

The Cross-Cultural Differences in Symptoms of Schizophrenia: A Systematic Review

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Abstract

The symptoms of schizophrenia may vary across cultures largely in terms of positive symptoms. Culture-specific symptoms can affect treatment or assessment processes, therefore it is considered crucial to determine these differences in positive symptoms, especially hallucinations. In this study, we aim to systematically examine and understand these cultural differences in hallucinations within the context of schizophrenia. Using the related keywords in different databases, we identified 465 articles. The systematic review included 21 articles published between 1975 and 2016 that met the eligibility criteria. After systematically reviewing the articles, it appears that auditory hallucinations were generally the same across cultures, but visual hallucinations were more common in Africa, Asia, the Middle East, and the Caribbean than in Europe and America. In some cultures, religious and cultural beliefs were influential in terms of the content of hallucinations. While the order of frequency types of hallucinations seen in schizophrenia across cultures seems to be relatively similar, the frequency of hallucination types may differ across cultures suggesting the pathofacilitative effects can partly play. Furthermore, the pathoplastic effect and social kindling hypotheses may explain the content differences by identifying that culture influences the expression of symptoms at the content level. Although studies have limitations, some of which need to be read carefully since they may not fully represent cultural samples, it was expected that this study would contribute to a better understanding of how culture affects hallucinations as well as highlight the treatment and assessment options that might be useful for clinicians.

Keywords: schizophrenia, symptoms, culture, cross-cultural, hallucination

Öz

Şizofreni Belirtilerinde Kültürlerarası Farklılıklar: Sistematik İnceleme

Şizofreni semptomları kültürler arasında büyük ölçüde, pozitif semptomlar açısından, farklılık gösterebilmektedir. Kültüre özgü semptomlar tedavi veya değerlendirme süreçlerini farklı şekilde etkileyebilir. Bu nedenle bir pozitif semptom olarak halüsinasyonların belirlenmesinde kültürel farklılıkların önemli olduğu düşünülmektedir. Bu doğrultuda çalışmada, şizofrenide görülen halüsinasyonların kültürlerarası farklılıklarını sistematik olarak incelemek amaçlanmıştır. Farklı veri tabanlarında ilgili anahtar kelimeler kullanılarak 465 makale belirlenmiş ve sistematik incelemeye uygunluk kriterlerini karşılayan 1975–2016 yılları arasında yayımlanan 21 makale dâhil edilmiştir. Makalelerin sistematik olarak incelenmesi sonucunda, işitsel halüsinasyonların genel olarak tüm kültürlerde aynı olduğu, ancak görsel halüsinasyonların Afrika, Asya, Orta Doğu ve Karayipler’de Avrupa ve Amerika’ya göre daha yaygın olduğu görülmüştür. Bazı kültürlerde dini ve kültürel inanışlar halüsinasyonların içeriğini de etkileyebilmektedir. Şizofrenide görülen halüsinasyon türlerinin sıklık sırası nispeten benzer görünse de halüsinasyon türlerinin sıklık oranları kültürler arasında farklılık göstermekte ve bu da pato-kolaylaştırıcı etkilerin kısmen rol oynayabileceğini düşündürmektedir. Ayrıca kültürün, semptomların içerik düzeyini de etkileyebildiği ve pato-plastik etkiyi desteklediği görülmektedir. Bazı çalışmalarda kültürel örnekler tam olarak temsil edilemeyeceği için bu sistematik incelemenin de sınırlılıklarının bulunduğu söylenebilir. Bununla birlikte, çalışmanın kültürün halüsinasyonları nasıl etkilediğini göstermede önemli bir katkı sağladığı düşünülmektedir. Ayrıca klinisyenlere yardımcı olabilecek tedavi ve değerlendirme seçenekleri vurgulanmıştır.

Anahtar Kelimeler: şizofreni, semptomlar, kültür, kültürler arası, halüsinasyon

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INTRODUCTION

Schizophrenia is a mental disorder characterized by hallucinations, disorganized speech/thinking, and delusions, along with severe disability (APA, 2013). According to study on the epidemiology of schizophrenia, the general population incidence rate is roughly 15 individuals per 100.000 people; the prevalence rate is between 7.5–3.2 people per 1000 people; and the lifetime mortality risk is 7.2 people per 1000 people (McGrath, Saha, Chant, & Welham, 2008). It can be categorized into three types of cluster symptoms: positive, negative, and cognitive (Anderson, 2014). Positive symptoms can vary across cultures, especially hallucinations, which can manifest as visual, somatic, smell, taste, and touch, but are most commonly auditory (Al-Issa, 1995; Iudici, Quarato, & Neri, 2018). Cultural differences can be a crucial part of identifying a link between normal and abnormal when defining psychological disorders (Tseng, 2007). Although schizophrenia has a similar definition of pathology across the world, the way the disorder is expressed may vary between cultures (Kalra, Bhugra, & Shah, 2012).

