students for learning disabilities, autism spectrum disorders, and ADHD.
● Reported child abuse to Child Protective Services.

WORK EXPERIENCE

Grace Hospice (Los Angeles, CA) May 2015 - Present
Psychiatric Social Worker II
Setting: Health Care Agency for Terminally Ill Patients
● Evaluate patients'/families'/caregivers' psychosocial statuses regarding terminal illnesses.
● Plan interventions based on evaluation findings and link resources to assessed needs.
● Advocate for patients and make adult protective service reports.

Los Angeles County Department of Mental Health (Los Angeles, CA) Feb. 2017 - Sep. 2020
Psychiatric Social Worker II
Setting: Governmental Agency for Mental Health
● Collaborated with the Department of Health Services (DHS), Institutions for Mental Diseases (IMD), and Enriched Residential Services (ERS) treatment teams to assist in assessing, planning, and revising treatment goals as appropriate and developing aftercare plans for clients with intensive, complicated service needs.
● Identified system barriers to the successful linkage of clients into Intensive Residential Facilities and worked with DHS, IMD, and ERS to resolve the obstacles.
● Provided consultation to treatment/discharge staff in hospitals, IMDs, and ERS facilities to identify appropriate community resources and alternatives available to clients in Psychiatric Emergency Services (PES), acute medical inpatient units, IMDs, crisis residential, and intensive supportive residential facilities.
● Participated in managing and allocating treatment resources among high-need populations and collecting outcome data on treatment received and discharges from State and County Hospitals, IMDs, and ERSs.

Assurance Hospice (Pasadena, CA) Mar. 2013 - Feb. 2017
Social Service Supervisor & Volunteer Coordinator
Setting: Health Care Agency for Terminally Ill Patients
● Supervised hospice social workers, chaplains/pastors, and volunteers.
● Facilitated loss and grief support groups for caregivers and family members.
● Provided direct patient services, including assessment and intervention in English & Chinese.

A Plus Adult Day Health Care Center (El Monte, CA) May 2012 - Oct. 2013
Medical Social Worker
Setting: Health Care Agency for Chinese American Senior Citizens and Dependent Adults
● Assessed the psychosocial status of clients during the enrollment and recertification period.
● Conducted social services consultation and case management to participants/caregivers.
● Counseled participants/caregivers about stress and other identified coping difficulties.

ABSTRACT

The objective of this review was to systematically identify and evaluate quantitative research on familial expressed emotion (EE) in schizophrenia patients from different cultural backgrounds. This adds to the findings of previous reviews of EE by including data from cultural individualism vs. collectivism perspectives using Hofstede's cultural dimensions theory. Using specific search criteria, 10 research papers were identified and evaluated. Findings indicated that the lowest percentage of high EE relatives were found in samples from countries associated with moderate individualism scores. A similar pattern was also found in high-critical comment (CC) relatives. Results of hostility and Emotional Over-involvement (EOI) are equivocal. In contrast, cultural individualism is negatively correlated with the rate of high warmth among family members. Concerning EE's ability to predict schizophrenia relapse, high familial EE predicted relapse in most of the studies, and there was not a clear difference in the predictive power of high EE by cultural individualism vs. collectivism. High warmth demonstrated a possible protective function against schizophrenia relapse across all studies that reported on it, as high warmth was consistently associated with a reduced risk of relapse. Inconsistent findings and methodological issues across studies limited conclusions. Further research is needed to pay more attention to warmth, explore the qualitative nature of CC among various cultures, and study culture's other aspects related to familial EE and schizophrenia besides relapse.

Chapter 1: Background and Rationale

Statement of the Problem

The symptoms of schizophrenia have long been recognized in the field of psychology. The exact causes of schizophrenia are unknown. Research suggests that a combination of physical, genetic, psychological, and environmental factors can make a person more likely to develop the condition (National Health Services [NHS], 2019). Schizophrenia exists around the world in all kinds of cultures. Societies' explanatory models of schizophrenia and available institutional resources interact with personal and familial expectations to affect help-seeking behaviors, treatment preferences, and coping strategies (Kealey, 2005).

Regardless of cultural background, people living with schizophrenia worldwide might share similar symptoms. Although schizophrenia is associated with heterogeneous outcomes ranging from recovery to severe disability, affected individuals frequently experience significant impairment in social and occupational functioning (Woo & Keatinge, 2016). Therefore, many people living with schizophrenia are unable to live independently. As a result, many live with family members who care for them at different levels and intensities depending on the individual's functional status. The nature of the disease might make the affected individual seem very different to family members compared to how they once were, making it challenging for individuals with schizophrenia and those who care about them.

Although schizophrenia is a disorder with biological underpinnings, the social environment's influence on the illness is worth noting. Numerous studies have focused on Expressed Emotion (EE), one of the most vigorously validated environmental factors implicated in the prognosis of schizophrenia, including in different cultural contexts. However, many of the studies are dated. The last review on such topics in the PsycINFO database was done in 2008. New EE research has taken place over the past decade in this field, and an updated systematic review is needed to include these new findings. Furthermore, there is a need for an updated

systematic review with a clear focus on potential differences in the cultural expression of EE in relation to a family member living with schizophrenia.

Overview of Current Research, Theory, and Practice

Schizophrenia

Schizophrenia is characterized by several active symptoms, including hallucinations, delusions, disorganized thinking and speech, grossly disorganized behavior or catatonia, and negative symptoms (Woo & Keatinge, 2016). According to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, at least two such active symptoms, lasting for a significant portion of one month (less if successfully treated), are required for a diagnosis. At least one of these must be delusions, hallucinations, or disorganized speech. Continuous signs of the illness must be present for at least six months, including prodromal or residual symptoms (e.g., attenuated delusions or hallucinations; American Psychiatric Association, 2013). Negative symptoms include alogia, avolition, flattened or blunted affect, anergia, anhedonia, and social withdrawal (American Psychiatric Association, 2013).

The *DSM-5* notes the lifetime prevalence rate for schizophrenia is 0.3% to 0.7% (American Psychiatric Association, 2013). Psychotic features of the disorder typically emerge between the mid-teens and mid-30s (American Psychiatric Association, 2013). Family and twin studies support that there is a genetic component in schizophrenia (NHS, 2019). Indeed, thought disorder characterized by deviant verbalizations (e.g., semantic anomalies) is not only seen among those diagnosed with schizophrenia but is also overrepresented in the first-degree relatives of these individuals, suggesting that genetic factors may be implicated in the etiology of thought disorder, communication disturbances, and language anomalies seen in schizophrenia (Levy et al., 2010).

Culture and Schizophrenia

Many cultures perceive schizophrenia differently from Western perspectives. The symptoms of schizophrenia also vary in form and content from culture to culture. For example,

Kealey (2005) reported that visual hallucinations are more common in non-western countries, while auditory hallucinations are more common in North America and Europe. Stanford University anthropologist Dr. Tanya Luhrmann found that the voice-hearing experiences of people with severe psychotic disorders are shaped by local culture. For instance, in the United States, the voices are more likely to be harsh and threatening, while in Africa and India, they may more likely be benign and playful (Luhrmann & Marrow, 2016). Such phenomena may have clinical implications for treating schizophrenia.

The World Health Organization (WHO) has sponsored three international studies on schizophrenia since 1967. Those studies are the International Pilot Study of Schizophrenia (IPSS), the Determinants of Outcome of Severe Mental Disorders (DOSMeD), and the International Study of Schizophrenia (ISoS). Kealey (2005) summarized that all three studies, with follow-up periods ranging from 2 to 26 years, consistently found that individuals clinically diagnosed with schizophrenia in so-called developing countries have more favorable outcomes (as measured by the Global Assessment of Functioning, Disability Assessment Schedule, employment status, and incidence of psychotic episodes) than individuals so diagnosed in so-called developed countries.

One explanation for this finding is that the demands of living in a fast-paced industrialized society that emphasizes individualism and competition, combined with the erosion of extended family and social support networks in these environments, may create stressors that adversely affect the prognosis for individuals with schizophrenia living in industrialized countries (Woo & Keatinge, 2016). However, the conclusions should be interpreted cautiously as other factors, such as the lack of resources in third-world countries, complicate the issues tremendously, as evidenced by several follow-up studies (Woo & Keatinge, 2016).

Expressed Emotion

It has also been known that social and environmental factors play a significant role in the lives of those with schizophrenia. EE measures an individual relative's behavior at a single time

but predicts the likelihood of a subsequent relapse in the schizophrenic patient with whom that relative lives (Kuipers, 1987). EE refers to an index composed of several elements: Critical comments (CC), hostility, warmth, and emotional over-involvement (EOI; Leff, 1985). Typically, a relative is classified as either high or low EE based on quantitative ratings of CC, hostility, and EOI (described further below). A high EE level is thought to negatively impact people with schizophrenia, including a higher relapse risk. Clients residing in high EE home environments (e.g., characterized by elevated CC, hostility, and EOI) are more than twice as likely to experience symptomatic relapse compared to clients residing in low EE homes (Woo & Keatinge, 2016).

Kuipers (1987) further argued that EE has primarily served to create immense interest in the effect of social factors on schizophrenia. This has enabled researchers to focus on new aspects of the illness and, more importantly, has fueled and given structure to intervention studies that were not previously attempted (e.g., family-based interventions designed to improve knowledge of the illness and communication and problem-solving skills; Falloon & Pederson, 1985). The importance of the EE construct on course and prognosis in schizophrenia is reflected by the inclusion of a Z-code of High Expressed Emotion Level within Family in the *DSM-5* (American Psychiatric Association, 2013).

Expressed Emotion in Clinical Practice

The Camberwell Family Interview (CFI) is the most common tool used to measure EE. However, it is hard to obtain training in it, and it takes lots of time and effort to administer and rate the CFI. By standard criteria, a family is described as having a high EE when one family member makes six or more CC, scores three or above on EOI, or demonstrates hostility towards the patient or relative (Hashemi & Cochrane, 1999). However, some cultures appropriately consider certain levels of critical remarks and overinvolvement as showing care for loved ones, so adjusting cutoff scores on EE scales may be necessary to adapt to family dynamics' cultural norms.

Another widely used instrument to measure EE is the Five-Minute Speech Sample (FMSS). The FMSS is one of the most used alternative measures of EE to the CFI. The FMSS is a short, open-ended procedure requiring relatives to speak uninterruptedly about an ill family member for five minutes, including how they get along (Kymalainen & Weisman de Mamani, 2008). However, Kymalainen and Weisman de Mamani (2008) noted that some studies found the FMSS weaker than the CFI in predicting schizophrenia outcomes. Furthermore, the FMSS also seems to require a higher threshold than the CFI to detect EE (Kymalainen & Weisman de Mamani, 2008).

Some examples of other alternative assessment tools include the Family Attitude Scale (FAS), the Level of Expressed Emotion Scale (LEE), and the Perceived Criticism (PC) measure. Hooley and Parker (2006) concluded that the FAS correlates with EE as measured with the CFI and predicts relapse in patients with schizophrenia. The original 60-item LEE Scale correlates quite well with the CFI and has predictive validity for psychotic disorders (Hooley & Parker, 2006). PC ratings are not considered a substitute for the CFI (Hooley & Parker, 2006). However, in circumstances that call for a fast estimate of the affective climate in the family, the minimal time cost of a PC assessment, which can be less than one minute (Hooley & Miklowitz, 2017), appears to be significantly favorable together with its possible benefit as a negative prognostic indicator (Hooley & Parker, 2006). Additionally, there are more EE assessment tools besides the ones mentioned above that are less extensively used to assess EE.

The Limitations of Western-Focused Research

A joke commonly heard among psychologists is that all our known behavior laws are drawn from two sources: the white rat and the white middle-class college sophomore (Lefley, 1987). However, such findings are no joke for those whose lives bear the social consequences of research performed on restricted populations (Lefley, 1987). Reavis (1998) hypothesized that culture exerted a shaping or coloring effect on mental illness and concluded that mental illness is a worldwide phenomenon but is also influenced by the culture in which it appears. It does

seem dubious that American psychology can claim status as a human science if its focus is on only 5% of the human population, with an occasional nod to an additional 7% (Arnett, 2008). The conditions of life that people worldwide experience are amazingly diverse in terms of population density and growth, income, education, health, ways of life, and cultural frameworks for understanding human relations and human existence (Arnett, 2008).

Most initial EE studies focused on Western societies such as Europe and the United States. These are primarily developed, predominantly Western, Educated, Industrialized, Rich, and Democratic (WEIRD) countries, where most psychological research is now focused worldwide. Consequently, the population studied was predominantly Caucasian in individualistic cultures, where caring for adult family members is not commonly viewed as the norm. With that said, the definition of high EE, which includes CC, hostility, and EOI, would likely happen in those cultures. For example, Kopelowicz et al. (2002) found that high EE predicted relapse for White schizophrenia patients but not Mexican American patients. In their study, Mexican American patients and their relatives achieved lower rates of high EE than their White counterparts. Interestingly, Breitborde et al. (2010) found that the high EE indices of EOI and warmth predicted worse mental health among caregivers at a 13-month follow-up amongst Mexican Americans. The same study found no association between EE and health outcomes among individuals with schizophrenia.

Culture: Individualism vs. Collectivism

Hofstede's cultural dimensions are one of the most referenced cultural models in the literature (Chun et al., 2021). Hofstede identified six categories that define culture: Power Distance, Individualism vs. Collectivism, Uncertainty Avoidance, Masculinity vs. Femininity, Long- vs. Short-Term Orientation, and Indulgence vs. Restraint. Hofstede also provided a survey instrument, the Values Survey Module (VSM), to measure cultural values (Philipp & Kimmo, 2021). The distinction between individualistic and collectivistic orientations is of particular interest in the current review as this dimension relates directly to how individuals

perceive and value interactions they have with one another, which seems relevant to the concept of EE. It is no secret that some cultures prioritize the individual over the entire group. In contrast, other cultures emphasize the group's needs and goals as a whole over the needs and desires of each individual. In individualistic cultures, most people's social behavior is primarily determined by family, co-workers, and fellow citizens' personal goals, attitudes, and values (Triandis & Verma, 1988). In collectivistic cultures, most people's social behavior is determined mainly by goals, attitudes, and values shared with some group of persons (Triandis & Verma, 1988).

Cultural individualism vs. collectivism and mental health have also demonstrated strong associations. For example, Lin et al. (2017) discovered that attachment anxiety predicted worse negative symptoms more strongly among individuals higher in collectivism across cultures. Stavropoulos et al. (2021) found that people who are more individualistic or are less influenced by social groups display greater internet gaming disorder symptoms and present a profile that requires a different intervention from more collectivistic people. Moreover, Tafarodi and Smith (2001) observed that a collectivist cultural orientation promotes depressive dysphoria in response to negative social events and increases the inhibitory effect of positive social events. In contrast, an individualist cultural orientation promotes depressive dysphoria in response to negative achievement-related events and increases the inhibitory effect of positive achievement-related events (Tafarodi & Smith, 2001). These studies provide examples of how an individualistic vs. collectivistic orientation may impact vulnerability to any form of mental health issues a person may experience.

Culture plays a significant role in shaping beliefs, values, and attitudes toward mental illness. Culture is inextricably linked to illness experience, and the interaction of culture and illness is dynamic, not static (Kealey, 2005). For example, in individualistic cultures, where independence and self-reliance are valued, the burden of care may fall more heavily on the individual with schizophrenia. In contrast, in collectivistic cultures, where interdependence and

social harmony are emphasized, family support and involvement in treating individuals with schizophrenia may be more common. Additionally, it is worth noting that some cultures might be commonly known as one of the two classifications but identify as the opposite classification when put under a particular lens. For example, Triandis and Verma (1988) pointed out that Italians are family collectivists. However, outside the family, Italians are basic individualists. As another example, Greek children remain interdependent with their parents as long as the parents live.

The definition and level of EE in schizophrenia are likely to be highly influenced by cultural individualism vs. collectivism. For White patients with schizophrenia, high EE in relatives has been associated with high levels of patients' abnormal or unusual thinking and symptom relapses (Rosenfarb et al., 2006). Hashemi and Cochrane (1999) compared 20 British Pakistani, 20 British Sikh, and 20 White families with a loved one diagnosed with clinical schizophrenia. They found that many Pakistani families highly regarded the same values (e.g., over-protective and self-sacrificing) considered undesirable in Western cultures, which could also be viewed as evidence of EOI. Such a finding could partially explain the high levels of EE in Pakistani families, as a high percentage (11 of 20 or 55%) were rated high EOI. Furthermore, EE only significantly predicted relapse in the Pakistani sample when the authors raised the EOI cut-off from three to four (thus allowing for a higher level of so-called EOI to be considered normative in this sample). Interestingly, lowering the EOI threshold for Sikh carers from three to two still did not add to the predictive efficacy of EE (Hashemi & Cochrane, 1999). This highlights that it is important to understand within-group differences within a particular broad cultural group and not to assume that EE will manifest similarly with a broadly defined culture group (e.g., Asian cultures)

Acculturation

Acculturation has also been found to relate to symptom severity and clinical course in several disorders (e.g., substance abuse, schizophrenia; Koneru & Weisman de Mamani, 2007).

