



# Religious psychopathology: The prevalence of religious content of delusions and hallucinations in mental disorder

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## Abstract

**Background:** Religious themes are commonly encountered in delusions and hallucinations associated with major mental disorders, and the form and content of presentation are significant in relation to both diagnosis and management.

**Aims:** This study aimed to establish what is known about the frequency of occurrence of religious delusions (RD) and religious hallucinations (RH) and their inter-relationship.

**Methods:** A review was undertaken of the quantitative empirical English literature on RD and RH.

**Results:** A total of 55 relevant publications were identified. The lack of critical criteria for defining and classifying RD and RH makes comparisons between studies difficult, but prevalence clearly varies with time and place, and probably also according to personal religiosity. In particular, little is known about the content and frequency of RH and the relationship between RH and RD.

**Conclusion:** Clearer research criteria are needed to facilitate future study of RD and RH, and more research is needed on the relationship between RD and RH.

## Keywords

Spirituality, religion, delusions, hallucinations

## Introduction

As a branch of medicine, psychiatry is concerned not only with trying to understand mental disorders but also with trying to find treatments to alleviate the suffering and stigma with which they are so notoriously associated. This concern with treatment underlies a concern for diagnosis, as it is through arriving at a diagnosis that prognosis can be predicted and the most appropriate treatment selected in any given case. Diagnosis in psychiatry is primarily based upon information gained from the history and from the mental state examination, both of which require a degree of trust between doctor and patient, and a sensitivity of the clinician to diagnostic clues which must be interpreted according to the culture and context in which the patient lives. An important component of this culture and context, even in a secular society, is contributed by religious tradition. Unfortunately, the relationship between psychiatry and religion has at times been fraught, and patients have not always felt that they could entrust their psychiatrist with a frank account of their religious experiences, for fear that such experiences might be used as evidence to make a diagnosis of mental illness. The situation has not been helped by crude attempts to employ psychiatric concepts for diagnosing saints and mystics as mentally ill (Allen, 1975; Cook, 2012).

In major mental disorder, the content of perceptual disorder and thought disorder has often assumed less diagnostic significance than the form of the disorder. Thus, it is the presence of a false perception that is understood as important, rather than whether the content of the perception is religious, political or scientific. Similarly, it is the falseness of unshakeable beliefs which are out of keeping with culture that renders them delusional, rather than that they are religious (or political or of another kind). This might be thought to assist in preventing normal religious or political beliefs from being used as a basis for diagnosis. However, it can also lead to a lack of interest of the clinician in religious or other significant themes which may be of central importance to the patient. This is despite evidence that religion may provide an important coping resource for people suffering from major mental disorder (Mohr et al., 2010)

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and may significantly influence adherence to treatment (Borras et al., 2007).

Studies have generally found religious themes to be commonly identifiable within the content of delusional beliefs, and some helpful reviews have been published (Bhavsar & Bhugra, 2008; Gearing et al., 2011). Religious delusions (RD) may be associated with higher levels of grandiosity, but are also held with a degree of flexibility that may give reason to believe that they may be more amenable to cognitive behaviour therapy (Iyassu et al., 2014). Delusion-like beliefs, including some with religious content, are held widely in the general population, and so RD might be considered as one end of a spectrum of belief, with 'normal' religious beliefs at the opposite end of the spectrum (Pechey & Halligan, 2011). It has been suggested that RD are becoming less common in the Western world as religion has declined in popularity (Stompe, Ortwein-Swoboda, Ritter, & Schanda, 2003). Widely varying figures have been quoted for the prevalence of RD, and few attempts appear to have been made to systematically review this literature (none of which have attempted to be comprehensive). A large number of such studies have now been published.

Much less attention has been given to the religious content of hallucinations, and little is known about the frequency of occurrence of religious content as a feature of such phenomena. However, at least one attempt has been made to conduct a systematic and comprehensive review (Gearing et al., 2011). Some attention has been given to the phenomenon of voice hearing occurring in the absence of diagnosable mental illness, including the occurrence of such phenomena in religious populations. In such a context, it appears that healthy individuals do report, at least sometimes, hearing the voice of God (Dein & Littlewood, 2007; Luhrmann, 2012b). Little is known about the frequency of occurrence of religious themes in hallucinations occurring in the course of mental disorder.

This study sought to review the empirical literature pertaining to the frequency of religious content of hallucinations and delusions as a feature of mental disorders.