Hallucinations or delusions are frequently interpreted as symptoms of a psychological problem. Auditory hallucinations, in particular, are considered an obvious symptom of schizophrenia or a psychotic disorder in clinical settings (Iudici et al, 2018), meanwhile Ruddle, Mason, and Wykes (2011) reported that 60% of people diagnosed with schizophrenia hear voices, and 25%-50% continue to hear voices despite treatment. Auditory hallucinations, according to Beck and Rector (2003), are classified on a large spectrum. The majority of patients report hearing interpretative, imperative, recurrent ideas (rumination), fears, and questions.

The existing literature on cultural differences in schizophrenia lacks clarity regarding addressing how the culture affects the symptoms or pathology in general (Al-Issa, 1995; Kalra et al., 2012). While previous research has established that negative symptoms of schizophrenia are consistent and non-different across cultures (Dassario, Miller Velligan, Saldana, Diamond, & Mahurin, 1998), according to Stompe, Karakula, Rudaleviciene, Okribelashvili, Chaudhry, Idemudia, and Gscheider (2006), 15–30% of psychotic symptoms in schizophrenia are culturally determined, and this difference consists of positive symptoms such as hallucinations and delusions. Several studies have also attempted to show that culture has distinct effects on psychopathology (Kalra et al., 2012; Tseng, 2007). To

begin with, culture may have a direct impact on the development of psychopathology which is called patho-genetic reaction. While special beliefs in some cultures may encourage certain pathological behaviors to take on extreme forms (patho-elaborative), these beliefs and ideas may create differences in the symptomatic expression of psychological disorders specifically schizophrenia (Çobanoğlu & Baskak, 2014; Tseng, 2007). The content of the symptoms (patho-plastic) or the prevalence of symptoms (patho-facilitative) can also be influenced by culture and cause these differences in symptomatic expressions. Moreover, some culturally approved response patterns can be selected as a means of coping with stress (patho-selectivity) by people who are connected to a particular culture during times of stress (Kalra et al., 2012; Tseng, 2007). As a result of this matter, assuming that hallucination is one of the main symptoms of schizophrenia (Beck & Rector, 2003), it would be expected that sociocultural factors affecting the definition and detection of hallucinatory experience will affect the diagnosis of schizophrenia and epidemiological statistics related to schizophrenia across cultures (Al-Issa, 1978, 1995). For these reasons, when reporting hallucinations in schizophrenia, it is considered important to take into account cultural factors in terms of intervention programs and treatment processes to be prepared.

Identification of hallucinatory differences could be beneficial in establishing various focal points in the treatment and assessment of schizophrenia, as mentioned previously. These focal points can be crucial and beneficial for psychiatrists, psychologists, nurses, social workers, and patients' families to illuminate all existing problems related to cultural differences. Therefore, this study systematically reviews the data for cross-cultural differences in hallucinations seen in schizophrenia, aiming to provide focal points in the assessments and treatments. The following issues will be addressed as part of the systematic review's goal: a) Do hallucinations in schizophrenia vary by cultural group?; b) if such differences exist, what types of differences exist, and which cultures have major differences?; c) in light of the findings, what are the potential study and application areas, taking into account the differences in hallucinations reported in schizophrenia?

METHODS

The search for systematic review was conducted to include research articles published in PubMed, ScienceDirect, Sage Journal, Cochrane Library, and TRDizin databases

until 31st May 2022. The protocol for the current systematic review was shaped and conducted by Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009; Page et al., 2021) as shown in Figure 1. PRISMA is a method for presenting systematic reviews or meta-analyses results. Turkish and English keywords were used to search databases. The search was carried out using the following words: “Schizophrenia”, “Culture”, “Cross culture”, “Hallucination”, and “Cross-cultural”.