Bhatia and Ram (2009) suggest that negotiation with multiple cultural sites is fluid, dynamic, interminable, and often unstable. Viruell-Fuentes et al. (2012) stressed that, for Latino, Asian, and Black immigrant groups, “becoming American” involves contending with ideologies that render them racial “minorities” and the stigmatized meanings that the racialized society ascribes to their specific group. Becoming White in the United States is also a racialization process that some immigrants experience (Viruell-Fuentes et al., 2012).

In managing two acquired languages, bilinguals shift their self-perception and self-presentation to accommodate the culture’s prototypical norms primed by language use (Chen, 2015). Research with Hispanics has also demonstrated that greater acculturation to mainstream US norms is associated with fewer collectivistic values (Gomez, 2003) and a significant reduction in familism (e.g., the use of family networks as sources of emotional and instrumental social support; Gil et al., 2000). Klonoff and Landrine (1999) also found that more acculturated African Americans had less traditional family values (e.g., more collectivistic and supportive). Therefore, it is imperative to consider acculturation in examining EE among immigrant populations.

Rationale, Primary Aims, and Key Research Questions

With the rapidly diversifying rate in the US and other immigration nations like Canada and Australia, clinicians are expected to build competency in treating clients from different cultural backgrounds in the context of schizophrenia and EE. This review was conducted to help practitioners better inform treatment, especially those involving family systems. Psychoeducation is critical in many therapies, such as Cognitive Behavioral Therapy (CBT). Moreover, culture is getting more and more attention in psychology, as evidenced by the Cultural Formulation Interview (CFI) and its informant version presented in the *DSM-5*.

On a larger scale in our society, there is also increasing emphasis on the importance of advocating for diversity. Psychologists and mental health professionals must be culturally adaptive and adopt cultural humility, especially when working with people with schizophrenia

and their family members due to their already sensitive and fragile conditions. This review was also conducted to guide future research. EE in schizophrenia is a rich and complex topic area. However, there are still many gaps to fill and many unknowns awaiting us to discover (Kuipers, 1987). As mentioned earlier, the last review on cross-cultural aspects of EE was in 2008; thus, an updated review with a clear focus is warranted. Based on the most recent studies, the current review focused on the relationship between cultural individualism vs. collectivism and EE, including differences in high vs. low EE, EE indexes (e.g., CC, EOI, hostility), and the relationship between EE and schizophrenia relapse.

Research Questions

- RQ1: How is cultural individualism vs. collectivism related to the level of Expressed Emotion in families of people with schizophrenia?
- RQ2: How is cultural individualism vs. collectivism related to the indexes of Expressed Emotion (e.g., level of criticism/critical comments; level of emotional over-involvement; the presence of hostility; additional factors such as warmth) in families of people with schizophrenia?
- RQ3: How is cultural individualism vs. collectivism related to the ability of Expressed Emotion to predict relapse for people with schizophrenia?

Chapter 2: Methodology

Systematic Review Approach

A Systematic Review was conducted to explore the relationships among cultural individualism vs. collectivism, familial EE, and schizophrenia relapse. A systematic review is a research method that collects and analyzes existing literature on a specific topic to provide a comprehensive summary of the available evidence. It is considered a reliable evidence source as it systematically identifies, critically appraises, and synthesizes the existing literature. It helps provide a comprehensive overview of a research topic, identifies inconsistencies or gaps in the evidence, and guides future research and decision-making. A Systematic Review is considered the best ("gold standard") way to synthesize the best available evidence relating to a specific research question to provide informative and evidence-based answers (Boland et al., 2017). It is a rigorous and structured approach that aims to minimize bias and objectively evaluate the current state of knowledge on a particular subject. The current systematic review utilized a descriptive analysis and synthesis of quantitative evidence/studies/data. The Preferred Reporting Items for Systematic Review and Meta-Analyses P 2015 (PRISMA-P) checklist was utilized to formulate this descriptive review. Panic et al. (2013) concluded that using PRISMA increased both the reporting quality and the descriptive reviews' methodological quality. A Summary Table of Selected Literature (Appendix A) was created to list all the included studies in this systematic review.

Eligibility Criteria

Source Eligibility Criteria

The inclusion/exclusion of studies determines the scope and validity of systematic review results (Meline, 2006). This review included peer-reviewed scholarly articles published in English between 1966 and 2023. The initial search (August 11th, 2022) timeframe was from 2000 to 2022, which reflects an average time for a typical systematic review using the most up-to-date research. However, a limited number of eligible studies were found. The researcher

discussed this issue with the dissertation chairperson. Since Brown and Rutter coined EE in 1966, the earliest search year was modified to 1966. The second search took place on March 10th, 2023.

Study Eligibility Criteria

Types of Research Variables. This systematic review's first identified research variable is familial EE, measured using interview-based tools and self-report questionnaires. Studies must include data on familial EE about a relative with schizophrenia measured by one of the methods mentioned earlier: (a) the CFI, (b) the FMSS, (c) the LEE, (d) the FAS, or (e) the PC in various cultures. However, this list of assessment tools is not exhaustive. Other published measures with solid validity and reliability assessed EE in adults and discovered during the process were also considered.

The second identified research variable in this systematic review is culture. The studies included all have a cultural focus where culture is a factor they are specifically analyzing. One approach was that the studies were done in countries other than the US or the UK where most of the initial EE studies were done with Anglo-Saxon people. Another method was that the studies focused on a specific ethnic immigrant group. As culture is a broad term, this variable will be reflected by including culture and its related terms during the search process.

Related to the first identified research variable, this systematic review's third identified research variable is the relapse rate predicted by high EE. In other words, the included studies must address the relationship between EE and relapse/symptom exacerbation/ symptom aggravation. Lader (1995) stated that there are no generally accepted criteria for relapse in schizophrenia, but outcomes such as violence or suicide, extreme psychotic behavior, and rehospitalization have been used. The included studies must report relapse or symptom exacerbation/aggravation.

Types of Participants. The patients included people of all genders and races/ethnicities over 18 with a formal diagnosis of schizophrenia according to the *International Statistical*

Classification of Diseases and Related Health Problems (ICD) or its equivalents (e.g., *DSM*). Relatives were limited to immediate family members of the schizophrenic person, such as spouses, parents, adult children, and adult siblings, to avoid over-complication.

Types of Studies. Quantitative studies in the form of true experimental, quasi-experimental, pre-experimental, observational, and correlational studies were included. There were no restrictions on the follow-up period for longitudinal studies in order to be the most inclusive. For similar reasons, studies of all sample sizes were included.

Types of Settings. Any settings, including inpatient and outpatient psychiatric sites, were included to be the most inclusive of the literature.

Exclusion criteria

This review excluded patients/participants with reported co-occurring disorders, such as substance use disorders, personality disorders, or a comorbid medical condition. These co-occurring disorders and comorbidities might interfere with the families' EE towards the person's schizophrenia.

Search, Screening, and Selection Processes

Information Sources

Information sources included the electronic databases PsychINFO and Medline due to the psychological and psychiatric natures of schizophrenia. The electronic database Scopus was also included because it is the largest abstract and citation database of peer-reviewed literature. References from included studies were used to acquire additional studies.

Search Terms

The literature search phrases are defined based on the target phenomena of interest identified in the research variables. Search terms related to schizophrenia included *schizophrenia* and *schizophrenic*. Search terms related to the EE consisted of *Expressed Emotion*. Search terms related to culture consisted of *culture*, *multicultural*, *cultural*, *ethnicity*, and *ethnic*. Initially, search terms related to relapse included *relapse*, *symptom exacerbation*,

and *symptom aggravation*. However, no result was found in the test search. Hence, search terms related to relapse was limited to *relapse*. The search strategy in PsychInfo, Medline, and Scopus included (schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse).

Searches were documented using the Search Documentation Record (Appendix B). Appendix B included the search date, full search identification number, type of search, database/source, search term identification numbers, search syntax or other search guidelines, fields searched, search specifier: years, search specifier: publication type, search specifier: language, number of records, and notes. Appendix B is based on the List of Search Terms (Appendix C) and the Comprehensive Search Plan (Appendix D). Appendix C included the search term identification number, primary term, synonyms/alternate forms, and notes. Appendix D contained search type, databases or sources, search term identification numbers, search syntax or instructions, fields to search, specifiers, and plan notes.

Selection of Studies

Duplicate studies were removed. The research assistant (RA) and this researcher first reviewed the title and abstract to determine if the study met specified inclusionary criteria (Stage 1). If the RA and this researcher could not determine whether the study met the inclusionary criteria following the review of the title or abstract, the study was reviewed in full to decide if the eligibility criteria were met (Stage 2). The RA and this researcher cross-referenced each other's results. This researcher examined the discrepancies, discussed them with the RA, and decided whether to include the studies. Then the dissertation chairperson spot-checked (10% of the articles chosen at random) the double-selected papers to ensure they met the eligibilities and reviewed indefinite articles (Stage 3). This researcher and the dissertation chair discussed any issues identified during Stage 3 and repeated them from Stage 1 if necessary to ensure the included studies met the criteria.

This researcher used the Screening and Selection Record (Appendix E) to document the article screening and selection process. Appendix E includes study author(s), year of publication, an abbreviated title, database/sources, title and/or keyword screen: decision date, abstract screen: decision date, whether the study was a full-text screen, whether the study was published, the inclusion of Research Variable 1 (expressed emotion), the inclusion of Research Variable 2 (culture), the inclusion of Research Variable 3 (relapse), if patient's age is 18/+, gender, race/ethnicity, whether the study was a quantitative study, whether the study looked at schizophrenia only, reviewer decision date, secondary/confirmatory decision, final decision, final decision date, and decision notes. The screening process results were outlined/described using a PRISMA 2020 Flow Diagram (Appendix F).

Data Collection and Extraction

Study Variables

The first study variable in this review is EE which has three main indexes: CC/Criticism, Hostility, and EOI. A fourth index, warmth, was also identified in some studies. EE was assessed and quantified by the above-mentioned measures or others identified in the included studies. The second study variable in this review is culture, particularly culture's individualism vs. collectivism. The third study variable in this review is the schizophrenia relapse rate predicted by high EE. This review focused on how cultures' individualism vs. collectivism relates to the level and indexes of EE in families of people with schizophrenia. This review also addressed how cultural individualism vs. collectivism is related to the ability of high familial EE and its indexes to predict relapse among people living with schizophrenia.

Data Extraction

The Data Extraction Form (Appendix G) and the research questions aided the data extraction process. Each article was given an identification number. The following data were extracted from each article/study: the study author(s) and year of publication, the full document

title, research variables, and notes. This researcher and the RA used Appendix G to extract data directly from the articles into the following eight sections:

1. General information including date form completed, initials of person extracting data, source/publication type, source name publication status, and document language.
2. Design characteristics and methodological features including the aim of the study, general method, and design or specific research approach.
3. Assessment of research variables including expressed emotion (Variable 1), culture (Variable 2), and relapse (Variable 3).
4. Study participants' characteristics and recruitment including the population of interest, recruitment methods, sample size, age, gender, and race or ethnicity.
5. Setting characteristics including study location and data collection setting(s).
6. Analyses conducted including descriptive statistics used, inferential statistics used, and qualitative analyses conducted.
7. Results including main findings.
8. Conclusions and follow-up including critical findings of study authors, study author's recommendations for future research, if the study directly addresses the review questions, general implications, takeaways for clinical practice, salient study limitations to inform quality appraisal, references to other relevant studies, other publications from this dataset, further study information needed, and correspondence received.

Quality Appraisal

A key stage within a systematic review is assessing the methodological quality of the included studies (Pollock & Berge, 2018). Ratings (N/A, *missing* = 0, *weak* = 1, *good/adequate* = 2, *strong* = 3) based on various study elements were assigned to each study selected. This researcher used the Individual Quality Appraisal Form for Systematic Reviews (Appendix H) developed by Dr. Shelly P. Harrell, Ph.D., Pepperdine University to collect the following information for each article: article identification information, including full document title,

author(s) and year of publication, methodology, and specific design/inquiry approach. Appendix H then started to rate the strength of the literature foundation and rationale for the study, the clarity and specificity of research aims/objectives/questions/hypotheses, the quality of research design or methodological approach, sample selection and characteristics, data collection tools (scales, observation, interviews, etc.), data collection processes, analysis and presentation of data, discussion of study limitations, consideration of culture and diversity, and overall rating (*weak* = mostly 1s, *good/adequate* = mostly 2s, *strong* = mostly 3s, *exemplary* = all 3s,). A study was excluded if a preliminary examination revealed that it did not have the expected quality level (Pejić-Bach & Cerpa, 2019). In this case, “weak” articles were excluded. One study (Azhar & Varma, 1996) was eliminated during this process.

Data Management, Synthesis, and Analysis Plan

Database Development

A database (Appendix I) was created to list the following information for each article used in the analysis: document identification number, the study author(s) and year of publication, research variables, publication type, publication status, general research method, specific research design or approach, measure/assessment of expressed emotion (Expressed Emotion), measure/assessment of culture (Culture), measure/assessment of relapse (Relapse), sample size, sample characteristics: age, sample characteristics: race-ethnicity, sample characteristics: gender, study geographic location, and specific study setting.

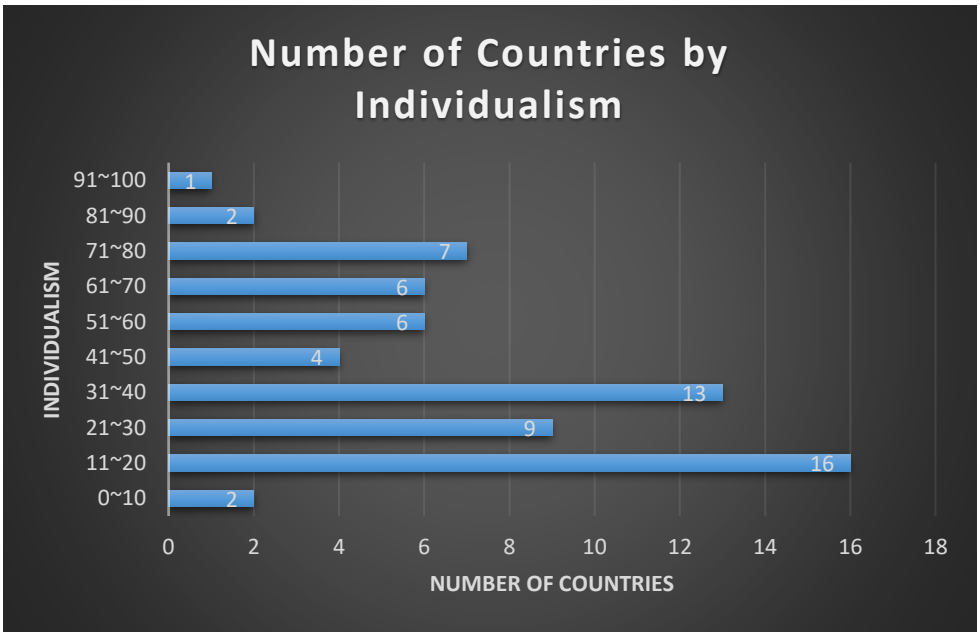
Data Analysis and Synthesis

Collected search results were used for the literature analysis and synthesis. This review adopted a concept-centric approach, with the concepts of familial EE, cultural individualism vs. collectivism, and schizophrenia relapse organizing the analysis framework (Pejić-Bach & Cerpa, 2019). EE consists of three main indexes: CC, hostility, and EOI. EE additionally includes a fourth index of warmth. There is no universal definition of schizophrenia relapse. However, most of the descriptions in the literature review include symptom reappearance, symptom

exacerbation, and rehospitalization. Lastly, this researcher used Hofstede's cultural dimensions theory (Appendix J) to assign an individualism score to the country/culture. The scores ranged from 1 to 100; the higher the score, the more individualistic the country/culture is, and the lower the score, the more collectivistic the country/culture is. This review must quantify the culture's individualism vs. collectivism to the best ability the researcher can because it directly impacts the results. Figure 1 demonstrates the number of countries by individualism based on Hofstede's cultural dimensions theory.

Figure 1

Countries by Individualism Based on Hofstede's Cultural Dimensions Theory



Sixty-six countries in total were listed in Hofstede's cultural dimensions theory. This researcher planned to consult with experts regarding unlisted countries in the search for a case-by-case scenario. Some studies consisted of participant samples from different countries of origin than the host countries (e.g., Mexican American). In such cases, the acculturation level of the participants was assessed and considered. If the study authors described the sample as relatively unacculturated, the country of origin and its individualism score was adopted. If the study considered the sample relatively acculturated, the host country and its individualism score

were adopted. If a study did not describe or address the level of acculturation, the authors would be contacted to decide about its classification in Hofstede's taxonomy. Unlisted countries, either host or origin, would go through the same consultation process mentioned above.