## Methodology

Attempts were made to ascertain relevant studies by searching bibliographic databases such as MEDLINE and PsycINFO. This was not found to be a helpful approach as large numbers of studies already known to the author were not identified by this means and it was difficult to identify any search terms which located other than very small numbers of relevant empirical studies. Accordingly, reliance was placed initially upon known review papers which referenced relevant articles on RD and/or religious hallucinations (RH). Further studies were identified by a variety of means, notably by following up references from journal articles and book chapters already identified, by careful

attention to recent publications in the field and by searching the MEDLINE and PsycINFO databases with a variety of different free text terms. While it is impossible to be sure that all relevant studies have been identified, the active search for older publications was discontinued when no new articles were being located despite extensive efforts to search manually and by using available electronic databases.

Inclusion criteria for the articles that were identified included primarily that they were empirical studies which included at least some data on frequency of religious content of delusions and/or hallucinations in the population studied. Individual case reports, and case reports of very small numbers of subjects ( $n < 10$ ), were not included. The study was restricted to articles published in English (with the exception of one paper in Korean, with results tables published in English). Qualitative and quantitative studies were included, but only where data allowed at least a basic quantitative calculation of the number of subjects with religious psychopathology. The primary focus was on studies providing data on RH and RD. Studies on religious rituals and obsessional ruminations, other anxiety disorders, non-psychotic affective disorder, eating disorders and religious addiction were not included.

## Results

A total of 55 publications were identified as meeting inclusion criteria and were included in the study (see Table 1). Of these, 45 publications provided at least some quantitative information on numbers of subjects with RD (see Table 2) and 28 provided at least some information (qualitative or quantitative) on the occurrence and nature of RH (see Table 2). The two publications by Kala and Wig (1978, 1982), appearing in Tables 1 and 2, would appear to relate to the same study – although slightly different results are published in each paper.

Sample size for the studies included in the total group of 55 publications ranged between 50 and 5,275 for case record studies and between 10 and 1,379 for interview studies. Less than half of the total group of publications included provided any information on the ethnicity ( $n = 22$ ) or religious affiliation ( $n = 24$ ) of the subject sample. A wide range of diagnostic groups was included in some studies, and in others, the sample was restricted to schizophrenia. Only three studies explicitly included psychosis related to epilepsy.

Studies were undertaken in a wide range of countries, and 11 studies explicitly included international and/or ethnic comparisons. Notably, studies appear to have been undertaken in every populated continent in the world, albeit the two countries in which many more studies have been undertaken than in any other are the United Kingdom ( $n = 12$ ) and the United States ( $n = 10$ ). More than half the studies ( $n = 31$ ) included subjects from Europe and/or

Table 1. Overview of empirical studies of religious delusions and hallucinations.