This systematic review selected the articles based on the following criteria: i) articles published in the aforementioned databases; ii) clinical samples were taken from adults (18-years-old and older); iii) the study was performed with at least one cultural group; iv) hallucinations

were examined directly; v) the study was conducted in English or Turkish.

The following were the exclusion criteria used to select the articles included in the study: (a) it was published in a language other than English or Turkish, (b) it was studied using non-clinical samples or not directly with clinical samples, (c) the average age of the participants was less than 18 years, (d) the full text of the article could not be accessed, and (e) no specific cultural group was studied.

Hallucinations or schizophrenia can be defined differently depending on the assessment method used, such as self-rating scales or clinical interviews; however, assessment differences related to the hallucinations reported in schizophrenia in the systematic review exceed the scope of this study.

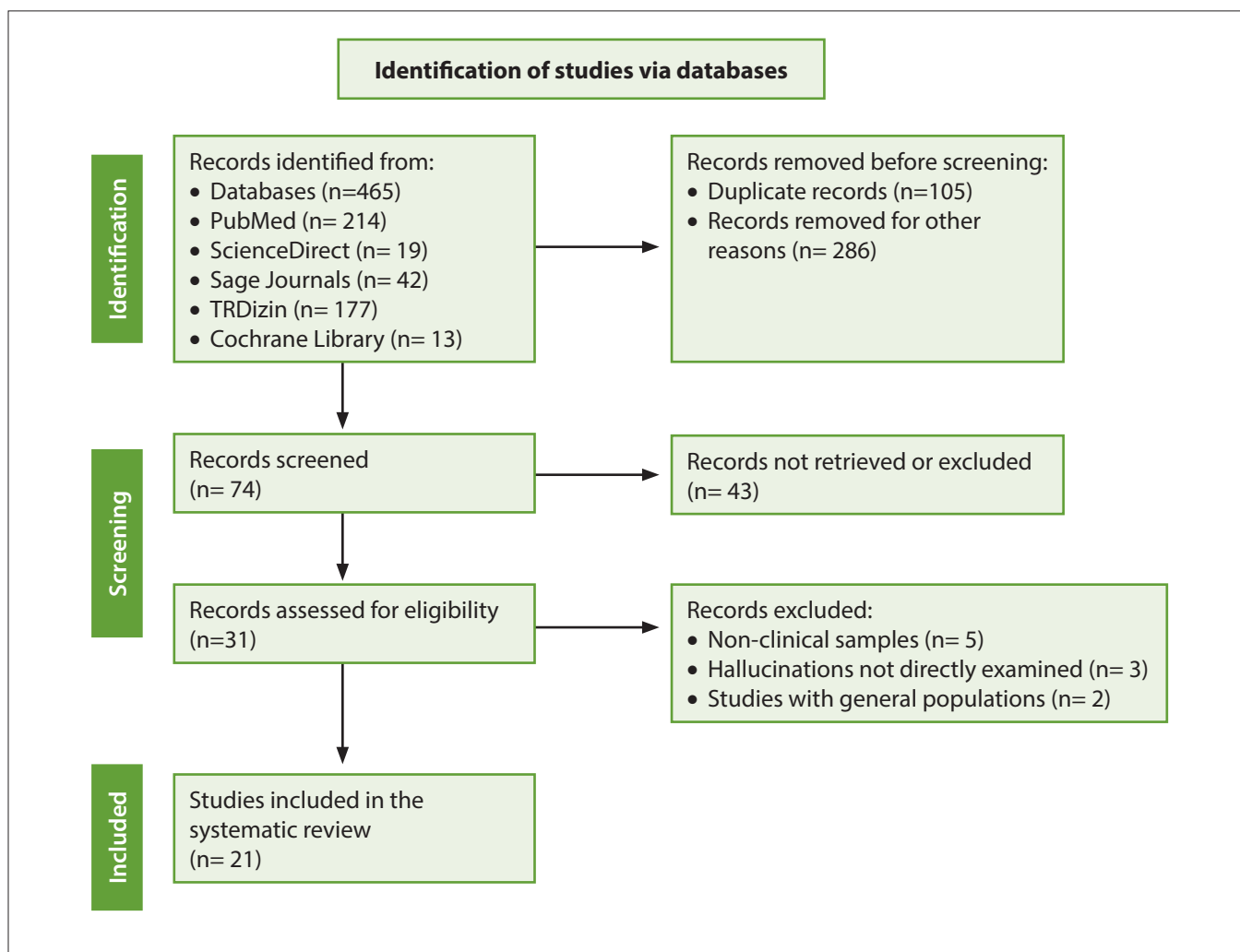


Figure 1. Flow diagram for the selection of studies examining hallucination differences across cultures.