More importantly, this researcher examined the relationship between cultural individualism vs. collectivism and EE and the ability of EE to predict relapse in people with schizophrenia. The aim was to collate and present the extracted data from primary studies to summarize the study's characteristics and results meaningfully (Jesson et al., 2011). A descriptive systematic review, analysis, and data synthesis were conducted using thematic analysis. Firstly, this researcher synthesized the data based on occurrences and patterns found in the selected studies. For instance, is cultural individualism vs. collectivism positively or negatively correlated with familial EE levels for people with schizophrenia? Secondly, this researcher focused on EE, EE indexes, culture, and relapse, created descriptive summaries, and detected crucial discoveries regarding the relationships among these variables. Thirdly, this researcher grouped and compared these variables (high/low EE, individualistic/collectivistic cultures, high/low relapse rate), summaries, and essential findings. Lastly, this researcher searched for patterns in EE, culture, and relapse interrelations.

Reporting of Results

An Evidence Table (Appendix J) of included studies was created to report the results in addition to the general database. The evidence tables are specifically about the research questions. The evidence table includes author(s), year of publication, the focus of study (variables, keywords, population, etc.), research methodology and design, sample characteristics (size, gender, ethnicity, etc.), outcome variables assessed (expressed emotion), other relevant variables (culture), other relevant variables (relapse), and results/main findings. Upon completing the database and the evidence table, this researcher organized the data that answered the research questions. In addition, this researcher utilized tables and figures to illustrate the reporting of results.

Chapter 3: Results

It is worth noting that although the search years ranged from 1966 to 2023, the earliest study was done in 1982, and the most recent study was done in 2022. A PRISMA diagram summarizing the process of identifying potential studies, as well as included and excluded studies, is presented in Appendix F. A total of 168 records were identified from the database search, and an additional record was identified following the manual examination of reference lists. Twenty-one records were marked ineligible by automation tools. Twelve records were removed based on a title and/or keyword screen. Following the removal of 72 duplicates, 64 records remained. Of these, 21 records were excluded based on an abstract screen.

After a full-text review of the remaining 43 records, 33 were excluded. Reasons for exclusion varied and included: the participants being below 18 years old (12 studies), relapse data not reported (8 studies), the inclusion of other diagnoses than schizophrenia (8 studies), no data on EE reported (2 studies), no data on culture reported (2 studies), the article was a qualitative study (2 studies), and the article was a review instead of a study (1 study). One excluded paper (Jenkins et al., 1986) reported the same research as one of the included studies (Karno et al., 1987). The quality of the writing and the details of the study results were considered while deciding which article to be included. One study (Azhar & Varma, 1996) was excluded due to poorly and vaguely described methodology and measures. In the end, 10 peer-reviewed journal articles were included in this review. Moreover, two of the 10 included studies used the same data set (Leff et al., 1987, 1990) but reported results at 1-year and 2-year follow-ups, respectively. One study (Breitborde et al., 2007) used secondary data from another included study (Karno et al., 1987), but the studies reported different findings.

Study Characteristics

Table 1 outlines the relevant characteristics of included studies. The earliest studies were published in 1987 (Karno et al., 1987; Leff et al., 1987), and the latest study was published in 2017 (Ahmad et al., 2017). Three studies (30%) were published in the 1980s (Karno et al.,

1987; Leff et al., 1987; Barrelet et al., 1988). One study (10%) was published in the 1990s (Leff et al., 1990). Three studies (30%) were published in the 2000s (Breitborde et al., 2007; Carra et al., 2007; Yang et al., 2004). Three studies (30%) were published in the 2010s (Ahmad et al., 2017; Bastug & Karanci, 2015; Valencia et al., 2010). Eight studies (80%) utilized cohort study designs (Ahmad et al., 2017; Barrelet et al., 1988; Bastug & Karanci, 2015; Breitborde et al., 2007; Karno et al., 1987; Leff et al., 1987, 1990; Yang et al., 2004). Two studies (20%) were randomized control trials (Carra et al., 2007; Valencia et al., 2010).

Table 1

Included Studies

Citation	Year	Sample Size	Research Design	Specific Study Setting	Study Location (Geographic)
Ahmad et al.	2017	60	Cohort Study	Four Hospitals	Peshawar region of Pakistan
Barrelet et al.	1988	15	Cohort Study	Psych Hospital	Geneva, Switzerland
Bastug & Karanci	2015	103	Cohort Study	Hospital	Ankara, Turkey
Breitborde et al.	2007	44	Cohort Study	Six Public Mental Hospitals	Southern California
Carra et al.	2007	101	Randomized Controlled Trial	Non-profit, Family Advocacy, and Support Agency	Milan, Italy
Karno et al.	1987	70	Cohort Study	Hospitals	Southern California
Leff et al.	1987	70	Cohort Study	WHO DOSMeD	Chandigarh, India
Leff et al.	1990	60	Cohort Study	WHO DOSMeD	Chandigarh, India
Valencia et al.	2010	83	Randomized Controlled Trial	Schizophrenia Clinic of the National Institute of Psychiatry	Mexico City, Mexico
Yang et al.	2004	54	Cohort Study	Three Hospitals	Jingzhou and Beijing, China

Participation was voluntary across all studies. Setting types included hospitals (60%; Ahmad et al., 2017; Barrelet et al., 1988; Bastug & Karanci, 2015; Breitborde et al., 2007; Karno et al., 1987; Yang et al., 2004), non-profit, family advocacy and support agency (10%; Carra et al., 2007), World Health Organization Collaborative Study on the Determinants of Outcome of Severe Mental Disorders (20%; Leff et al., 1987, 1990), and a schizophrenia clinic of the

National Institute of Psychiatry (10%; Valencia et al., 2010). Sample sizes ranged from 15 (Barrelet et al., 1988) to 103 (Bastug & Karanci, 2015). All included studies explored relationships between constructs of EE and schizophrenia relapse through a cultural lens. The studies were done in the following geographic locations: Peshawar region of Pakistan (Ahmad et al., 2017); Geneva, Switzerland (Barrelet et al., 1988); Ankara, Turkey (Bastug & Karanci, 2015); Southern California, US (Breitborde et al., 2007; Karno et al., 1987); Milan, Italy (Carra et al., 2007); Chandigarh, India (Leff et al., 1987, 1990); Mexico City, Mexico (Valencia et al., 2010); Jingzhou and Beijing, China (Yang et al., 2004).

Individualism Scores of Included Studies

Table 2 summarizes the included studies' individualism scores from low to high based on Hofstede's cultural dimensions theory: Pakistani - 14 (Ahmad et al., 2017), Chinese - 20 (Yang et al., 2004), relatively unacculturated Mexican American - 30 (Breitborde et al., 2007; Karno et al., 1987), Mexican - 30 (Valencia et al., 2010), Turkish - 37 (Bastug & Karanci, 2015), Indian (Chandigarh) - 48 (Leff et al., 1987, 1990), French Swiss - 68 (Barrelet et al., 1988), Italian - 76 (Carra et al., 2007).

Table 2

Included Studies by Individualism Score

Included Studies	Individualism Score	Cultural Context
Ahmad et al. (2017)	14	Pakistani
Yang et al. (2004)	20	Chinese
Breitborde et al. (2007)	30	Mexican
Karno et al. (1987)	30	Mexican
Valencia et al. (2010)	30	Mexican
Bastug & Karanci (2015)	37	Turkish
Leff et al. (1987)	48	Indian
Leff et al. (1990)	48	Indian
Barrelet et al. (1988)	68	French-Swiss
Carra et al. (2007)	76	Italian

In the two studies that utilized the same data set of Mexican American participants (Breitborde et al., 2007; Karno et al., 1987), the Acculturation Rating Scale for Mexican Americans (ARSMA) developed by Cuellar (1980) was used to measure the sample's acculturation level. The scale ranges from 1 (*wholly Mexican*) to 5 (*wholly Anglo-American*) in cultural orientation (Karno et al., 1987). The mean score of the patients was 2.36, and the mean score of the caregivers was 1.84. Therefore, Karno et al. (1987) concluded that patients and their key relatives were relatively unacculturated (relatives more so than patients). Hence a decision was made to assign a score of 30 to the sample used in these studies.

Demographics of Study Participants

Demographics of Patients

Table 3 references the relevant patient demographics of included studies. A total of 556 patients were included across 10 studies. Age was reported in six (60%) of the included studies, and the mean age of patients ranged from 26.1 (Karno et al., 1987) to 34.76 (Bastug & Karanci, 2015). Of note, most of the studies (80%) utilized cohort study designs (Ahmad et al., 2017; Barrelet et al., 1988; Bastug & Karanci, 2015; Breitborde et al., 2007; Karno et al., 1987; Leff et al., 1987, 1990; Yang et al., 2004) and followed up with participants at different points in time ranging from 9 months to 2 years (details to follow in Table 8). Six of the included studies (60%) specified the gender of patients as either male or female (Ahmad et al., 2017; Bastug & Karanci, 2015; Carra et al., 2007; Karno et al., 1987; Valencia et al., 2010; Yang et al., 2004). There were more male patients than female patients across these six studies, with the most significant ratio difference being 18% female vs. 82% male (Ahmad et al., 2017) and the least significant ratio difference being 46% female vs. 54% male (Yang et al., 2004).

Table 3

Demographics of Study Participants-Patients

Authors	Mean age (SD), range-Patient	Gender-Patient	Culture-Patient	Marital Status-Patient	Diagnostic Criteria
Ahmad et al. (2017)	32.70 (8.34), 19–59	18% F, 82% M	Pakistani	37% Single, 63% Married	ICD-10
Barrelet et al. (1988)	NR	NR	Swiss French	NR	DSM-III
Bastug & Karanci (2015)	34.76 (8.92), 20-60	40% F, 60% M	Turkish	5% Single, 5% Divorced, 12% Widowed, 78% Married	DSM-IV
Breitborde et al. (2007)	NR	NR	Mexican American	NR	DSM-III
Carra et al. (2007)	IG: 29.9 (8.9), NR; IG+SG: 29.6 (5.8), NR; TAU: 29.9 (10.6) , NR	28% F, 72% M	Italian	9% Married/Cohabiting	DSM-IV
Karno et al. (1987)	26.1 (7.2), 18-50	43% F, 57% M	Mexican American	14%Married, 74%, never Married, 11% Separated/Divorced/ Widowed	DSM-III
Leff et al. (1987)	NR	NR	Indian (Chandigarh)	NR	CATEGO
Leff et al. (1990)	NR	NR	Indian (Chandigarh)	NR	CATEGO
Valencia et al. (2010)	29.7 (7.3), 18-60	28% F, 72% M	Mexican	1% Married, 4% Separated, 5% Divorced, 90% Single	DSM-IV
Yang et al. (2004)	31.1 (8.7), NR	46% F, 54% M	Chinese	4% Separated/Divorced, 39%, never Married, 57% Married	DSM-III-R & DSM-IV

Note. SD = Standard Deviation; F = Female; M = Male; NR = Not Reported; IG= Information Group; SG = Support Group; TAU = Treatment as Usual.

The patients' races/ethnicities of the 10 included studies were as follows: Pakistani (Ahmad et al., 2017), French-Swiss (Barrelet et al., 1988), Turkish (Bastug & Karanci, 2015), Mexican American (Breitborde et al., 2007; Karno et al., 1987), Italian (Carra et al., 2007), Indian (Chandigarh; Leff et al., 1987, 1990), Mexican (Valencia et al., 2010); and Chinese (Yang et al., 2004). Six studies (60%) reported the marital status of patients (Ahmad et al., 2017; Bastug & Karanci, 2015; Carra et al., 2007; Karno et al., 1987; Valencia et al., 2010; Yang et al., 2004).

The most frequently reported marital status was "married" in three studies (Ahmad et al., 2017; Bastug & Karanci, 2015; Yang et al., 2004) and "single/never married" in the other three studies (Carra et al., 2007; Karno et al., 1987; Valencia et al., 2010). All patients had an exclusive diagnosis of schizophrenia without other comorbid/co-occurring diagnoses. The diagnostic criteria adopted for each study are listed here: *ICD-10* (Ahmad et al., 2017), *DSM-III-R* (Yang et al., 2004), *DSM-III* (Barrelet et al., 1988; Breitborde et al., 2007; Karno et al., 1987), *DSM-IV* (Bastug & Karanci, 2015; Carra et al., 2007; Valencia et al., 2010; Yang et al., 2004), *CATEGO* (Leff et al., 1987, 1990).

Demographics of Relatives

Table 4 references the relevant family members' demographics of included studies. A total of 624 relatives were included across 10 studies. Relatives' age was reported in four of the included studies (40%), and the mean age across studies ranged from 45.2 (Yang et al., 2004) to 58.5 (Carra et al., 2007). Similar to patient demographics, most of the studies (80%) were cohort study designs (Ahmad et al., 2017; Barrelet et al., 1988; Bastug & Karanci, 2015; Breitborde et al., 2007; Karno et al., 1987; Leff et al., 1987, 1990; Yang et al., 2004), and followed up with relatives at different points in time spanning from 9 months to 2 years (details to follow in Table 8).

Table 4

Demographics of Study Participants-Relatives

Authors	Number of Relatives	Mean age (SD), range-Relative	Gender-Relative	Culture-Relative	Relationship to patient
Ahmad et al. (2017)	60	NR	NR	Pakistani	NR
Barrelet et al. (1988)	15	NR	NR	Swiss French	NR
Bastug & Karanci (2015)	103	46.44 (13.69), 19-80	63% F, 25% M, 12% U	Turkish	38.8% mothers, 24.3 % wives, 11.7% husbands, 13.6% fathers, 5.8% siblings, 3.9% children, and 1.9% other relatives
Breitborde et al. (2007)	44	NR	NR	Mexican American	NR
Carra et al. (2007)	101	IG: 53.2 (10.7), NR; IG+SG: 58.5 (8.5), NR; TAU: 53.6 (11.5), NR	65% F, 35% M	Italian	NR
Karno et al. (1987)	109	46.7 (13.6), NR	61% F, 39% M	Mexican American	44% mothers, 24% fathers, 11% sisters, 10% brothers, 2% wives, 6% husbands, 3% other
Leff et al. (1987)	104	NR	NR	Indian (Chandigarh)	NR
Leff et al. (1990)	77	NR	NR	Indian (Chandigarh)	NR
Valencia et al. (2010)	78	NR	NR	Mexican	NR
Yang et al. (2004)	54	45.2 (11.7)	44% F, 56% M	Chinese	27.8% fathers, 16.7% mothers, 27.8% husbands, 25.9% wives, 1.9% sister

Note. SD = Standard Deviation; NR = Not Reported; F = Female; M = Male; U = Unknown; IG= Information Group; SG = Support Group; TAU = Treatment as Usual

Four of the included studies (40%) specified the gender of relatives as male, female, or unknown (Bastug & Karanci, 2015; Carra et al., 2007; Karno et al., 1987; Yang et al., 2004). Of

the four studies that included data on relatives' gender, the majority (75%) included more female relatives (e.g., mothers, wives, sisters) than male relatives (e.g., fathers, husbands, brothers; Bastug & Karanci, 2015; Carra et al., 2007; Karno et al., 1987). Three of the included studies (30%) also reported the relatives' relationships to patients (Bastug & Karanci, 2015; Karno et al., 1987; Yang et al., 2004). Two of the three studies (67%) had mothers as the patient's most common relative relationship.

Expressed Emotion Assessment Measures and Related Variables

Table 5 highlights measures used to assess EE-related constructs for each included study. The most frequently used measure of EE is a version of the CFI (70%, *n* = 7; Barrelet et al., 1988; Breitborde et al., 2007 - Spanish; Carra et al., 2007; Karno et al., 1987 - Spanish; Leff et al., 1987 - Hindi; Leff et al., 1990 - Hindi; Yang et al., 2004 - Chinese) followed by the Expressed Emotion Scale (EES) and the Perceived Expressed Emotion Scale (PEES; 10%, *n* = 1; Bastug & Karanci, 2015), and the LEE Scale (10%, *n* = 1; Valencia et al., 2010). One study did not specify the measure used to assess EE (Ahmad et al., 2017). A single measure of EE was typical for most studies except for one study (10%) that utilized two measures, one with patients and a different one with caregivers (Bastug & Karanci, 2015). All studies included EE as a research variable.