| Publication                                 | Country                                  | Study subjects |          | Age Range | Mean     | Ethnicity            | Religion | Diagnosis                               | Ascertainment                                     | Methodology | RD | Hallucinations |
|---|--|----------------|----------|-----------|----------|----------------------|----------|---|---|-------------|----|----------------|
|   |  | Total, n       | Male, n  |           |          |                      |          |   |   |             |    |                |
| Lucas et al. (1962)                         | England                                  | 405            | 196      | 209       | NK       | 49.5 (M)<br>53.3 (F) |          | S, S-aff, Par                           | ip in 1st half of 1958                            | IS          |    | ✓              |
| Rin et al. (1962)                           | Taiwan – Chinese<br>Taiwan –<br>Formosan | 126<br>94      | 52<br>45 | 74<br>49  | NK<br>NK | NK<br>NK             | ✓        | Par                                     | ip, 1948–1959                                     | CR          |    | ✓ [✓]          |
| Weinstein (1962)                            | Virgin Islands                           | 148            | 83       | 65        | NK       | NK                   | ✓        | P                                       | ip  | IS          |    | ✓ [✓]          |
| Kiev (1963)                                 | England                                  | 10             | NK       | NK        | 25–35    | NK                   | ✓        | S                                       | ip at least 1 year                                | IS          |    | ✓ [✓]          |
| Gordon (1965)                               | England                                  | 112            | 61       | 51        | >15      | NK                   | ✓        | S, S-form,<br>Aff, S-aff,<br>Org, PD, N | ip, 1961–1964                                     | IS and CR   |    | ✓ [✓]          |
| Mott, Small, and Anderson (1965)            | United States                            | 50             | 14       | 36        | NK       | 33.2                 | ✓        | S                                       | ip  | IS          |    | ✓              |
|   |  | 50             | 44       | 6         | NK       | 42.4                 |          | SA (alcoholic)                          |   |             |    |                |
|   |  | 50             | 26       | 24        | NK       | 56.0                 |          | Medical                                 |   |             |    |                |
| Scott (1967)                                | South Africa                             | 100            | 0        | 100       | NK       | NK                   | ✓        | P                                       | 2nd week of January 1966                          | IS          |    | [✓] ✓          |
| McCabe, Fowler, Cadoret, and Winokur (1972) | United States                            | 28             | 8        | 20        | 16–77    | 31.4                 | ✓        | Good prognosis<br>Poor prognosis        | Consecutive ip                                    | IS          |    | ✓              |
|   |  | 25             | 10       | 15        | 17–55    | 32.3                 |          |   |   |             |    |                |
| El Sendiony (1976)                          | Egypt                                    | 110            | 56       | 54        | NK       | NK                   |          | S, Par                                  | ip  | CR          |    | ✓              |
| Ahmed (1978)                                | Pakistan                                 | 51             | 31       | 20        | 16–55    | 30                   |          | S                                       | op  | IS          |    | ✓              |
| Kala and Wig (1978)                         | India                                    | 200            | 107      | 93        | NK       | NK                   |          | ICD8: S, Par                            | Consecutive op, 10 January–15 September 1974      | IS          |    | ✓              |
| Littlewood and Lipsedge (1981)              | England                                  | 244            | NK       | NK        | 15–45    | NK                   | ✓        | S, Aff, Par,<br>Other P, PD             | Consecutive ip                                    | CR          |    | [✓] [✓]        |
| Kala and Wig (1982)                         | India                                    | 200            | 109      | 93        | NK       | NK                   |          | ICD8: S, Par                            | Consecutive op                                    | IS          |    | ✓              |
| Ndetei and Singh (1982)                     | Kenya                                    | 80             | NK       | NK        | 15–65    | 27.7                 | ✓        | All psych                               | ip  | IS          |    | ✓              |
| Ndetei and Vadhier (1985)                   | England                                  | 593            | NK       | NK        | NK       | NK                   | ✓        | All psych                               | ip  | CR          |    | ✓              |
| Cothran and Harvey (1986)                   | United States                            | 41             | NK       | NK        | NK       | NK                   | ✓        | DSMIII: S,<br>Mania                     | Consecutive ip                                    | IS          |    | ✓              |
| Kulhara et al. (1986)                       | India                                    | 112            | 59       | 53        | >14      | 27.7                 |          | ICD9: S                                 | NK  | IS          |    | ✓              |
| Andreasen (1987)                            | United States                            | 111            | NK       | NK        | NK       | NK                   |          | S                                       | Consecutive ip                                    | IS          |    | ✓ [✓]          |
| Mitchell and Vierkant (1988)                | United States                            | 150            | 89       | 61        | >16      | NK                   | ✓        | NK                                      | ip, 1933–1939                                     | CR          |    | [✓] ✓          |
| Renvoize and Beveridge (1989)               | England                                  | 118            | 54       | 64        | 20–79    | NK                   | ✓        | All psych                               | ip, 1986 and 1987<br>ip, 1st admission, 1880–1884 | CR          |    | ✓ [✓]          |

(Continued)

Table 1. (Continued)