Data Extraction

At the beginning of the systematic review process, the number of studies was determined using the combination of keywords searched in the specified databases. The title, abstract, and full text of articles were screened for eligibility. In this direction, 465 articles were identified using the combination of keywords through databases. Three hundred and sixty articles were re-examined after the duplicates were removed. Other factors, including non-related studies, resulted in the exclusion of 286 articles. The screening stage began with 74 articles based on their titles and abstracts. The data retrieved from each study included information about the authors and publications, the date of the study, the sample size, the assessment method of hallucinations and schizophrenia, the setting, the study design, and the country where the study was conducted. Thirty-one full-text articles were assessed further at the end of the screening stage. Articles that did not meet the criteria for inclusion in the systematic review were eliminated. Following the screening stage, the systematic review process included 21 studies published between 1975 and 2016. The possible limitations related to the studies and the potential bias for this systematic review study were discussed in the discussion section.

RESULTS

The studies in North America (N=6), Europe (N=7), Africa (N=6), Asia (N=8), Middle East (N=4), Caribbean (N=1), and Australia (N=1) were included in this systematic review as can be seen in Table 1. A total of 5686 participants were included in the systematic review from seven regions and 21 countries. In total, 13 studies used quantitative data, 2 used qualitative data, and 6 used both methods. Of all these studies, these specific cultures were as follows: For North America, Mexico (n=124), and USA (n=727); for Europe, Austria (n=350), Lithuania (n=73), Poland (n=80), United Kingdom (n=276), and Switzerland (n=180); for Africa, Ghana (n=96), Nigeria (n=413), Kenya (n=82), and South Africa (n=100); for Asia, China (n=180), Malaysia (n=391), Pakistan (n=203), India (n=1143), and Georgia (n=74); for Middle East, Turkey (n=373), Saudi Arabia (n=109) and Iran (n=60); for Caribbeans, Jamaica (n=43); for Australian region, Australia (n=609). It has been reported that various scales, interview techniques, and phenomenological analyses were used to assess the diagnosis and hallucinations of patients. As a result of differentiation when examining

hallucinations in schizophrenia, the results of the studies were summarized in cross-cultural differences in the form or content of the hallucinations in schizophrenia.

Although the frequency of hallucinatory types seen in schizophrenia may vary between cultures, especially at regional levels (Bauer et al., 2011; McLean et al., 2013; Ndeti & Singh, 1983; Ndeti & Vadher, 1984; Thomas, Mathur, Gottesman, Nagpal, Nimgaonkar, & Deshpande, 2007), auditory hallucinations are the most common type of hallucination independent of culture (Geçici, Kuloğlu, Güler, Özbulut, Kurt E, Önen, & Albayrak, 2010; Mueser, Bellack, & Brady, 1990; Nayani & David, 1996; Winokur, Scharfetter, & Angst, 1985; Zarrough, 1975). Visual hallucinations generally are more common in Africa, Asia, the Middle East, and the Caribbean than in Europe and North America, according to the studies included in the systematic review. In Europe, visual hallucinations are also more common than in America (Azhar, Varma, & Hakim, 1993; Bauer et al., 2011; Mosotho, Louw, & Calitz, 2011; Mueser et al., 1990; Suhail & Cochrane, 2002). Despite all the data on auditory and visual hallucinations across cultures, this systematic review has been unable to demonstrate the differences in other types of hallucinations due to the inconsistency and lack of measurement clarity. The differences in hallucinations across cultures can also happen within a particular culture. Several studies have also shown that the differences in hallucinations can occur within the country basis, indicating that the level of influence by a particular culture is crucial. According to samples taken from two different locations in Malaysia, Kelantan and Penang, Kelantan reported more frequent visual hallucinations than Penang (Azhar et al., 1993). In Turkey, auditory, olfactory, and tactile hallucinations were less frequent in the Western region than in the Central region (Geçici et al., 2010). Similarly, it was also found that people of Pakistani descent residing in the UK had more auditory hallucinations and less visual hallucinations than Pakistanis living in Pakistan (Suhail & Cochrane, 2002). Table 2 shows more detailed information regarding the different types of hallucinations across countries.