Table 5

Expressed Emotion Assessment Measures

Measure	Items	Response Range	Administration	Scoring	Classification	Studies
"A specifically designed clinical profile sheet"	NR	NR	90-min Interviews	NR	NR	(Ahmad et al., 2017)

Measure	Items	Response Range	Administration	Scoring	Classification	Studies
Camberwell Family Interview (CFI)	*NA*	*NA*	1–3-hour semi structured interview	Presence of hostility; Number of CC, EOI, warmth.	High or Low	(Barrelet et al., 1988) (Breitborde et al., 2007-Spanish) (Carra et al., 2007) (Karno et al., 1987-Spanish) (Leff et al., 1987-Hindi) (Leff et al., 1990-Hindi) (Yang et al., 2004-Chinese)
Expressed Emotion Scale (EES)	41	true–false	Self-report	NR	*High or Low*	(Bastug & Karanci, 2015-Turkish)
Level of Expressed Emotion (LEE) Scale	30	*true–false*	*Self-report*	NR	*High or Low*	(Valencia et al., 2010-Spanish)
Perceived Expressed Emotion Scale (PEES)	40	true–false	Self-report	NR	*High or Low*	(Bastug & Karanci, 2015-Turkish)

Note. NR = Not Reported; NA = Not Applicable
This researcher collected information in italics from other sources because the included studies did not report them.

Findings for Research Question 1:

How is cultural individualism vs. collectivism related to the level of Expressed Emotion in families of people with schizophrenia?

Expressed Emotion Characteristics

Table 6 outlines EE characteristics in the 10 included studies. Across studies, the percentage of high EE relatives ranged from 22.9% (Leff et al., 1987) to 86.7% (Barrelet et al., 1988). On the one hand, information about the relatives' EE levels was presented in seven

(70%) of the included studies (Ahmad et al., 2017; Barrelet et al., 1988; Carra et al., 2007; Karno et al., 1987; Leff et al., 1987, 1990; Yang et al., 2004). On the other hand, seven studies (Barrelet et al., 1988; Breitborde et al., 2007; Carra et al., 2007; Karno et al., 1987; Leff et al., 1987, 1990; Yang et al., 2004) either specified their definitions of high EE or adopted the cutoff standards from the traditional CFI.

Table 6

Expressed Emotion Characteristics

Authors	Expressed Emotion Measure	Expressed Emotion Levels	Expressed Emotion Indexes Characteristics
Ahmad et al. (2017)	"A specifically designed clinical profile sheet"	61.3% High EE, 36.7% Low EE	NR
Barrelet et al. (1988)	CFI	86.7% High EE, 13.3% Low EE 60% High C, 40% Low C	C≥7 (60%), C<7 (40%)
Bastug & Karanci (2015)	EES, PEES	NR	The C/H and EOI of EES were significantly correlated. The C/H and EOI of PEES were not significantly correlated.
Breitborde et al. (2007)	CFI	NR	EOI≥3 (36.4%), EOI<3 (63.6%); CC≥6 (27.3%), CC<6 (72.7%); W: 0=0%, 1=9%, 2=23%, 3=28%, 4=12%, 5=28%
Carra et al. (2007)	CFI	38.6% High EE, 61.4% Low EE; 17.8% High W, 82.2% Low W;	17.8% High W (4-5), 82.2% Low W; High EE relatives moved to low EE: 18.8%
Karno et al. (1987)	CFI	28.4% High EE, 71.6% Low EE	NR
Leff et al. (1987)	CFI	22.9% High EE, 77.1% Low EE	CC≥6 (12.9%), CC<6 (87.1%); CC≥3 (25.7%), CC<3 (74.3%); H≠0 (15.7%), H=0 (84.3%); W≥4 (21.4%), W<4 (78.6%);

Authors	Expressed Emotion Measure	Expressed Emotion Levels	Expressed Emotion Indexes Characteristics
Leff et al. (1990)	CFI	23.3% High EE, 76.7% Low EE	CC≥6 (11.7%), CC<6 (88.3%); H≠0 (15%), H=0 (85%); EOI≥3 (6.7%), EOI<3 (93.3%); W≥4 (23.3%), W<4 (76.7%);
Valencia et al. (2010)	LEE	NR	Significant improvements were found in EOI and global EE.
Yang et al. (2004)	CFI	46.3% High EE, 53.7% Low EE	CC≥6 (18.5%), CC<6 (81.5%); H≠0 (9.3%), H=0 (90.7%); EOI≥3 (25.9%), EOI<3 (74.1%);

Note. NR = Not Reported; C=Criticism, CC=Critical Comment, H=Hostility, W=Warmth, EOI=Emotional Overinvolvement

All seven studies that reported EE levels presented them in the High vs. Low fashion. One study (Barrelet et al., 1988) not only reported high EE vs. low EE but also reported high criticism vs. low criticism. Similarly, another study (Carra et al., 2007) reported high warmth vs. low warmth and the percentage of high EE relatives at baseline who moved to low EE at the end of the family program, in addition to reporting high EE vs. low EE. It is worth mentioning that most studies interviewed the relative who was “most affected by the patient’s condition” or had “the greatest contact with the patient”. If two relatives were interviewed, the one with a higher EE rating was adopted for analysis.

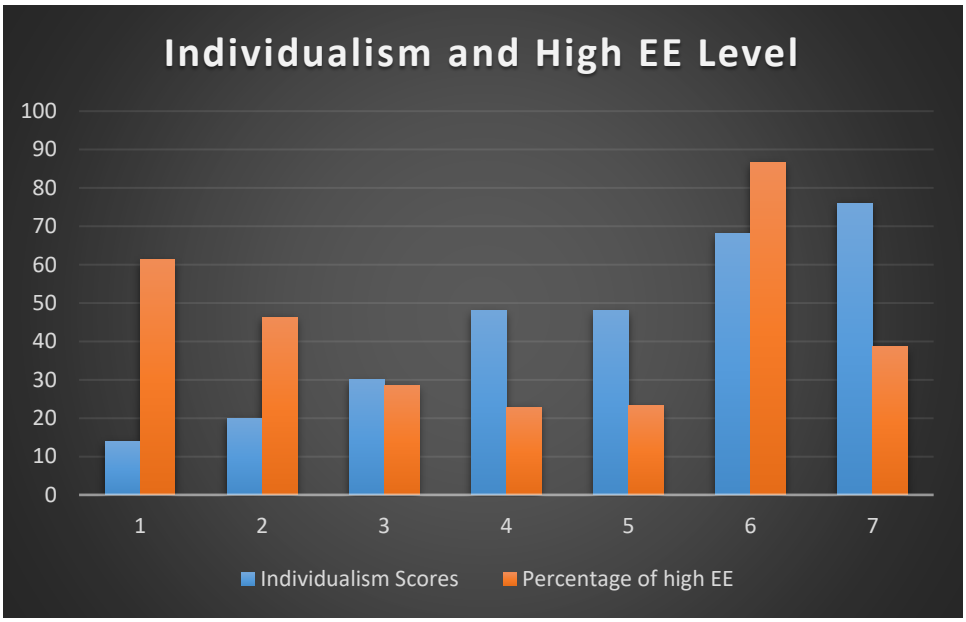
Individualism and Expressed Emotion

Figure 2 delineates the relationship between individualism scores and high EE levels among seven (70%) of the included studies, as the other three (Bastug & Karanci, 2015; Breitborde et al., 2007; Valencia et al., 2010) did not report the percentages of high EE. The results fluctuate because about half of the individualism scores positively correlate with the high EE percentages (i.e., higher individualism scores are associated with higher percentages of high EE family members). In contrast, the other half of the individualism scores negatively correlate with the high EE percentages. Four studies (Ahmad et al., 2017; Yang et al., 2004; Barrelet et al., 1988; Carra et al., 2007) had significantly higher EE levels compared to the other

three (Bastug & Karanci, 2015; Leff et al., 1987, 1990). It is worth mentioning that the two studies (Leff et al., 1987, 1990) share identical individualism scores because of the same sample culture. Overall, EE levels in moderately individualistic cultures seem lower than those in highly collectivistic and highly individualistic cultures.

Figure 2

Individualism and High Expressed Emotion Level



Findings for Research Question 2:

How is cultural individualism vs. collectivism related to the indexes of Expressed Emotion (e.g., level of criticism/critical comments; level of emotional over-involvement; the presence of hostility; additional factors such as warmth) in families of people with schizophrenia?

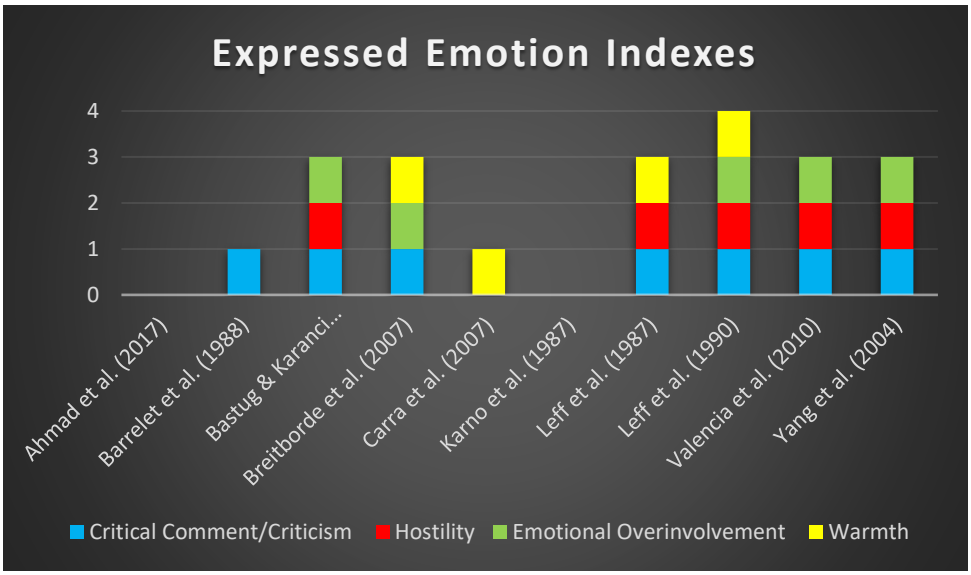
Expressed Emotion Indexes

Figure 3 shows available information on the four EE indexes across the 10 studies. Information about the EE indexes was presented in eight of the included studies (80%; Barrelet et al., 1988; Bastug & Karanci, 2015; Breitborde et al., 2007; Carra et al., 2007; Leff et al., 1987, 1990; Valencia et al., 2010; Yang et al., 2004). Two studies (20%; Ahmad et al., 2017; Karno et al., 1987) did not break EE into its indexes. CC/Criticism was reported in seven studies (70%;

Barrelet et al., 1988; Bastug & Karanci, 2015; Breitborde et al., 2007; Leff et al., 1987, 1990; Valencia et al., 2010; Yang et al., 2004). Five studies (50%; Bastug & Karanci, 2015; Leff et al., 1987, 1990; Valencia et al., 2010; Yang et al., 2004) reported hostility. Five studies (50%; Bastug & Karanci, 2015; Breitborde et al., 2007; Leff et al., 1990; Valencia et al., 2010; Yang et al., 2004) reported EOI. Warmth was reported in four studies (40%; Breitborde et al., 2007; Carra et al., 2007; Leff et al., 1987, 1990). Sixty percent of the included studies reported data on at least three EE components. Amongst them, 67% reported the three components that traditionally determine high vs. low EE status (i.e., hostility, CC, and EOI).

Figure 3

Expressed Emotion Indexes



High Expressed Emotion Indexes by Individualism

Figures 4 to 7 display the relationships between high EE indexes and cultural individualism. Cutoff scores from the original CFI (e.g., CC/Criticism ≥ 6, Hostility ≠ 0, EOI ≥ 3, Warmth ≥ 4) were adopted to standardize this process across studies using a version of the CFI. Unfortunately, none of the studies that used another EE measurement reported information on high EE indexes. Of the 10 studies, six (60%; Barrelet et al., 1988; Breitborde et al., 2007;

Carra et al., 2007; Leff et al., 1987, 1990; Yang et al., 2004) reported the percentage of at least one of the EE indexes that qualified for high EE (i.e., CC/Criticism ≥ 6, Hostility ≠ 0, EOI ≥3).

Figure 4

Critical Comment by Individualism

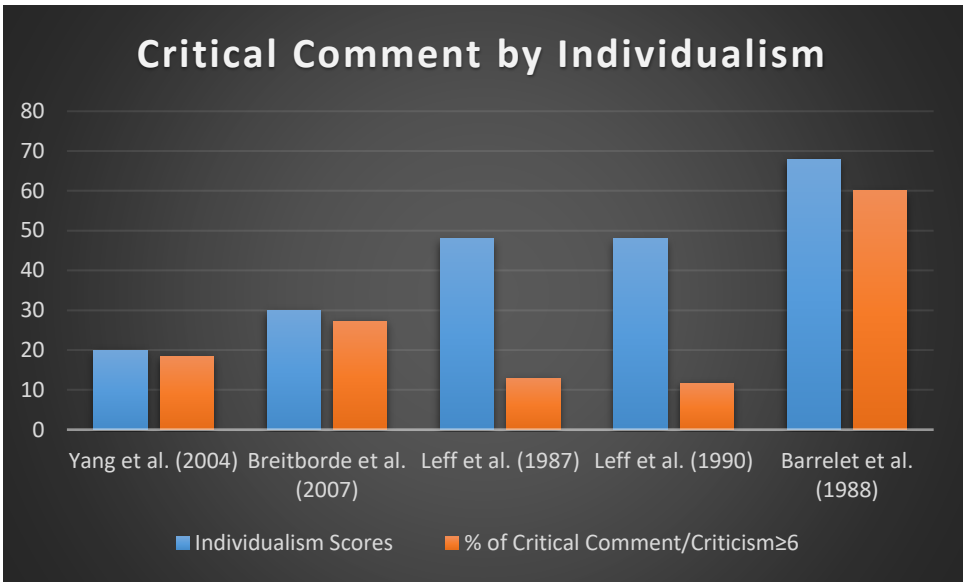


Figure 5

Hostility by Individualism

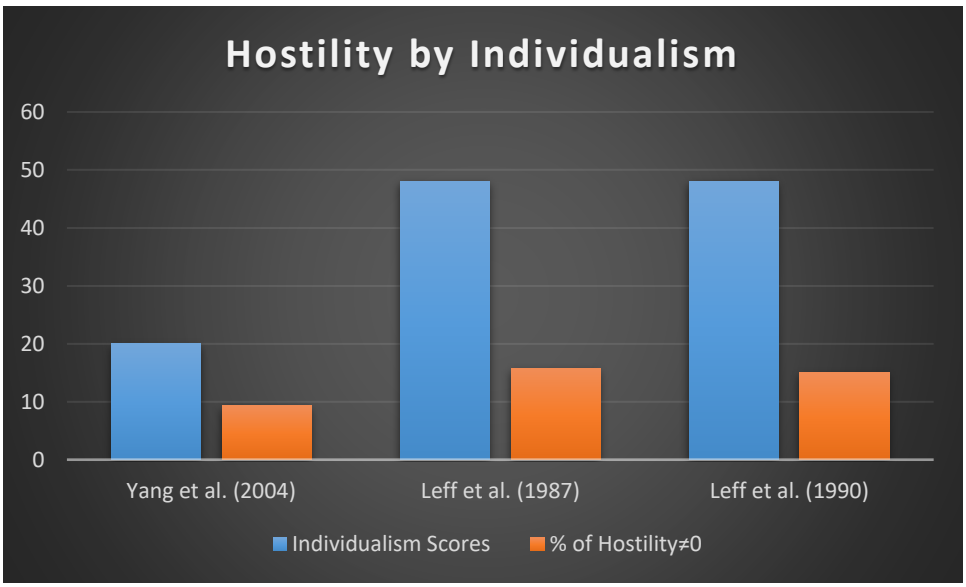


Figure 6

Emotional Overinvolvement by Individualism

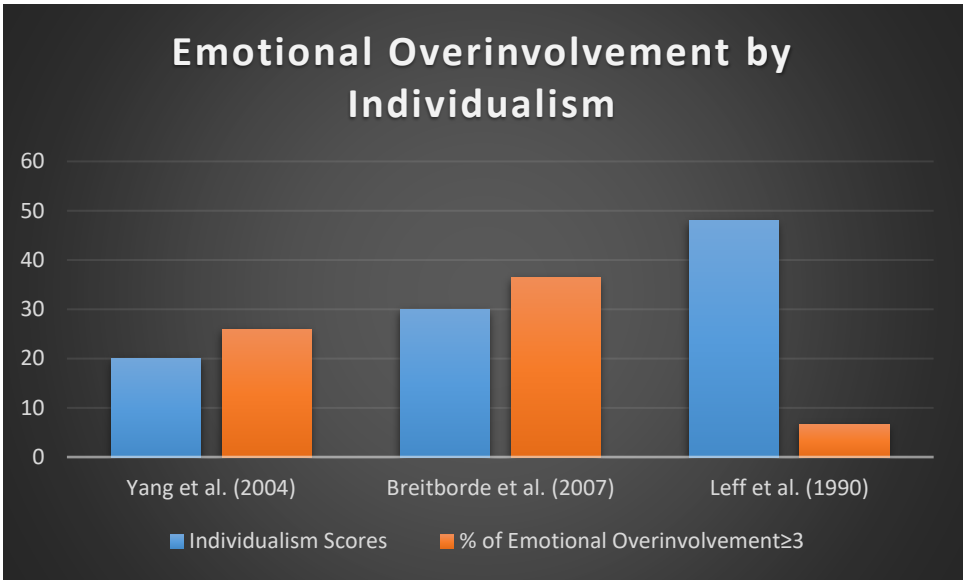
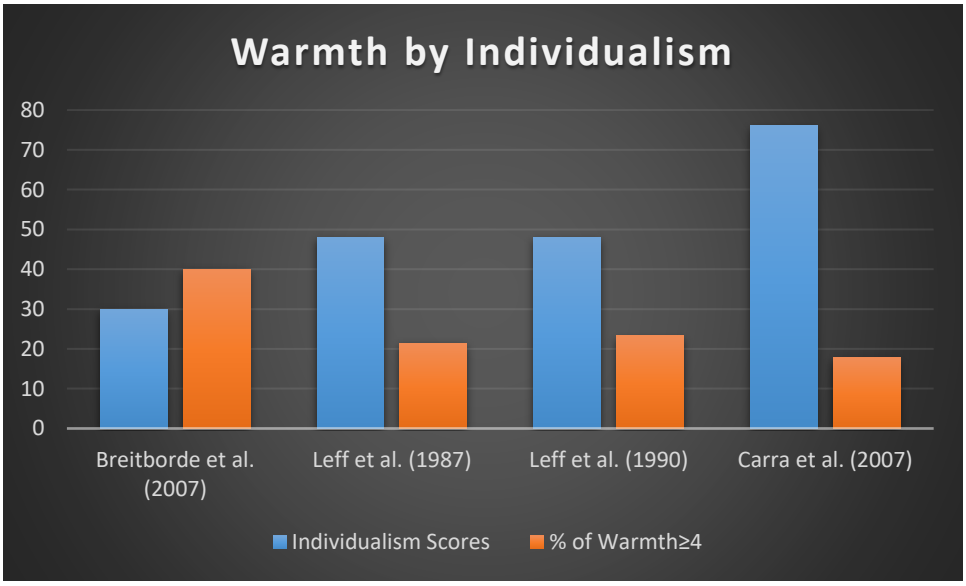