| Publication             | Country  | Study subjects |         | Age       |       | Ethnicity | Religion | Diagnosis   | Ascertainment                        | Methodology | RD Hallucinations |
|-------------------------|--|----------------|---------|-----------|-------|-----------|----------|---|--------------------------------------|-------------|-------------------|
|                         |  | Total, n       | Male, n | Female, n | Range |           |          |   |                                      |             |                   |
| Jablensky et al. (1992) | Colombia, Czechoslovakia, Denmark, India, Ireland, Japan, Nigeria, United Kingdom, United States, USSR | 1,379          | 745     | 643       | 15–54 |           |          | ICD9: S, Par, 1st episode contact Other P, SA, with 'helping agency' PD | IS                                   |             | ✓                 |
| Kim et al. (1993)       | Korea  | 370            | 199     | 171       | NIK   | 33.0      | [✓]      | DSMIII-R: S   | ip, October 1991                     | IS          | ✓                 |
|                         | China (Korean-Chinese)   | 225            | 137     | 88        | NIK   | 41.2      |          |   |                                      |             |                   |
|                         | China (Chinese)  | 176            | 98      | 78        | NIK   | 34.9      |          |   |                                      |             |                   |
| Tateyama et al. (1993)  | Germany  | 150            | 70      | 80        | NIK   | 35.3      |          | ICD9: S   | ip, July–December 1984               | CR          | ✓                 |
|                         | Japan  | 324            | 158     | 166       | NIK   | 35.9      |          |   | ip, January 1983–March 1986          |             |                   |
| Brewerton (1994)        | Hawaii   | 50             | 31      | 19        | NIK   | 35.3      | [✓]      | DSMIII-R: S, S-TEEG, Aff, P-CPS   | ip, 1982–1984                        | CR          | [✓] ✓             |
| Azhar et al. (1995)     | Malaysia – Penang (Malay)  | 82             | NIK     | NIK       | NIK   | NIK       | ✓        | ICD9: S   | ip                                   | IS          | ✓                 |
|                         | Malaysia – Penang (Chinese)  | 84             | NIK     | NIK       | NIK   | NIK       |          |   |                                      |             |                   |
|                         | Malaysia – Kota Bharu (Malay)  | 84             | NIK     | NIK       | NIK   | NIK       |          |   |                                      |             |                   |
| Kanemoto et al. (1996)  | Japan  | 33             | 18      | 15        | NIK   | 35.4      |          | Interictal P  | Archives of regional epilepsy centre | CR          | ✓ ✓               |
|                         |  | 30             | 17      | 13        | NIK   | 37.7      |          | Postictal P   |                                      |             |                   |
|                         |  | 25             | 17      | 8         | NIK   | 32.3      |          | Chronic P + CPS   |                                      |             |                   |
| Kent and Wahass (1996)  | Saudi Arabia   | 40             | NIK     | NIK       | 20–65 | NIK       |          | ICD10: S  | ip and op                            | IS          | ✓                 |
|                         | United Kingdom   | 35             | NIK     | NIK       |       |           |          |   |                                      |             |                   |
| Tateyama et al. (1998)  | Japan  | 324            | 158     | 166       | NIK   | 35.9      | [✓]      | ICD9: S   | ip, January 1983–May 1986            | CR          | ✓                 |
|                         | Austria  | 101            | 48      | 53        | NIK   | 35.0      |          |   | ip, September 1992–December 1993     |             |                   |
|                         | Germany  | 150            | 70      | 80        | NIK   | 35.3      |          |   | ip, July–December 1984               |             |                   |

Table 1. (Continued)