The studies examined in terms of the content of hallucinations seen in schizophrenia show that the content of hallucinations may vary depending on the culture and region. The contents of hallucinations were mostly critical, intimidating, and imperative voices of loved ones, friends, and acquaintances in the United Kingdom and America (Escobar, Randolph, & Hill, 1986; Luhrmann, Padmavati, Tharoor,

Table 1: An overview of studies that are included in systematic reviews

Author (s) (Year)	Country or Population (n)	Measurements	Comparators	Results
Zarrouh (1975)	Saudi Arabia (69)	Structured interview	Characteristics of visual hallucinations	The majority of visual hallucination occurs within visual space, is mostly composed of real people and is mostly created non-observable behavior.
Ndetei&Singh (1983)	Kenya (82)	Structured interview	Frequency of hallucination types	The majority of hallucinations observed were auditory and visual.
Ndetei&Vadher (1984)	Native English Speakers (38) African (18) Jamaican (43) Caribbean (17) Asian (18) European (6)	Structured interview+SCL	Hallucination types across cultures.	The highest auditory and visual hallucinations are found in Africa, Jamaica, Asia, and the Caribbean.
Winokur et al (1985)	Switzerland (180)	Structured interview	Frequency of hallucination types	The majority of the hallucinations were auditory
Escobar et al (1986)	American (41) Hispanic (44)	Structured interview+BPRS+GAS+SCL-90	The hallucinatory symptom differences	Significant symptom differences were not found.
Mueser et al (1990)	America (117)	Structured interview	Frequency of hallucination types	There were mostly auditory hallucinations observed.
Azhar et al (1993)	Malaysia (270)	Structured interview+ Semi-structured interview	Cultural hallucination differences across different regions and races	The frequency of visual hallucinations and their content were found to be significantly different across regions.
Nayani&David (1996)	United Kingdom (100)	Semi-structured interview	Characteristics of auditory hallucination	The majority of auditory experiences include familiar people's command and critical voices.
Kent&Wahass (1996)	United Kingdom (35) Saudi Arabia (40)	Structured interview	Auditory hallucination differences	The UK sample mostly hears commentary and command themes, while the SA sample mostly hears religious themes.
Weismann et al (2000)	American (63) Hispanic (53)	Structured interview+PAS	The hallucinatory symptom differences	Significant symptom differences were not found.
Suhail&Cochrane (2002)	British (50) Pakistani British (53) Pakistan (98)	Structured interview	Cultural differences about hallucinations	Visual hallucinations are more common in the Pakistan group.
Okulate&Jones (2003)	Nigeria (89)	Semi-structured interview	Characteristics of auditory hallucination	It was found that the voices were mainly arguing with the patient.
Yip (2003)	China (4)	Unstructured interview	Characteristics of hallucinations	Most of the content is religious, cultural, and superstitious
Lee et al (2004)	China (72) Malaysia (20) India and other (6)	Semi-structured interview	Contents of command hallucinations	Most of the content consists of commands, real people, or supernatural voices
Thomas et al (2007)	USA (480) India (807)	Structured interview	Hallucination differences	India has less auditory hallucinations than the USA, but the USA has more visual hallucinations.
Geçici et al (2010)	Turkey (373)	Structured interview	Cultural hallucination differences across different regions	Auditory hallucinations are less common in the West, and cultural themes are more prevalent in the Central Anatolia
Mosotho et al (2011)	South Africa– Sesotho (100)	Semi-structured interview	The frequency and contents of hallucinations	Cultural themes were prevalent, while the order of frequency did not differ.
Bauer et al (2011)	Austria (350) Lithuania (73) Poland (80) Georgia (74) Ghana (76) Nigeria (324) Pakistan (103)	Structured interview FZEPS	The frequency of hallucinations across cultures	West Africans are more likely to experience visual hallucinations than other groups.

Table 1 continued: An overview of studies that are included in systematic reviews

Author (s) (Year)	Country or Population (n)	Measurements	Comparators	Results
McLean et al (2013)	Australia (609) India (310) Malaysia (205)	Structured interview	The frequency of hallucinations across cultures	Malaysians were more likely to experience auditory hallucinations than other samples.
Luhrmann et al (2015)	Ghana (20) America (20) India (20)	Unstructured interview	The auditory hallucination differences across cultures	Auditory hallucinations differed in content across cultures.
Zamir et al (2016)	Iran (60)	Semi-structured interview	Characteristics of auditory hallucinations	Hostile voices were heard frequently.