Figure 7

Warmth by Individualism



Five studies (50%; Barrelet et al., 1988; Breitborde et al., 2007; Leff et al., 1987, 1990; Yang et al., 2004) presented the percentage of six or more CC/criticism. It is worth mentioning that one study (Barrelet et al., 1988) used the CC/criticism cutoff point of seven instead of six for

reasons unspecified. Three studies (30%; Leff et al., 1987, 1990; Yang et al., 2004) presented the percentage of the presence of hostility. Three studies (30%; Breitborde et al., 2007; Leff et al., 1990; Yang et al., 2004) presented the percentage of a score of three or more EOI. It is worth noting that one study (Yang et al., 2004) regarded what is traditionally considered high EOI (score ≥ 3) as indicating low EE because high-EOI relatives tend to exhibit an attributional style similar to low-EE relatives based on previous findings. In other words, high-EOI and low-EE relatives are more likely to attribute concerning behaviors/symptoms to factors more external to and uncontrollable by the patient while high-CC and high-hostility (high-EE) relatives tend to perceive the causes of such phenomena as more internal to and controllable by the patient (Barrowclough et al., 1994). Four studies (40%; Breitborde et al., 2007; Carra et al., 2007; Leff et al., 1987, 1990) presented the percentage of four or more on the warmth scale.

Figure 4 shows that the lowest percentages (11.7% and 12.9%) of relatives who made six or more CC are associated with an average individualism score (48). Other than that, the percentages of six or more CC correlate positively with cultural individualism (i.e., collectivistic countries have a lower percentage of high EE relatives based on the CC index compared to a highly individualistic country). Figure 5 demonstrates that the hostility percentages also seem to correlate positively with individualism scores. However, the differences are not as significant as for CC, which might be caused by the fact that the highest individualism score among the studies that reported hostility is average (48), indicating the need for more studies from high-individualism countries to make meaningful interpretations. The results should also be interpreted with caution because only three studies reported the percentage of hostility presence.

As illustrated in Figure 6, only three studies provided data on the rate of high EOI (defined as scores on the EOI scale of three or more) among relatives. There is a somewhat limited range of individualism scores across these studies, ranging from 20 to 48. With these caveats noted, it is interesting to observe the low rate of high EOI relatives in the sample with the

highest individualism score and higher rates of high EOI relatives in samples with lower individualism scores. Again, it is worth mentioning that the highest individualism score in EOI was only average at 48, indicating the need for more studies from high-individualism countries to make meaningful interpretations. Figure 7 presents that the rate of four or more on the warmth scale is the highest (40%) in the sample with the lowest individualism score (30) and is the lowest (17.8%) in the sample with the highest individualism score (76). Hence, four or more warmth percentages appear to correlate negatively with cultural individualism.

Relapse Assessment Measures

Table 7 outlines measures used to assess schizophrenia relapse for each included study. Four studies (40%) utilized a version of the Present State Examination (PSE) to measure relapse (Breitborde et al., 2007-Spanish; Karno et al., 1987-Spanish; Leff et al., 1987-Hindi; Leff et al., 1990-Hindi). Three studies (30%) utilized a version of the Brief Psychiatric Rating Scale (BPRS) to measure relapse (Breitborde et al., 2007-Spanish; Karno et al., 1987-Spanish; Yang et al., 2004-Chinese). Three studies (30%) utilized a version of the Positive and Negative Syndrome Scale (PANSS) to measure relapse (Ahmad et al., 2017; Bastug & Karanci, 2015-Turkish; Valencia et al., 2010-Spanish). Two studies (20%) utilized the Spanish version of the Psychiatric Assessment Scale (PAS) to measure relapse (Breitborde et al., 2007; Karno et al., 1987). One study (10%) utilized the Spanish version of the Global Assessment of Functioning Scale (GAF; Valencia et al., 2010), and another study (10%) used the Global Assessment Scale (GAS; Carra et al., 2007). One study (10%) utilized unelaborated WHO (1979) criteria (Barrelet et al., 1988).

Table 7

Relapse Assessment Measures

Measure	Items	Response Range	Administration	Scoring	Studies
Brief Psychiatric Rating Scale (BPRS)	*18*	*1-absent to 7- extreme*	*Clinician-administered (20-30 minutes)*	*The total severity score ranges from 18-126.*	(Breitborde et al., 2007-Spanish) (Karno et al., 1987-Spanish) (Yang et al., 2004-Chinese)
Global Assessment of Functioning Scale (GAF)	*NA*	*1 to 100*	*Clinician-administered (at least 10 minutes)*	*100 (extremely high functioning) to 1 (severely impaired)*	(Valencia et al., 2010-Spanish)
Global Assessment Scale (GAS)	*NA*	*1 to 100*	*Clinician-administered (at least 10 minutes)*	*100 (extremely high functioning) to 1 (severely impaired)*	(Carra et al., 2007)
Positive and Negative Syndrome Scale (PANSS)	30	1-absent to 7- extreme	*Clinician-administered (45 to 50 minutes)*	*The total severity score ranges from 30-210.*	(Ahmad et al., 2017) (Bastug & Karanci, 2015-Turkish) (Valencia et al., 2010-Spanish)
Present State Examination (PSE)	*400*	*The ratings are pre-coded.*	*Clinician-administered (45 to 60 minutes)*	NR	(Breitborde et al., 2007-Spanish) (Karno et al., 1987-Spanish) (Leff et al., 1987-Hindi) (Leff et al., 1990-Hindi)
Psychiatric Assessment Scale (PAS)	NR	NR	NR	NR	(Breitborde et al., 2007-Spanish) (Karno et al., 1987-Spanish)
WHO (1979) criteria	NR	NR	NR	NR	(Barrelet et al., 1988)

Note. NA = Not Applicable; NR = Not Reported
This researcher collected information in italics from other sources because the included studies did not report them.

Seven studies (70%) utilized a single assessment measure to assess for schizophrenia relapse (Ahmad et al., 2017; Barrelet et al., 1988; Bastug & Karanci, 2015; Carra et al., 2007; Leff et al., 1987, 1990; Yang et al., 2004), and three studies (30%) used multiple measures (Breitborde et al., 2007; Karno et al., 1987; Valencia et al., 2010). Two studies (20%) used information gathered from monthly telephone calls and participants' medical records on top of data gathered through the PSE, PAS, and BPRS (Breitborde et al., 2007; Karno et al., 1987). Besides the BPRS, one study (10%) used patient hospitalization to measure relapse (Yang et

al., 2004). All the studies involve different unspecified levels of clinical observation and/or collateral information to measure schizophrenia relapse.

Relapse Follow-up Time and Definitions

Table 8 lists all the included studies' relapse follow-up times and definitions. One study (10%) did not specify their follow-up period (Ahmad et al., 2017), and three studies (30%) did not clearly define schizophrenia relapse (Ahmad et al., 2017; Barrelet et al., 1988; Bastug & Karanci, 2015). The follow-up times ranged from 6 months (Bastug & Karanci, 2015) to 2 years or 24 months (Barrelet et al., 1988; Carra et al., 2007; Leff et al., 1990). Most studies (90%) followed up at one time point; a single study (10%) had two follow-ups (12 months and 24 months; Carra et al., 2007). As mentioned earlier, two studies followed up on the same sample for one year and two years, respectively (Leff et al., 1987, 1990). Schizophrenia relapse definitions vary amongst the seven studies that reported them, although symptom recurrence, symptom exacerbation/aggravation, and rehospitalization were commonly used factors to define relapse.

Table 8

Relapse Follow-up Time and Definitions

Authors	Relapse Measure (s)	Follow-up Time	Relapse Definition
Ahmad et al. (2017)	PANSS	NR	NR
Barrelet et al. (1988)	WHO (1979) criteria	Two years	WHO (1979) criteria
Bastug & Karanci (2015)	PANSS	Six months	NR
Breitborde et al. (2007)	BPRS, PAS, PSE	Nine months	NR
Carra et al. (2007)	GAS	12 and 24 months	a GAS score of less than 30
Karno et al. (1987)	BPRS, PAS, PSE	Nine months	a five or greater rating on one of the BPRS positive psychotic symptom scales, or have a PAS psychotic scale rating of a "3" or greater, or have a follow-up rating of more than one "2" on one of the psychotic symptoms (55 through 92) of the PSE

Authors	Relapse Measure (s)	Follow-up Time	Relapse Definition
Leff et al. (1987)	PSE	One year	recurrence of delusions or hallucinations or the appearance of markedly disturbed behavior after at least one month's freedom from these symptoms
Leff et al. (1990)	PSE	Two years	reappearance of schizophrenic symptoms in patients who had been free of them following the initial episode (type 1) or the exacerbation of persistent schizophrenic symptoms (type II-9% excluded).
Valencia et al. (2010)	GAF, PANSS	12 months	significant exacerbation of psychotic symptoms with at least a 25% increase on the PANSS total score from baseline evaluation.
Yang et al. (2004)	BPRS	18 months	(a) patient hospitalization, (b) patient scored either 4 on two items or ≥5 on one of the five items measuring psychosis on the (BPRS)

Note. NR = Not Reported

Findings for Research Question 3:

How is cultural individualism vs. collectivism related to the ability of Expressed Emotion to predict relapse for people with schizophrenia?

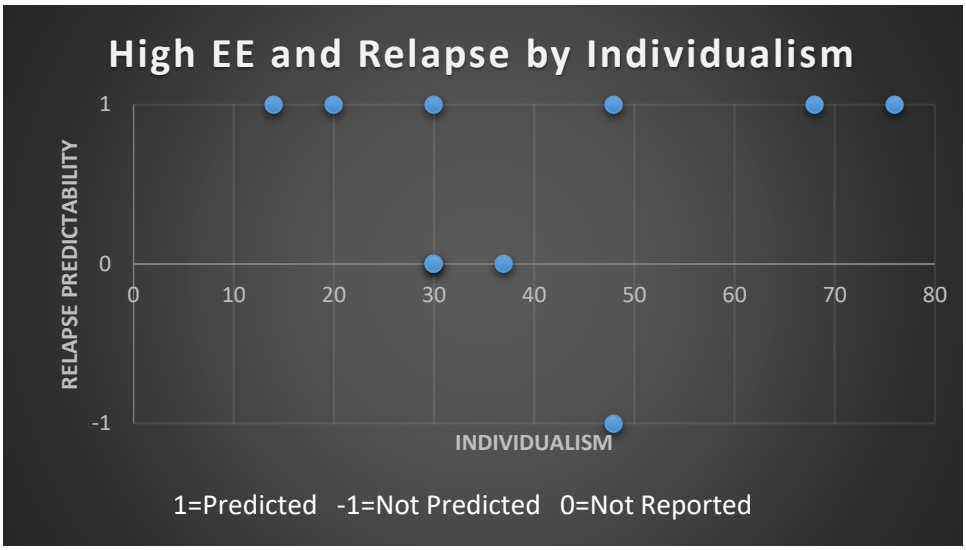
High Expressed Emotion and Relapse by Individualism

Figure 8 illustrates the relationship between high EE and schizophrenia relapse through cultural individualism levels. Of the 10 included studies, seven (70%; Ahmad et al., 2017; Barrelet et al., 1988; Carra et al., 2007; Karno et al., 1987; Leff et al., 1987, 1990; Yang et al., 2004) reported whether high EE predicted schizophrenia relapse. Six studies (60%; Ahmad et al., 2017; Barrelet et al., 1988; Carra et al., 2007; Karno et al., 1987; Leff et al., 1987; Yang et al., 2004) confirmed high EE's correlation with schizophrenia relapse while one (10%; Leff et al., 1990) did not. Furthermore, it is worth mentioning that two studies on the same sample found

that high EE predicted relapse at the one-year follow-up (Leff et al., 1987) but not at the two-year follow-up (Leff et al., 1990).

Figure 8

High Expressed Emotion and Relapse by Individualism



Interestingly, although cultural individualism appeared to be related to EE components such as CC, warmth, and possibly EOI, high EE across a range of different individualism scores appeared to predict schizophrenia relapse (86% of studies that reported this data). As mentioned above, the one study in which high EE did not predict relapse was a two-year follow-up study (Leff et al., 1990) of participants for whom high EE predicted relapse at an earlier follow-up (i.e., one year; Leff et al., 1987). The authors also concluded that the better outcome of this Indian cohort of schizophrenic patients compared with samples from the West is partly attributable to tolerance and acceptance by family members (Leff et al., 1990).

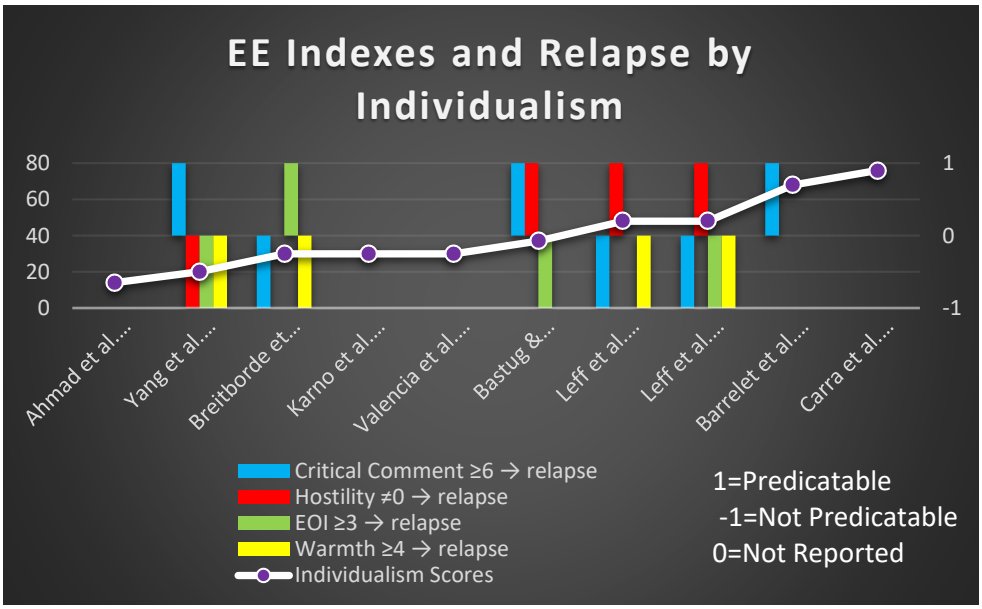
Expressed Emotion Indexes and Relapse by Individualism

Figure 9 demonstrates the relationship between the various EE indexes and schizophrenia relapse by cultural individualism levels. Of the 10 studies, four (40%; Ahmad et al., 2017; Carra et al., 2007; Karno et al., 1987; Valencia et al., 2010) did not report relevant data addressing this issue. Six studies (60%) reported CC/criticism's ability to predict relapse.

Of these six studies, three (50%; Barrelet et al., 1988; Bastug & Karanci, 2015; Yang et al., 2004) found that elevated levels of CC/criticism were associated with relapse, whereas the other three studies (50%; Breitborde et al., 2007; Leff et al., 1987, 1990) did not. There did not appear to be a clear relationship between CC's ability to predict relapse and the individualistic vs. collectivistic nature of the study samples. For example, CC predicted relapse in both the study with the highest (68) and the study with the lowest (20) individualism scores.