| Publication   | Country   | Study subjects              |         | Age       |           | Ethnicity | Religion | Diagnosis                                       | Ascertainment  | Methodology | RD  | Hallucinations |
|---|---|-----------------------------|---------|-----------|-----------|-----------|----------|---|--|-------------|-----|----------------|
|   |   | Total, n                    | Male, n | Female, n | Range     |           |          |   |  |             |     |                |
| Appelbaum et al. (1999)                               | United States   | 1136                        | NK      | NK        | 18–40     | NK        | ✓        | DSMIII-R: S, S-aff, S-aff, Aff, Other P, SA, PD | ip – randomly selected                                       | IS          | ✓   | ✓              |
| Stompe et al. (1999)                                  | Austria   | 126                         | 70      | 56        | NK        | 29.5      | ✓        | DSMIII-R: S                                     | Consecutive ip, January 1992–December 1994                   | IS          | ✓   | ✓              |
| Kulhara et al. (2000)                                 | Pakistan<br>North India                                 | 108                         | 73      | 35        | NK        | 32.4      |          |   | ip   |             |     |                |
|   |   | 40                          | 19      | 21        | NK        | 32.4      | ✓        | ICD10: S  | op, 1st contact (n = 11 admitted)                            | IS          | ✓   | [✓]            |
| Raja, Azzoni, and Lubich (2000)                       | Italy   | 313 (cases); 271 (patients) | 124     | 189       | 18–87     | 41.8      |          | DSMIV: S, S-aff, S-aff, Other P, Psy-ep, Other  | ip – consecutive admissions to PICU 26 May 1994–10 July 1995 | IS          | ✓   | ✓              |
| Atallah, El-Dosoky, Coker, Nabil, and El-Islam (2001) | Egypt   | 5,275                       | NK      | NK        | NK        | 33.0      | ✓        | S, S-aff, Aff                                   | ip, 1975–1996  | CR          | [✓] | ✓              |
| Getz, Fleck, and Strakowski (2001)                    | United States   | 71                          | 42      | 29        | 18–45     | 32.0      | ✓        | DSMIV: P  | ip – consecutive admissions                                  | IS          | ✓   | ✓              |
|   |   | 29                          | 18      | 11        |           | 33.3      |          |   |  |             |     |                |
|   |   | 33                          | 22      | 11        |           | 31.2      |          |   |  |             |     |                |
| Gutiérrez-Lobos et al. (2001)                         | Austria   | 639                         | 239     | 400       | 15–89     | 48.3      |          | ICD8: S, Aff, Org. Par, N, SA                   | ip, 1 January 1971–30 June 1974                              | CR          | ✓   | [✓]            |
| Kim et al. (2001)                                     | Korea (Seoul)   | 143                         | 82      | 61        | NK        | 34.2      | [✓]      | DSMIV: S  | ip, January/February 1999                                    | IS          | ✓   | ✓              |
| Kim et al. (2001)                                     | China (Shanghai)<br>Taiwan (Taipei)<br>China (Shanghai) | 147                         | 93      | 54        | NK        | 36.5      |          |   |  |             |     |                |
|   |   | 140                         | 76      | 64        | NK        | 33.5      |          |   |  |             |     |                |
|   |   | 182                         | 119     | 63        | NK        | 38.1      | [✓]      | DSMIV: S  | ip, 1 March–30 June 1998                                     | IS          | ✓   | ✓              |
| Siddle, Haddock, Tarrier, and Faragher (2002)         | England   | 193                         | 135     | 58        | 18.4–64.8 | NK        | ✓        | DSMIV: S, S-aff, S-form, Other P                | ip, 1st admissions   | IS          | ✓   | ✓              |
| Suhail and Cochrane (2002)                            | England (White)   | 50                          | 38      | 12        | NK        | 36.5      | ✓        | S, Par, S-aff                                   | ip   | CR          | ✓   | ✓              |

(Continued)

Table 1. (Continued)

| Publication  | Country                     | Study subjects |         | Age       |       | Ethnicity | Religion | Diagnosis                             | Ascertainment  | Methodology | RD | Hallucinations |
|--|-----------------------------|----------------|---------|-----------|-------|-----------|----------|---------------------------------------|--|-------------|----|----------------|
|  |                             | Total, n       | Male, n | Female, n | Range |           |          |                                       |  |             |    |                |
|  | England (British-Pakistani) | 53             | 31      | 22        | NIK   |           |          |                                       |  |             |    |                |
|  | Pakistan                    | 98             | 48      | 50        | NIK   |           |          |                                       |  |             |    |                |
| Suhail (2003)  | Pakistan                    | 98             | 48      | 50        | NIK   |           |          | DSMIV: S                              | ip, January–April 1998   | IS          |    | ✓              |
| Smith et al. (2005)  | England                     | 20             | 14      | 6         | 18–65 |           |          | DSMIV: S, S-aff, S-form, Aff, Other P | op and ip  | IS          |    | ✓ [✓]          |
| Miller and McCormack (2006)                                | United States               | 77             | 53      | 24        | 16–38 | ✓         |          | DSMIV: S, S-form, S-aff               | Community hospital   | IS          |    | ✓ [✓]          |
| Rudavičienė et al. (2008)                                  | Lithuania                   | 295            | 143     | 152       | 20–74 |           | [✓]      | ICD10: S                              | NIK  | IS          |    | ✓              |
| Brakoulas and Starcevic (2008)                             | Australia                   | 90             | 49      | 41        | 18–65 |           |          | S, S-aff, Aff, SA, Other P            | ip, May 2006   | CR          |    | ✓              |
| Skodlar, Dernovsek, and Kocmur (2008)                      | Slovenia                    | 120            | 60      | 60        | NIK   |           |          | S                                     | ip, 1st admission, records selected for each 10-year interval, 1881–2000 | 10 CR       |    | ✓              |
| Gecici et al. (2010)                                       | Turkey                      | 373            | 215     | 158       | NIK   | ✓         |          | DSMIV: S                              | ip, January–April 2008   | IS          |    | ✓              |
| Mohr et al. (2010)   | Switzerland and Canada      | 236            | 150     | 86        | NIK   | ✓         | [✓]      | ICD10: S, S-aff                       | op: May 2003–June 2004 (Geneva); October–December 2006 (Quebec)          | IS          |    | ✓              |
| Suhail and Ghauri (2010)                                   | Pakistan                    | 53             | 40      | 13        | NIK   |           | ✓        | DSMIV: S                              | ip admitted July–December 2007   | IS          |    | ✓              |
| de Araujo Filho et al. (2011)                              | Brazil                      | 29             | 11      | 18        | NIK   |           |          | TLE-MTS with Psy-ep JME with Psy-ep   | op, July 2005–July 2010  | IS          |    | ✓              |
| Huang et al. (2011)  | Taiwan                      | 55             | 22      | 33        | NIK   |           | ✓        | DSMIV: S                              | Day-patients   | IS          |    | [✓] [✓]        |
| Linskey (2011)   | India                       | 50             | 31      | 19        | 18–72 |           | ✓        | DSMIII: S, Aff                        | ip and op  | IS          |    | ✓              |
| Cannon and Kramer (2012)                                   | United States               | 102            | 48      | 54        | NIK   |           |          | S, Par, Mania, Other P                | ip records – randomly sampled by decade                                  | CR          |    | ✓              |
| Krzyszczanek, Krysta, Klasik, and Krupka-Matuszczyk (2012) | Poland                      | 400            | 204     | 196       | 38    |           |          | S                                     | ip, 1932, 1952, 1972 and 1992  | CR          |    | [✓] [✓]        |
| Iyassu et al. (2014)                                       | England                     | 383            | 266     | 117       | 18–65 | ✓         |          | ICD10: S, S-aff, Other P              | Age 18–65 years, drawn from previous studies                             | IS          |    | ✓              |
| Connell et al. (2014)                                      | South Africa                | 73             | 56      | 17        | 25–71 | ✓         |          | S                                     | Convenience sample – participants in previous research                   | IS          |    | ✓              |