BPRS (Brief Psychiatric Rating Scale), GAS (Global Assessment Scale), SCL-90(Hopkins Symptom Checklist-90), SCL (Syndrome Check List), PAS (Psychiatric Assessment Scale), FZEPS (Instrument for The Assessment of Psychotic Symptoms-German Version)

Table 2: Frequency of different hallucinatory experiences across studies

Author (s)(Year)	Country or Population (n)	Types of Hallucination* (%n)					
		A	V	T	S	TA	O
Zarrouh (1975)	Saudi Arabia (100)	%68	%62	-	-	-	-
Ndetei&Singh (1983)	Kenya (82)	%51	%43	-	-	-	%25
Ndetei&Vadher (1984)	Native English Speakers (38)	%44	%15	-	-	-	%3
	African (18)	%88	%33	-	-	-	%6
	Jamaican (43)	%70	%37	-	-	-	%5
	Other Carribeans (17)	%59	%24	-	-	-	%12
	Asian (18)	%69	%31	-	-	-	-
	European (6)	%33	%17	-	-	-	-
Winokur et al (1985)	Switzerland (180)	%76	%29	----- 45% -----			
Mueser et al (1990)	USA (117)	%72	%16	%17	-	%11	-
Azhar et al (1993)	Malaysia-Total (270)	%86	%31	%9	%17	-	%2
	Malaysia-Penang (82)	%80	%18	%10	%26	-	%4
	Chinese-Penang (84)	%86	%23	%6	%8	-	%2
	MalaysiaKelantan (84)	%94	%54	%9	%24	-	%2
	Chinese-Kelantan (20)	%85	%30	%10	%10	-	-
Nayani&David (1996)	United Kingdom (100)	%100	%51	%31	%40	%18	%51
Suhail&Cochrane (2002)	British (50)	%88	%26	-	-	-	-
	Pakistani-British (53)	%72	%24	-	-	-	-
	Pakistan (98)	%52	%42	-	-	-	-
Thomas et al (2007)	USA (480)	%83	%57	---%27---		%14	%27
Mosotho et al (2011)	India (807)	%64	%36	---%22---		%8	%19
Geçici et al (2010)	Turkey-Total (373)	%64	%30	%2	-	%1	%5
	Western Region (201)	%54	%26	%1	-	-	%1
	Central Anatolia (172)	%74	%35	%5	-	%2	%11
Bauer et al (2011)	Austria (350)	%67	%39	%5	%36	%4	%9
	Lithuania (73)	%82	%37	%11	%31	%14	%12
	Poland (80)	%83	%45	%7	%29	%9	%10
	Georgia (74)	%72	%10	%7	%20	%8	%7
	Ghana (76)	%91	%54	%7	%18	%7	%7
	Nigeria (324)	%85	%51	%11	%18	%8	%8
	Pakistan (103)	%73	%4	%3	%23	-	-
Mosotho et al (2011)	South Africa (100)	%90	%52	-	-	-	%20
McLean et al (2013)	Australia (609)	%90	-----%93-----				
	India (310)	%78	-----%82-----				
	Malaysia (205)	%94	-----%95-----				

Different types of hallucinatory experiences are categorized across studies. A=Auditory, V=Visual, T=Tactile, S=Somatic, TA=Taste, O=Olfactory