Figure 9

Expressed Emotion Indexes and Relapse by Individualism



Four studies (40%) reported hostility's ability to predict relapse, of which three (75%; Bastug & Karanci, 2015; Leff et al., 1987, 1990) confirmed a relationship between elevated levels of hostility and risk of patient relapse. The one study (Yang, et al., 2004) that failed to report this relationship had the lowest individualism score (20) among the studies that reported on this relationship. In contrast to the findings for hostility, of the four studies that reported EOI's ability to predict relapse, only one study (25%; Breitborde et al., 2007) confirmed EOI's predictability of relapse, while three (75%; Bastug & Karanci, 2015; Leff et al., 1990; Yang et al., 2004) did not. However, neither the highest (48) nor the lowest (20) individualism scores

confirmed EOI's predictability of relapse. Additionally, four studies (40%; Breitborde et al., 2007; Leff et al., 1987, 1990; Yang et al., 2004) reported warmth's protection against schizophrenia relapse, and all reported an association between elevated warmth scores and lowered risk of relapse. It is worth noting that one study (Breitborde et al., 2007) reported that high levels of EOI may exert a toxic effect on the course of illness while medium levels of EOI and high levels of warmth may protect against schizophrenia relapse.

Chapter 4: Discussion

Overview

Schizophrenia is a complex and severe mental disorder that affects approximately 1% of the population worldwide. The illness often emerges in late adolescence or early adulthood and can profoundly impact individuals, families, and society. EE has been found to significantly impact the course and outcome of mental illnesses, particularly schizophrenia. On the one hand, high levels of EE within a family environment have been associated with a greater risk of relapse and poorer long-term prognosis for individuals with schizophrenia. On the other hand, low levels of EE and a supportive, positive family environment have been linked to better treatment outcomes and reduced relapse rates. However, the impact of EE on schizophrenia may be influenced by cultural factors. This review sought to synthesize current literature exploring cultural individualism vs. collectivism's relationship to familial EE and schizophrenia relapse across research conducted in different countries and cultures. In addition to findings for the specified research questions, additional patterns and relevant results emerged around related correlations and conceptual limitations.

The Findings Related to the Research Questions

Research question one concerns the relationship between cultural individualism vs. collectivism and familial EE levels in patients living with schizophrenia. The findings indicate that the highest percentage of low EE relatives were in samples from countries with moderate individualism scores based on Hofstede's cultural dimensions theory. In general, higher percentages of high EE relatives were found in samples drawn from countries with either low or high individualism levels. This curvilinear pattern may reflect that stress associated with having a family member with schizophrenia may be elevated among relatives from very individualistic or very collectivistic cultures but for different reasons. For example, people tend to live very independently in highly individualistic cultures. Therefore, having to care for a loved one with schizophrenia into that individual's adulthood might build resentment among relatives over time

that may manifest in high EE attitudes. Regarding highly collectivistic cultures, where interdependence is expected and valued, the high stress of caring for a loved one with schizophrenia might cause caregiver burnout, low morale, and perhaps greater feelings of guilt that one could/should be doing even more, which may manifest in high EE attitudes among family members.

It should be noted that the sample with the highest assigned individualism score of the included studies was from Italy (Carra et al., 2007). According to Hofstede's cultural dimensions theory, Italy has an individualism score of 76. While a general pattern of higher rates of high EE relatives was observed among studies with the highest individualism scores, the percentage of high EE relatives in the Italian study was notably less (38.6%) than in the study with the 2nd highest individualism score (86.7%; Barrelet, et al., 1988). However, this finding might be explained by Italians being considered family collectivists and only individualists outside the family (Triandis & Verma,1988). Hence, Hofstede's individualism score for Italy may not accurately reflect the more collectivistic nature of interpersonal relationships within the family.

Research question two concerns the relationship between cultural individualism vs. collectivism and specific components that make up the EE construct (e.g., CC/criticism, hostility, EOI, and warmth) in patients living with schizophrenia. Like global EE, the findings suggest that a moderate level of individualism, as defined by Hofstede's cultural dimensions theory, is associated with a low percentage of high CC relatives. Results for hostility and EOI are equivocal. Cultural individualism seems to positively correlate with hostility and negatively correlate with high EOI. However, the differences between the few studies that reported hostility are not huge, and both relationships are only indicated by three studies. Therefore, more studies would be needed to clearly demonstrate these implied relationships. In contrast, cultural individualism was negatively correlated with the rate of high warmth in the included studies. Overall, the results suggest that tolerance and acceptance by family members might protect against the development of high CC, hostility, and high EOI. These characteristics might be

more likely to characterize families from more collectivistic cultures. Nonetheless, as indicated in the findings for the first research question, appropriate boundaries may also be necessary as suggested by the elevated rates of high EE in highly collectivistic cultures. Otherwise, it could lead to caregiver burnout and subsequently negatively impact the person with schizophrenia.

Research question three concerns how cultural individualism vs. collectivism is related to the ability of high EE to predict relapse for people with schizophrenia. Most studies that reported relevant data found that high familial EE predicts relapse and that it does not seem that there is a clear difference in the predictive power of high EE by cultural individualism vs. collectivism. However, results suggest high EE's ability to predict schizophrenia relapse may weaken over time, as evidenced by the two studies (Leff et al., 1987, 1990) that utilized a moderately individualistic sample (rating = 48). In these studies, high EE predicted schizophrenia relapse at the one-year follow-up (Leff et al., 1987) but failed to predict schizophrenia relapse at the two-year follow-up (Leff et al., 1990). With that said, there was still a significant association between initial hostility and subsequent relapse at the two-year follow-up (Leff et al., 1990). These findings suggest that while the mechanisms by which high EE attitudes develop may be influenced by culture (e.g., relatives from an individualistic culture may express more negative attitudes about an ill relative due to resentment from continued caretaking responsibilities and/or greater difficulty in their relative gaining independence), the impact of high EE attitudes may be universally stressful and create a risk factor for relapse. Such a hypothesis assumes a potential causal role that high EE attitudes may play in promoting relapse, which would require further study to confirm.

Suppose we take a closer look at each EE index. High warmth demonstrated a possible protective function against schizophrenia relapse across all studies that reported it, as high warmth was consistently associated with a reduced risk of relapse. Such findings suggest that clinical interventions might helpfully focus on reducing the negative aspects of EE and fostering warmth within families in the context of psychosis (Butler et al., 2019). Hostility predicted

schizophrenia relapse in 3 out of 4 studies that reported it. The one study that failed to confirm this correlation has an individualism score of 20, which suggests that expressions of hostility among family members might be more acceptable in collectivistic cultures when caring for a loved one with schizophrenia. Perhaps this could reflect a different interpretation of hostile comments about an ill relative (e.g., viewing such comments as a form of a more acceptable form of venting emotions). However, further investigations specifically examining hostility would be needed to confirm this.

About CC, the highest (68) and the lowest (20) individualism scores predicted schizophrenia relapse, indicating the need to explore the nature of CC among various cultures in other qualitative studies before any conclusions can be made. For example, it would be interesting to know if the content of CC is different in individualistic vs. collectivistic cultures (e.g., criticism regarding difficulty in individual achievement and establishment of financial and functional independence in individualistic cultures vs. difficulty contributing to family support, relationships, and resources in collectivistic cultures). Regarding EOI, only 1 out of 4 studies confirmed its ability to predict schizophrenia relapse. Moreover, neither the highest (48) nor the lowest (20) individualism scores predicted schizophrenia relapse. Results on the EOI index seem to align more with previous studies that contend high-EOI relatives tend to exhibit an attributional style similar to low-EE relatives (e.g., Yang et al., 2004). In other words, high-EOI and low-EE relatives tend to attribute illness symptoms and related behaviors to factors more external to and uncontrollable by the patient while high-CC and high-hostility (high-EE) relatives tend to perceive the causes as more internal to and controllable by the patient (Barrowclough et al., 1994).

Clarification of Concepts

This review raised some important issues regarding some of the key concepts that were central to this study, including definitional issues and variables that may be valuable to investigate in future studies.

Expressed Emotion

EE is a concept used in psychology and psychiatry to describe the emotional climate within a family or social environment, particularly concerning individuals with mental disorders. The current review focused on EE in the context of schizophrenia, but EE has been researched in other mental illnesses, such as eating disorders (Rienecke, 2018), obsessive-compulsive disorders (Chambless et al., 2001), and bipolar disorders (Goldstein et al., 1996). It refers to how family members or caregivers express critical, hostile, or emotionally overinvolved attitudes toward a person with a psychiatric illness. Based on past studies, the most significant EE indexes are CC, hostility, and EOI, with positivity and warmth sometimes also included as indications of a low-EE environment. The included studies in this review reported global EE, CC, hostility, EOI, and warmth. None of the included studies reported positivity or positive remarks, which are additional variables sometimes reported in EE studies. To date, while positive remarks have not been found to predict symptomatic outcomes in schizophrenia (Breitborde et al., 2007), it may still be of interest to understand the nature and potential correlates of this variable as it relates to cultural considerations.

Schizophrenia Relapse

Schizophrenia relapse refers to the recurrence or worsening of symptoms in individuals with schizophrenia after a period of improvement or stability. However, the included studies used different methods to define and measure schizophrenia relapse in various ways. This is discussed further below under “Standardization of Measures.” The lack of a unified definition or benchmark for schizophrenia relapse creates potential difficulties in analyzing and synthesizing data from diverse studies. Relapse also varies in its duration and severity. Some individuals may experience a brief and transient worsening of symptoms. In contrast, others may experience a more prolonged and severe relapse that significantly impairs their daily functioning and quality of life. After all, symptom exacerbation and reappearance can be subjective assessments, and different thresholds for defining relapse may exist in different cultural

contexts. It is further imperative to consider how symptoms are interpreted by cultures in the context of schizophrenia relapse. With that said, many empirically validated assessment tools are available in the field to assess and define a schizophrenia patient's relapse. Although the concept of relapse is commonly included as an outcome variable in schizophrenia research, it appears that in studies focused on cultural aspects of EE, the clear operationalization of relapse has not been consistent. This speaks to a more general concern with the lack of consistency in methodological quality across these studies examining culture and EE. Adding further complexity to the matter of relapse definition, is that culture likely impacts how symptoms are experienced and the threshold at which they are considered problematic, all of which are relevant to the concept of relapse.

Cultural Individualism vs. Collectivism

Cultural individualism is a complicated and layered concept. While it has benefits in promoting personal freedom and creativity, it also has potential downsides regarding social isolation and inequality. Cultural individualism often manifests in various aspects of life, including family dynamics, education, work, and social relationships. The current review focuses on the family aspect of cultural individualism due to interest in familial EE. In the family context, individualism may result in smaller nuclear family units with less emphasis on extended family networks and greater autonomy for family members. Many cultures emphasize collectivism, which prioritizes the needs and goals of the group over individual desires. The current review utilized Hofstede's cultural dimensions theory because it conveniently assigns numerical scores to rank each country's individualism. Such an approach equates culture with nationality and assumes the same ethnicity in each country or culture. However, culture is dynamic, layered, and fluid as evidenced by the aforementioned Italian study. Additional attention should be paid to the nuanced differences between concepts of culture, nationality, ethnicity, etc. These cultural variations shape attitudes, values, and behaviors, influencing social norms, interpersonal relationships, and societal structures.

Standardization of Measures

The CFI is considered the gold standard for the assessment of EE. Seven of the included studies (70%) utilized a version of the CFI to measure EE (Barrelet et al., 1988; Breitborde et al., 2007-Spanish; Carra et al., 2007; Karno et al., 1987-Spanish; Leff et al., 1987-Hindi; Leff et al., 1990-Hindi; Yang et al., 2004-Chinese). The quality of these studies is significantly higher than the ones that did not use CFI based on the quality appraisal tool used in the current review. However, the CFI is time-consuming and training on this measure is hard to obtain. Two studies (20%) used self-report measures to assess EE, including LEE, EES, and PEES (Bastug & Karanci, 2015; Valencia et al., 2010). While these self-report measures provide a quicker alternative regarding administration time and qualification, they provide less specific information about the person's experience with their ill family member. They may also be more susceptible to over- and underreporting without the option to inquire more specifically about responses, as in the CFI, which a trained interviewer administers. One study included in the current review did not specify the measures they used to measure EE (Ahmad et al., 2017), lacking any information on EE assessment, which makes the results highly questionable.

The definitions and assessment of schizophrenia relapse vary even more drastically amongst all the included studies due to the lack of unified agreement. Some of the challenges posed by varying definitions of relapse were noted in the previous section. The criteria for defining relapse may vary depending on the context and research studies but generally involve a significant increase in symptom severity or functional impairment beyond a specified threshold. The assessment tools utilized in the included studies to measure schizophrenia relapse were the PSE (36%, *n* = 4), BPRS (27%, *n* = 3), PANSS (27%, *n* = 3), PAS (18%, *n* = 2), GAF (9%, *n* = 1), GAS (9%, *n* = 1), WHO (1979; 9%, *n* = 1), and an unspecified observation method (9%, *n* = 1). It would be helpful to have a unified definition of schizophrenia relapse with specific thresholds measured by empirically validated assessment tools. However, it might be challenging to achieve such idealization in reality across cultures.

Implications for Practice

Prevention

Relapse can occur for various reasons, and it is a common and significant concern in managing schizophrenia. Preventing relapse is a crucial goal in the treatment of schizophrenia. Prevention efforts to utilize the findings from this systematic review in work with people with schizophrenia should center on assessment, outreach, and training. Assessment of cultural individualism, familial EE, and EE indexes may help identify patients at a higher risk for relapse. Regularly assessing these variables may also help shed light on possible relationships among cultural views/values, EE, and illness course. Some other factors contributing to relapse include medication non-compliance, substance abuse, stress, life events, poor social support, inadequate treatment or follow-up, and co-occurring mental health disorders. Moreover, outreach efforts should be varied and constructed to encourage family education. It is important to note that relapse is not a sign of personal failure but rather a feature of the illness process in schizophrenia. With proper support, treatment, and self-care, many individuals can effectively manage symptoms and reduce the risk of relapse, leading to improved quality of life. Finally, additional training and psychoeducation focused on familial EE and relapse can support prevention efforts and further encourage treatment-seeking following remission. Strategies to reduce the risk of relapse may include medication adherence, psychoeducation and therapy, a supportive social environment, regular follow-up and monitoring, dual-diagnosis treatment, and a low-EE family environment.

Assessment and Intervention

The findings from this systematic review can also be used to inform assessment and intervention in working with schizophrenia patients and their families as EE is an important index of family emotional climate that can significantly impact treatment. Psychotropic medications and psychotherapies have been proven effective for people living with schizophrenia. For example, the atypical antipsychotic clozapine has shown superior efficacy compared with other

antipsychotics and is the gold standard for treating otherwise treatment-resistant schizophrenia (Jakobsen et al., 2021). Cognitive behavioral therapy for psychosis (CBT-p) is an evidence-based psychotherapeutic intervention (EBPI) for adults with schizophrenia spectrum disorders that remains under-implemented in the U.S. (Kopelovich et al., 2019). However, several psychoeducational family management programs have been evaluated showing a significant reduction in schizophrenia relapse compared to standard psychiatric care mentioned above since 1980 (Hahlweg & Wiedemann, 1999). For example, Vidal Gutiérrez et al. (2019) concluded that the implementation of behavioral family therapy as a protocolized intervention, complementing usual care, helps to improve psychosocial outcomes in people with schizophrenia and their caregivers.

Furthermore, cultural factors may influence the acceptability and effectiveness of treatments for schizophrenia. For example, traditional healers or alternative medicine may be more widely used in some cultures and more acceptable to patients and families than Western-style medical treatments. In addition, cultural beliefs about the cause and nature of schizophrenia may affect attitudes toward medication and other therapies and influence adherence to treatment regimens. Weisman de Mamani et al., (2014) developed and tested a culturally informed treatment for schizophrenia (CIT-S) and found that schizophrenia may respond to culturally informed psychosocial family interventions and the treatment appeared to work equally well for Whites and minorities alike. Razali et al. (2000) compared Behavior Family Therapy (BFT) and Culturally Modified Family Therapy (CMFT) with schizophrenia patients in Malaysia and found the latter to be superior in the long run concerning medication compliance, family burden, and clinical and social outcomes.

Limitations and Potential Contributions

Limitations

First, according to López et al. (2009), it is unclear what the meaning of cross-ethnic and cross-national differences is. Quantifying all cultures' individualism vs. collectivism is

challenging. Based on Hofstede's cultural dimensions theory, the current review sought to categorize each included study's culture on the individualism vs. collectivism spectrum. The process of using this model was strategically convenient but inevitably somewhat arbitrary. As a subjective and objective matter, others might hold different viewpoints than how cultures were defined or discussed in identified articles. Moreover, Chun et al. (2021) and Philipp and Kimmo (2021) questioned the validity and reliability of Hofstede's cultural dimensions theory. Therefore, one of the main limitations of this review is how cultural individualism vs. collectivism was defined and measured.