& Osei, 2015; Nayani & David, 1996; Suhail & Cochrane, 2002; Weismann, Lopez, Ventura, & Hwang, 2000). In contrast, religious and cultural themes along with family members and hostile voices were found more prevalent in Africa, Asia, and the Middle East, suggesting that these parameters influence the content of hallucinations (Azhar et al., 1993; Geçici et al., 2010; Kent & Wahass, 1996; Lee, Chong, Chan, & Sathyadevan, 2004; Suhail & Cochrane, 2002; Yip, 2003; Zamir, Javedi, S. A., & Majjidi, 2016). When comparing non-western countries to western countries, cultural themes are the most prominent. For instance, Ghana has more religious themes, whereas India has more playfulness and hostile spiritual interpretations. On the contrary, America has more typical diagnostic criteria interpretations (Luhmann et al., 2015). In addition, when comparing similar groups within their countries, it has also been reported some differences in the studies regarding cultural and religious themes. In the British and Pakistani living in the UK groups, voices were found to comment on behavior and personality, call patients bad names, be commanding and critical, while no such findings were found in the Pakistanis descent residing in Pakistan (Suhail & Cochrane, 2002). Additionally, Pakistan sample has more different religious themes regarding visual hallucinations than in the UK or Pakistani living in the UK. According to another study that was carried out in two Malaysian districts (Kelantan and Penang) with Chinese and Malaysian patients, it was reported that spirits, cultural figures and demons were more likely to be the source of voices in schizophrenia patients in Kelantan than in the Penang group (Azhar et al., 1993). Moreover, Malaysian schizophrenia patients reported more auditory hallucinations with religious themes than Chinese patients, and this difference was found to be more prominent between Malaysian and Chinese samples from Kelantan. Similarly, it was found that schizophrenia patients living in Central region of Turkey were significantly more likely than schizophrenia patients living in the West side to experience the source of voices as jinns, god, dead people, devils or prophets (Geçici et al., 2010). Moreover, it was also reported that in terms of visual hallucinations, religious and cultural themes were more frequent in Central region compared to the West side.

DISCUSSION

As mentioned in the results section, the order of frequency types of hallucinations seen in schizophrenia across cultures seems to be relatively similar. However, the

frequency of hallucination types may differ across cultures. Results have shown that visual hallucinations may display more frequently in Asia, Africa, the Middle East, and the Caribbean than in Europe or America, while auditory hallucinations did not differ significantly across cultures. These results may support the idea of the pathofacilitative effect hypothesis shown in the studies of Tseng (2007) and Kalra et al. (2012), indicating that cultural factors have a particular frequency effect on the prevalence of symptoms. Another significant finding was that the content of hallucinations experienced by people with schizophrenia differs depending on culture and region. A possible explanation for these findings might be the pathoplastic effect hypothesis by identifying that culture influences the expression of symptoms at the content level (Tseng, 2007).

Further to that, several findings also suggest that the content and frequency of hallucinations differ between two locations within the same country. These findings highlight the need for multiple perspectives on this issue. Al-Issa (1995) suggests that culture has different effects on hallucinatory experiences, depending on exposure to social and environmental stimuli and learning or experiencing them. Similarly, Kalra et al. (2012) state that the impact of cultural and historical environmental conditions can alter the presentation of hallucinations in schizophrenia depending on a location or country basis. Furthermore, according to the social kindling hypothesis (Luhmann et al., 2015), it is stated that the importance placed on sensation (such as hallucinations) and its meaning by worlds in local societies, whether explicitly or implicitly, not only affects how these sensations are interpreted but also determines the likelihood of the sensation occurring and the quality of the sensation. All these reasons suggest that multiple factors can part in when comparing local places within the country or between the countries.

These results might be biased because databases in this study may suffer file drawer problems, although various databases were used in the systematic review. Moreover, it is necessary to mention here that the findings of this study may not fully represent cultural sample populations as intended. For these reasons, it is important to bear in mind the possible bias in these findings.

Finally, the purpose of this research was to conduct a literature review on the effects of culture on hallucinations. As a result, the content and frequency of hallucinations in schizophrenia may vary to some extent across cultures. These findings could be explained in part by pathoplastic

and pathofacilitative effects. Within-country differences also can be interpreted by the influence of cultural values and environmental stimuli. Nevertheless, there are still many unanswered questions about the differences between hallucination types. Future studies need to be carried out to evaluate the other types of hallucinatory experiences besides auditory and visual hallucination. Therefore, it is required to use more holistic standard measurements when assessing hallucinations. Despite its limitations, this systematic review has useful implications for assessments and treatment programs. Implications for treatment and assessments include the importance of recognizing patient's subjective experience of hallucinations can change across cultures. Furthermore, in Europe and North America, a meta-analysis study found that individually tailored cognitive-behavioral therapy (CBT) was more effective than general CBT for auditory hallucinations and delusions (Van der Gaag, Valmaggia, & Smit, 2014). Overall, an integrative approach to treatment and assessments may be beneficial in addressing these differences. Consequently, it is hoped that this systematic review will contribute to a better understanding of how culture influences hallucinations in schizophrenia, as well as highlight the treatment and assessment options that might be useful.

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