Sample size and attrition rates may also challenge interpreting and generalizing findings from the included studies to larger populations. Unfortunately, there were limited articles of sufficient quality meeting the inclusion criteria to review and extract relevant and meaningful data. Updating a systematic review after completion is essential to ensure that the conclusions remain valid (Pollock & Berge, 2018). The current review only had 10 included articles. The smallest sample size among these 10 studies was 15. Furthermore, within two years of the publication of systematic reviews, an estimated 23% of studies are outdated because they have not incorporated new evidence that might change the systematic review's preliminary results (Siddhartha et al., 2015). However, there seems to be a scarcity of research on this particular topic based on the search results.

An additional limitation of the current review is that it only looked at patients 18 years of age and above. Hence, some valuable data from studies including adolescents and children might be overlooked. Finally, besides the levels and indexes of EE from various cultures where a loved one is living with schizophrenia, the current research only looks at the relationship between familial EE and schizophrenia relapse or symptom exacerbation/aggravation from a cultural lens. Future research could examine other vital aspects, such as the differences in caregiver burden or caregiver mental and physical outcomes among various cultures and how these factors may relate to EE.

Potential contributions

The current review suggests that high EE may be more prevalent in highly individualistic or highly collectivistic cultures, compared to cultures that are more moderate on this continuum. One implication of this is that it might be particularly helpful to explore what factors may contribute to the risk of developing high EE attitudes with families who are on either end of the individualism-collectivism spectrum. The goal would be to prevent high EE from happening by identifying elements that may help to uncover areas of stress which might lead to the development of high EE attitudes. Customized treatment and therapy then could follow to address these topics within the family system and dynamic. Some examples might include inquiring about aspects of the client's illness, the caregiving experience, expectations and attributions about the illness, etc.

Furthermore, clinicians can also provide psychoeducation to caregivers based on the results of this systematic review. Providing a warm and supportive home environment while setting appropriate boundaries seems to be the most sustainable way of caring for a loved one with schizophrenia although there could be differences in how warmth and support are communicated in different cultures. Boundary setting may be a bit more complicated since there could be considerable cultural variation in what is considered an appropriate familial boundary. In addition, although not explored in this review, caregiver self-care seems to be crucial as well. The ultimate goal is to provide services that meet individuals' and families' cultural needs to maximize the efficacy and efficiency of other treatments.

Additionally, government policies could also use the results in this review to reflect on services allocated to patients in medical care. For instance, Lloyd et al. (2011) challenged the prevalent notion that Indian families cope markedly better and require less support than White British parents whose children have schizophrenia. As noted in this review, the moderate individualism score of 48 was from an Indian sample that demonstrated better outcomes in percentages of high EE and high CC, which may help to explain the aforementioned prevalent

notion. Therefore, clinicians may wish to consider the potential sensitivity to psychotic behaviors among Indian caregivers (Lloyd et al., 2011).

This systematic review aimed to inform practitioners about cultural variations in familial EE with schizophrenic individuals. Therefore, practitioners can look at clients and their families from a culturally sensitive lens to avoid pathologizing and stigmatizing people from different cultures. This review's most significant potential contribution is understanding the relationship between cultural individualism vs. collectivism and EE in families of people with schizophrenia. Understanding the concept of EE is vital in schizophrenia clinical practice, as it can help identify potential sources of stress or support within a person's social environment. More resources can be allocated through policy change on a macro level to stress the importance of EE. By addressing and working with family members to reduce critical or hostile behaviors and promote a more supportive atmosphere, mental health professionals can potentially improve the treatment outcomes and overall well-being of individuals with schizophrenia.

Recommendations for Future Research

The underlying mechanisms by which EE influences mental health outcomes are not fully understood. However, one popular hypothesis is that critical or hostile attitudes may increase stress levels and impair coping abilities in the affected individual, making them more vulnerable to symptomatic relapse. EOI, on the other hand, may contribute to excessive dependency or intrusiveness, hindering the person's ability to develop independence and autonomy. Future research may focus on other aspects of culture (e.g., patient quality of life, caregiver wellbeing) that may be related to familial EE and schizophrenia besides relapse. Future research may also want to pay more attention to warmth as it appears to demonstrate protective functions against schizophrenia relapse across cultures.

As noted previously, future studies might want to focus on finding the best way to define and measure schizophrenia relapse. Hence, the process can be more standardized, which, in turn, can make research on such issues more accessible to cross-validation. It is important to

note that while these assessment tools can provide valuable insights, relapse prediction is a complex process, and no single tool can predict relapse with absolute certainty. Clinical observation, judgment, and consideration of individualized factors are essential in addition to standardized assessments.

Conclusion

In conclusion, schizophrenia is a complicated and serious mental illness influenced by various factors, including EE and culture. The impact of familial EE on schizophrenia outcomes may vary across cultures, reflecting cultural differences in the expression of emotions and the role of the family in illness management. Cultural factors may also affect the diagnosis and treatment of schizophrenia, highlighting the importance of considering cultural context in managing this challenging disorder.

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APPENDIX A

Summary Table of Selected Literature

Abbreviated Reference	***APA Citation***
Ahmad et al., 2017	Ahmad, I., Khalily, M. T., Hallahan, B., & Shah, I. (2017). Factors associated with psychotic relapse in patients with schizophrenia in a Pakistani cohort. *International Journal of Mental Health Nursing*, *26*(4), 384–390. https://doi.org/10.1111/inm.12260
Barrelet et al., 1988	Barrelet, L., Pellizzer, G., & Ammann, L. (1988). Family Expressed Emotion and outcome of schizophrenics: A study in a French cultural environment. *Schweizer Archiv Für Neurologie, Neurochirurgie Und Psychiatrie, 139*(5), 27–34.
Bastug & Karanci, 2015	Bastug, G., & Karanci, N. (2015). The impact of caregivers' expressed emotion and the patients' perception of expressed emotion on the positive and negative symptoms of patients with schizophrenia in a sample from turkey. *Dusunen Adam*, *28*(2), 127–139. https://doi.org/10.5350/DAJPN2015280205
Breitborde et al., 2007	Breitborde, N. J. K., López, S. R., Wickens, T. D., Jenkins, J. H., & Karno, M. (2007). Toward specifying the nature of the relationship between expressed emotion and schizophrenic relapse: The utility of curvilinear models. *International Journal of Methods in Psychiatric Research, 16*(1), 1–10. https://doi-org.lib.pepperdine.edu/10.1002/mpr.194
Carra et al., 2007	Carrà Giuseppe, Montomoli, C., Clerici, M., & Cazzullo, C. L. (2007). Family interventions for schizophrenia in italy: randomized controlled trial. *European Archives of Psychiatry and Clinical Neuroscience*, *257*(1), 23–30. https://doi.org/10.1007/s00406-006-0677-z
Karno et al., 1987	Karno, M., Jenkins, J. H., de la Selva, A., Santana, F., Telles, C., Lopez, S., & Mintz, J. (1987). Expressed emotion and schizophrenic outcome among Mexican American families. *The Journal of nervous and mental disease*, *175*(3), 143–151. https://doi-org.lib.pepperdine.edu/10.1097/00005053-198703000-00004
Leff et al., 1987	Leff, J., Wig, N. N., Ghosh, A., Bedi, H., Menon, D. K., Kuipers, L., Kor10, A., Ernberg, G., Day, R., & Sartorius, N. (1987). Expressed emotion and schizophrenia in north India. III. Influence of relatives' expressed emotion on the course of schizophrenia in Chandigarh. *The British journal of psychiatry: the journal of mental science*, *151*, 166–173. https://doi.org/10.1192/bjp.151.2.166
Leff et al., 1990	Leff, J., Wig, N. N., Bedi, H., Menon, D. K., Kuipers, L., Kor10, A., Ernberg, G., Day, R., Sartorius, N., & Jablensky, A. (1990). Relatives' expressed emotion and the course of schizophrenia in Chandigarh: A two-year follow-up of a first-contact sample. *The British Journal of Psychiatry, 156*, 351–356. https://doi-org.lib.pepperdine.edu/10.1192/bjp.156.3.351

Abbreviated Reference	***APA Citation***
Valencia et al., 2010	Valencia, M., Rascon, M. L., Juarez, F., Escamilla, R., Saracco, R., & Liberman, R. P. (2010). Application in Mexico of psychosocial rehabilitation with schizophrenia patients. *Psychiatry: Interpersonal and Biological Processes, 73*(3), 248–263. https://doi-org.lib.pepperdine.edu/10.1521/psyc.2010.73.3.248
Yang et al., 2004	Yang, L. H., Phillips, M. R., Licht, D. M., & Hooley, J. M. (2004). Causal attributions about schizophrenia in families in China: expressed emotion and patient relapse. *Journal of abnormal psychology*, *113*(4), 592–602. https://doi-org.lib.pepperdine.edu/10.1037/0021-843X.113.4.592

APPENDIX B

Search Documentation Record

Search Date	FULL SEARCH ID#	TYPE OF SEARCH	DATABASE/SOURCE
8/11/2022;3/10/2023	101	Electronic Database	PsycINFO
8/11/2022;3/10/2023	102	Electronic Database	Medline
8/11/2022;3/10/2023	103	Electronic Database	Scopus

SEARCH TERM ID#s	SEARCH SYNTAX OR OTHER GUIDELINES FOR THE SEARCH	FIELDS SEARCHED
01, 02, 03, 04	(schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse)	All Text
01, 02, 03, 04	(schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse)	All Fields
01, 02, 03. 04	(schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse)	Title, Keywords, Abstract

SEARCH SPECIFIER: Years	SEARCH SPECIFIER: Publication Type	SEARCH SPECIFIER: Language	# of Records	NOTES
1966 to 2023	Peer-Reviewed Articles only	English	**46**	28+18
1966 to 2023	Peer-Reviewed Articles only	English	**51**	28+23
1966 to 2023	Peer-Reviewed Articles only	English	**50**	31+19

APPENDIX C

List of Search Terms

Search Term ID#	**Primary Term**	**Synonyms/ Alternate Forms**	**Notes**
01	Schizophrenia	Schizophrenic	
02	Expressed Emotion	Expressed Emotion	
03	Culture	Multicultural; cultural; ethnicity; ethnic;	
04	Relapse	Relapse	

APPENDIX D

Comprehensive Search Plan

Search Type	**Databases or Sources**	**Search Term ID(s)**	**Search Syntax or Instructions**
Electronic Database	PsycINFO	01, 02, 03, 04	(schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse)
Electronic Database	Medline	01, 02, 03, 04	(schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse)
Electronic Database	Scopus	01, 02, 03, 04	(schizophrenia OR schizophrenic) AND (expressed emotion) AND (culture OR multicultural OR cultural OR ethnicity OR ethnic) AND (relapse)

Fields to Search	**Specifiers**	**Plan Notes**
All Text	*Years: 1966 to 2023 *Type: Peer-reviewed articles only	
All Fields	*Years: 1966 to 2023 *Type: Peer-reviewed articles only	
Title, Keywords, Abstract	*Years: 1966 to 2023 *Type: Peer-reviewed articles only	

APPENDIX E

Screening and Selection Record

PHASE 1: Title/Keywords/Abstract (Screening)
PHASE 2: Full-Text Review (Eligibility)
PHASE 3: Final Decision (Selection)

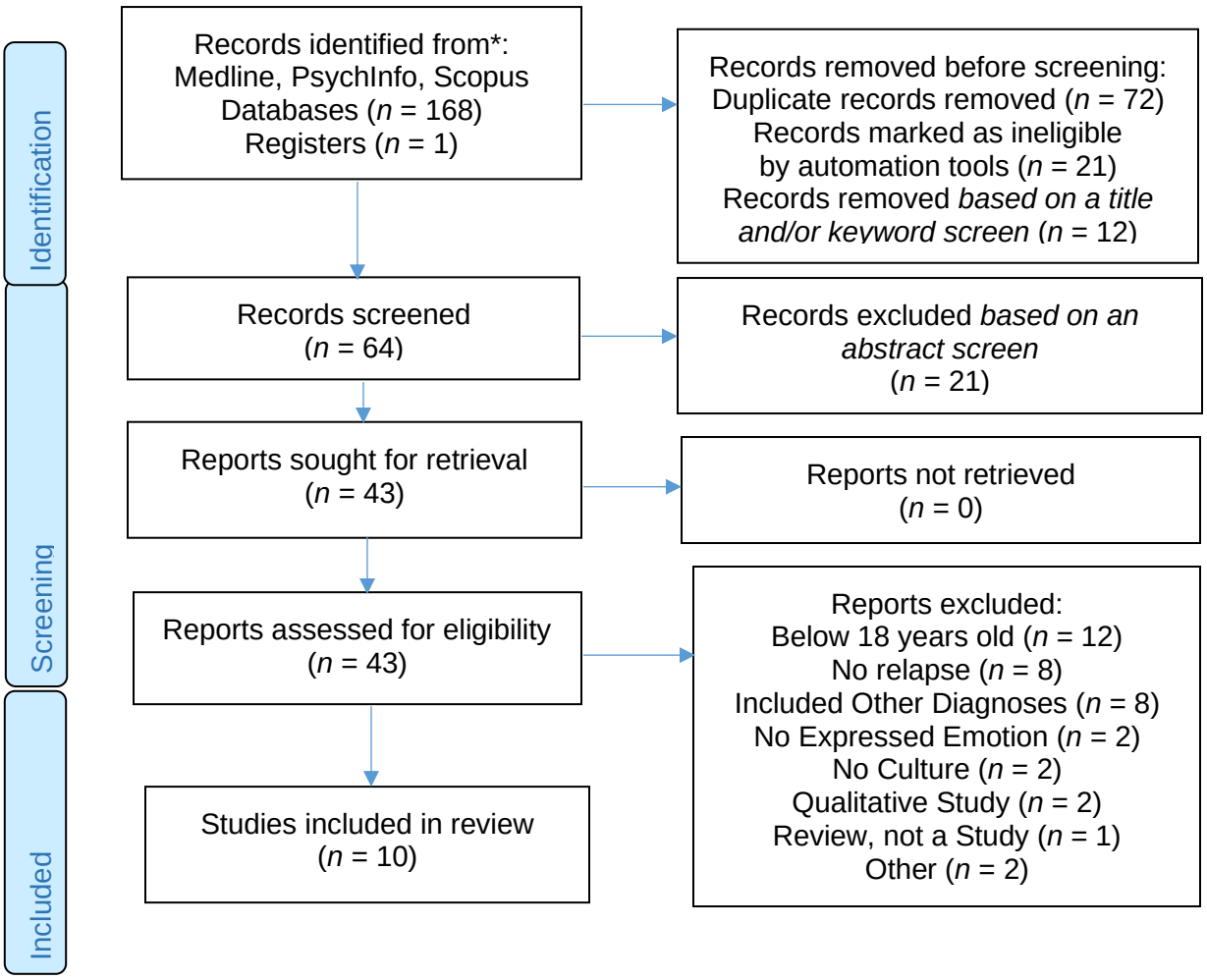
AUTHOR(S)	YEAR	ABBREVIATED TITLE	DATABASES/ SOURCES	TITLE AND/OR KEYWORD SCREEN: DECISION - DATE	ABSTRACT SCREEN: DECISION - DATE

FULL-TEXT SCREEN?	INCL (SO): *Published Study*	INCL(RV1): *Expressed Emotion*	INCL (RV2): Culture	INCL (RV3): Relapse	INCL(PAR): Age: 18+

INCL (M): *Quantitative*	EXCL: co-occurring disorders	REVIEWER DECISION - DATE	FINAL DECISION	FINAL DECISION DATE	DECISION NOTES

APPENDIX F

PRISMA 2020 Flow Diagram Template of the Search Process



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

APPENDIX G

Data Collection and Extraction Form

Document ID#

Authors and year *(last names of authors and year of publication, e.g., Johnson, Jones, and Jackson 2011)*

Full Document Title

Research Variables

Notes:

1. General information

1. **Date form completed *(dd/mm/yyyy)***	
2. **Initials/ID of person extracting data**	
3. **Source/Publication Type** *(journal, book, conference, report, dissertation, abstract, etc.)*	
4. **Source Name** *(Title of Journal, Book, Organization, etc.)*	
5. **Publication Status** *(Published, Unpublished)*	
6. **Document Language**	
7. **OTHER:**	
8. **Notes:**	

2. Design Characteristics and Methodological Features

	Descriptions as stated in report/paper	**Location in text** *(pg & ¶/fig/table)*
9. **Aim of study**		
10. **General Method** *(Quant, Qual, Mixed)*		
11. **Design or Specific Research Approach**		
12. **Measures Utilized**		
13. **Moderating Variables**		
14. **Notes:**		

3. Assessment of Research Variables

RESEARCH VARIABLES	**How Assessed** *(Measure, Observation, Interview Question, Archival, etc.)*	**Reliability/Validity/Utility**	**Location in text** *(pg & ¶/fig/table)*
15. **Expressed Emotions**	The Camberwell Family Interview (CFI) and/or the Five-Minute Speech Sample (FMSS) and/or Level of Expressed Emotion Scale (LEE) and/or Family Attitude Scale (FAS) and or Perceived Criticism (PC)		
16. **Culture**	Individualistic or Collectivistic or Undecided/Ambiguous		
17. **Relapse**	Relapse or Symptom Exacerbation or Symptom Aggravation		

4. Study Participant Characteristics and Recruitment

	Description as stated in report/paper	**Location in text** *(pg & ¶/fig/table)*
18. **Population of Interest**		
19. **Recruitment Methods**		
20. **Sample Size**		
21. **Age (include range)**		
22. **Gender**		
23. **Race/ethnicity (include country of origin)**		
24. **Notes:**		

5. Setting Characteristics

	Descriptions as stated in report/paper	**Location in text** *(pg & ¶/fig/table)*
25. **Study Location**		
26. **Data Collection Setting(s)**		

27. **Notes:**	

6. Analyses Conducted

	Description as stated in report/paper	**Location in text** (pg & ¶/fig/table)
28. **Descriptive Statistics used**		
29. **Inferential Statistics used**		
30. **Notes:**		

7. Results

	Description as stated in report/paper	**Location in text** *(pg & ¶/fig/table)*
31. **Key Result #1**		
32. **Key Result #2**		
33. **Key Result #3**		
34. **Key Result #4**		
35. **Key Result #5**		
36. **Key Result #6**		
37. **Key Result #7**		
38. **Key Result #8**		
39. **Notes:**		

8. Conclusions and Follow-up

	Description as stated in report/paper	**Location in text** *(pg & ¶/fig/table)*
40. **Key conclusions of study authors**		
41. **Study Author's Recommendations for Future Research**		

42. **Does the study directly address your review question?** ***(any issues of partial or indirect applicability)***		
43. **Take-Aways: General**		
44. **Take-Aways: Implications for Practice**		
45. **Salient Study Limitations (to inform Quality Appraisal)**		
46. **References to other relevant studies**		
47. **Other publications from this dataset**		
48. **Further study information needed?** *(from whom, what, and when contact info)*		
49. **Correspondence received** *(from whom, what, and when)*		
50. **Notes:**		

APPENDIX H

Individual Study Quality Appraisal Form for Systematic Reviews

Developed by Shelly P. Harrell, Ph.D., Pepperdine University

Author(s) and Year:

_____

Study ID#_____

1. **Methodology:** Quantitative Qualitative Mixed Methods

2. **Specific Design/Inquiry Approach**:

_____

RATING SCALE: Strong=3 Good/Adequate=2 Weak=1 Missing=0 N/A

3. **Strength of Literature Foundation and Rationale for Study:** _____
   (POSSIBLE CONSIDERATIONS: current and relevant references, background literature sufficiently comprehensive, Need/Rationale for study clearly stated, etc.)

4. **Clarity and specificity of Research Aims/Objectives/Questions/Hypotheses:** _____

5. **Quality of research design or methodological approach:** _____
   GENERAL CONSIDERATIONS: provides the rationale for design chosen, appropriateness for research questions, clear description of the design and methodological approach, the strength of design characteristics utilized
   QUANTITATIVE CONSIDERATIONS: internal and external validity considered in design; potential confounds identified and addressed in some way, specific design-based "risk of bias" criteria considered such as randomization, blinding
   QUALITATIVE CONSIDERATIONS: consistent with specific practices relevant to the inquiry strategy (e.g., phenomenological study, case study, grounded theory, etc.), triangulation, audit trail

6. **Sample Selection and Characteristics:** _____
   GENERAL CONSIDERATIONS: detailed description of sample characteristics, adequacy of sample characteristics in the context of research aims, detailed description of recruitment and selection of participants; rationale provided for sample size; inclusion and exclusion criteria indicated as relevant
   QUANTITATIVE CONSIDERATIONS: representativeness of the sample, adequacy of sample size in the context of design, the extent of selection or sample bias
   QUALITATIVE CONSIDERATIONS: sample size appropriate for inquiry strategy; rationale for purposeful sample characteristics

7. **Data Collection Tools (Scales, Observation, Interviews, etc.):** _____
   GENERAL CONSIDERATIONS: rationale for selection, appropriateness for assessing variables, development of study-specific tool or process clearly described, piloting, pretesting;
   QUANTITATIVE CONSIDERATIONS: psychometric properties (reliability, validity, utility) reported, adequacy of psychometric properties, normative or standardization data described
   QUALITATIVE CONSIDERATIONS: appropriateness for inquiry strategy and purpose; interview or other data collection process described clearly and comprehensively

8. **Data Collection Processes:** _____
   (POSSIBLE CONSIDERATIONS: data collection procedures clearly described in sufficient detail, intervention strategies and implementation described in detail, quality of

data collected, design-specific considerations such as attrition in RCTs, saturation in grounded theory, etc.)

9. **Analysis and Presentation of Data:** _____
   GENERAL CONSIDERATIONS: appropriateness of analysis for research questions and type of data; results presented clearly and comprehensively; usefulness and clarity of any tables, graphs, and charts
   QUANTITATIVE CONSIDERATIONS: power and effect size reported; relevant statistics reported clearly; effective use of tables
   QUALITATIVE CONSIDERATIONS: textual data and/or direct quotes reported and used effectively; transparent description of the development of themes from raw data

10. **Discussion of Study Limitations: _____**
    GENERAL CONSIDERATIONS: identifies and discusses limitations in the context of design/strategy utilized QUANTITATIVE CONSIDERATIONS: addresses various forms of bias, internal validity, external validity (generalizability), ecological validity
    QUALITATIVE CONSIDERATIONS: transferability, credibility, transparency,

11. **Consideration of culture and diversity:** _____
    (POSSIBLE CONSIDERATIONS: attention to diversity within the sample, includes culturally appropriate methods and tools avoid biased language, uses appropriate terminology, etc.)

12. **OVERALL RATING:**

EXEMPLARY	**STRONG**	**GOOD/ADEQUATE**	**WEAK**
(e.g., all “3”s	(e.g., mostly “3”s)	(e.g., mostly “2”s)	(e.g., mostly “1”s)

APPENDIX I

Database

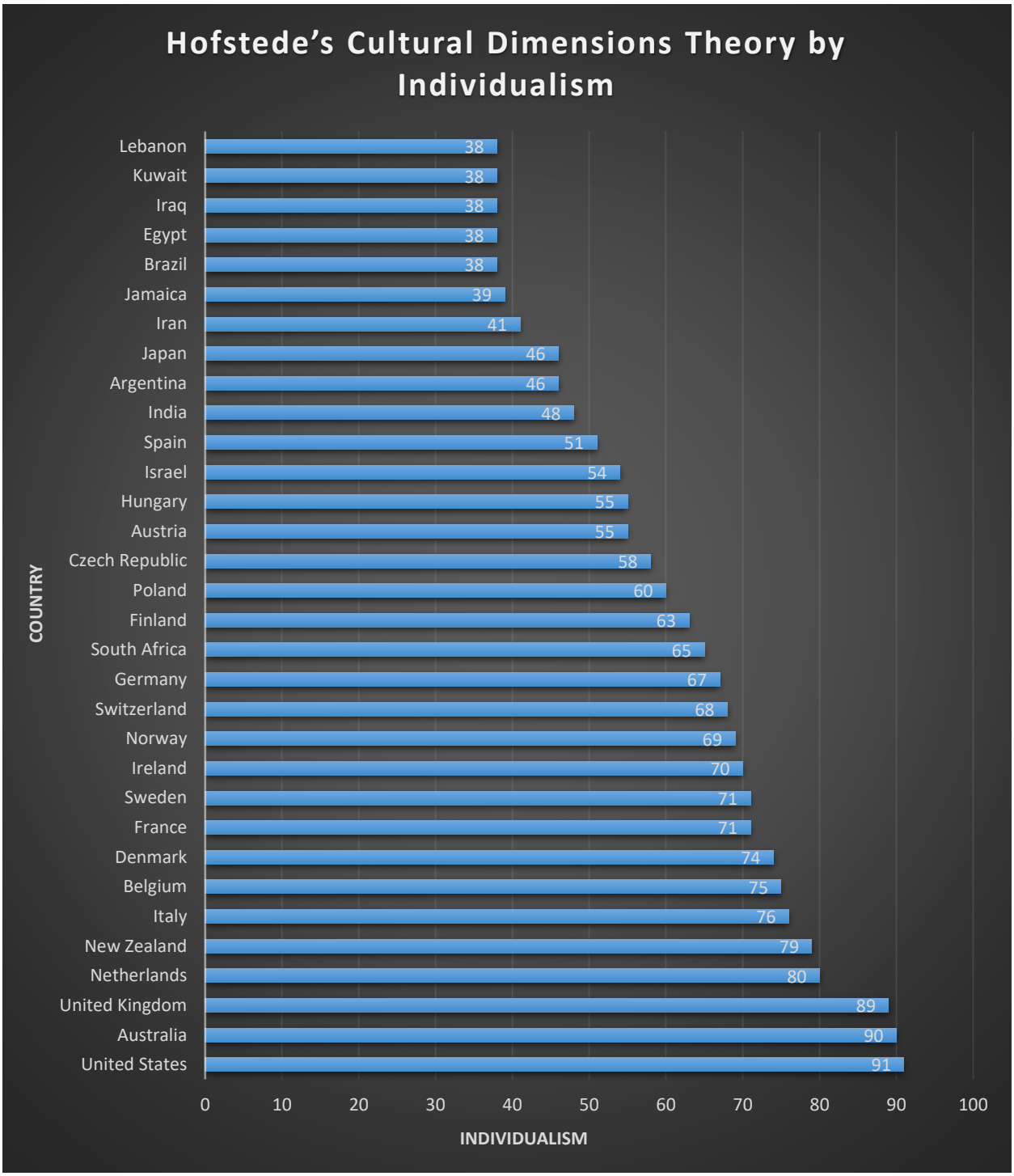
Document ID#	Authors	Year	Research Variables	Publication Type	Publication Status

Research Method (General)	Specific Research Design or Approach	Measure/ Assessment of Variable 1 (Expressed Emotion)	Measure/ Assessment of Variable 2 (Culture)	Measure/ Assessment of Variable 3 (Relapse)	Sample Size

Sample Characteristics: Age	Sample Characteristics: Race-Ethnicity	Sample Characteristics: Gender	Study Location (Geographic)	Specific Study Setting

APPENDIX J

Hofstede's Cultural Dimensions Theory


Hofstede's Cultural Dimensions Theory by Individualism
COUNTRY
Lebanon 38
Kuwait 38
Iraq 38
Egypt 38
Brazil 38
Jamaica 39
Iran 41
Japan 46
Argentina 46
India 48
Spain 51
Israel 54
Hungary 55
Austria 55
Czech Republic 58
Poland 60
Finland 63
South Africa 65
Germany 67
Switzerland 68
Norway 69
Ireland 70
Sweden 71
France 71
Denmark 74
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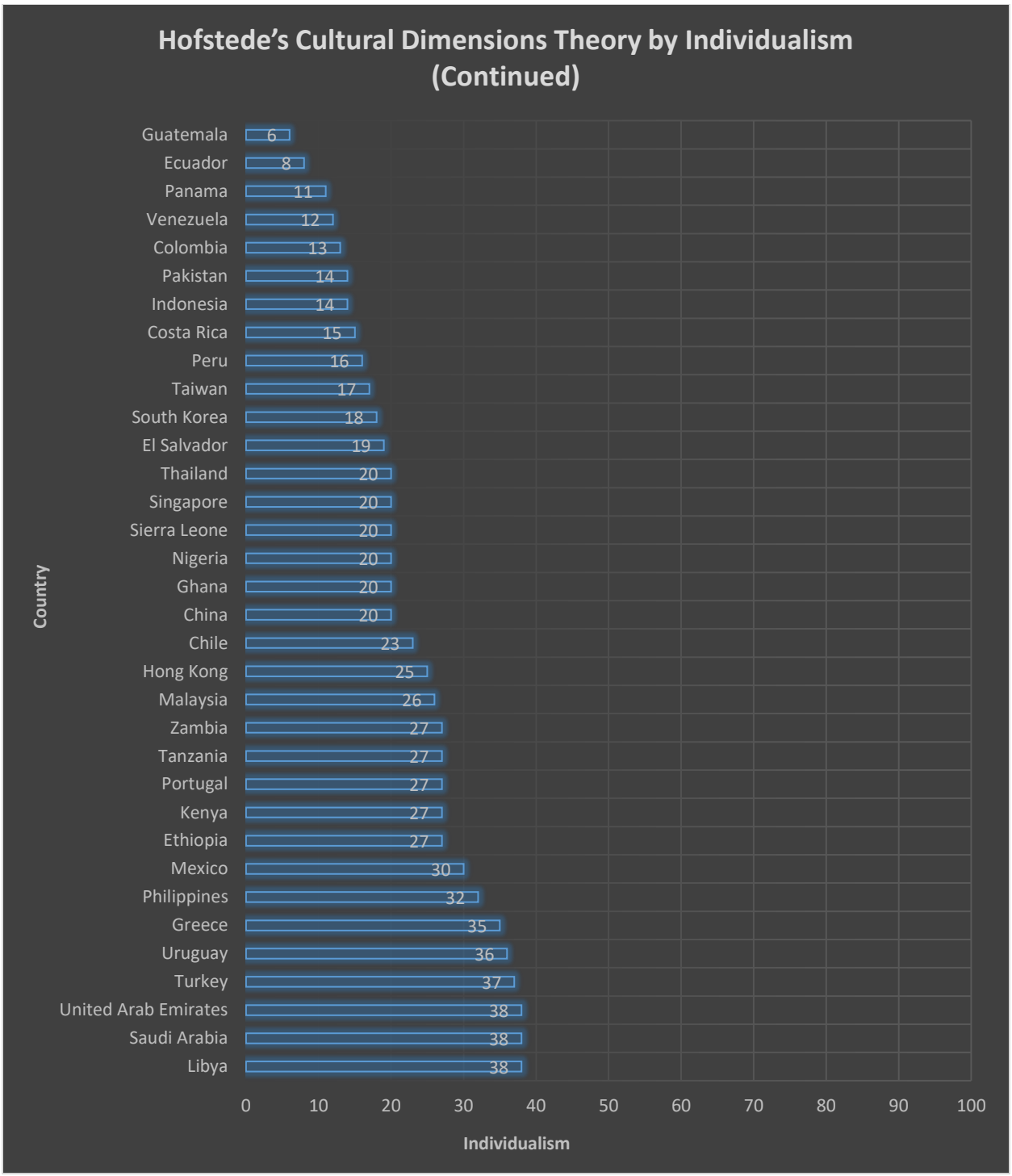
0 10 20 30 40 50 60 70 80 90 100
INDIVIDUALISM



Source: https://clearlycultural.com/geert-hofstede-cultural-dimensions/individualism/

APPENDIX K

Evidence Table

Authors	**Year**	**The focus of Study** (Variables, Keywords, Population, etc.**)**	**Research Methodology and Design**	**Sample Characteristics (size, gender, ethnicity, etc.)**

[Outcome Variables Assessed] (expressed emotion)	**[Other Relevant Variables] (culture)**	**[Other Relevant Variables] (relapse)**	**Results / Main Findings**

APPENDIX L

GPS IRB Approval Notice

July 19, 2022

Protocol #: **71922**

Project Title: SCHIZOPHRENIA, EXPRESSED EMOTION, AND RELAPSE: A SYSTEMATIC REVIEW ACROSS CULTURES.

Dear Colin:

Thank you for submitting a "GPS IRB Non-Human Subjects Notification Form" for *SCHIZOPHRENIA, EXPRESSED EMOTION, AND RELAPSE: A SYSTEMATIC REVIEW ACROSS CULTURES* project to Pepperdine University's Institutional Review Board (IRB) for review. The IRB has reviewed your submitted form and all ancillary materials. Upon review, the IRB has determined that the above titled project meets the requirements for *non-human subject research* under the federal regulations 45 CFR 46.101 that govern the protection of human subjects.

Your research must be conducted according to the form that was submitted to the IRB. If changes to the approved project occur, you will be required to submit *either* a new "GPS IRB Non-Human Subjects Notification Form" or an IRB application via the eProtocol system (httpw://irb.pepperdine.edu) to the Institutional Review Board.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* at https://community.pepperdine.edu/irb/policies/.

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval.

On behalf of the IRB, we wish you success in this scholarly pursuit.

Sincerely,

Institutional Review Board (IRB)
Pepperdine University

cc: Mrs. Katy Carr, Assistant Provost for Research
Dr. Judy Ho, Graduate School of Education and Psychology IRB Chair