Refer Appendix 1 for abbreviations.

Table 2. Empirical studies of religious delusions.

| Publication                                 | Country           | n   | Diagnosis                         | Prevalence of delusions |                   | RD |                          | Definition of RD | Information given about hallucinations |                           |  |     |
|---|-------------------|-----|-----------------------------------|-------------------------|-------------------|----|--------------------------|------------------|--|---------------------------|--|-----|
|   |                   |     |                                   | n                       | % of total sample | n  | % of delusional subjects |                  |  | n (%) of delusional males | n (%) of delusional females  |     |
| Lucas et al. (1962)                         | England           | 405 | S, S-aff, Par                     | 288                     | 71                | 61 | 21.2                     | 15.1             | 23 (18)                                | 38 (24)                   | No information given   |     |
| Rin et al. (1962)                           | Taiwan – Chinese  | 126 | Par                               |                         |                   | 12 | NK                       | 9.5              | 4                                      | 8                         | Content = 'religion and gods'  | [✓] |
|   | Taiwan – Formosan | 94  |                                   |                         |                   | 7  | NK                       | 7.4              | 3                                      | 4                         |  |     |
| Weinstein (1962)                            | Virgin Islands    | 148 | P                                 |                         |                   | 26 | NK                       | 17.6             | 10 (12.0)                              | 16 (24.6)                 | 'Delusions and hallucinations concerning religion ...'   | [✓] |
|   |                   |     |                                   |                         |                   |    |                          |                  |  |                           | 'The majority of these delusions and hallucinations concerned God and Jesus'. Religion reported separately to death (within which beliefs about spirits included) and Obeah (witchcraft) |     |
| Kiev (1963)                                 | England           | 10  | S                                 |                         |                   | 8  | 80                       | 80               | NK                                     | NK                        | No information given   | [✓] |
| Gordon (1965)                               | England           | 112 | S, S-form, Aff, S-aff, Org, PD, N |                         |                   | 44 | NK                       | 39.3             | NK                                     | NK                        | 'Religious delusions and/or religiose colouring'   | [✓] |
| McCabe, Fowler, Cadoret, and Winokur (1972) | United States     | 28  | Good prognosis S                  |                         |                   | 13 | 46                       | 46               | NK                                     | NK                        | No information given   | ✓   |
|   |                   |     |                                   |                         |                   |    |                          |                  |  |                           |  |     |
|   |                   | 25  | Poor prognosis S                  | 19                      | 76                | 6  | 5                        | 25               | NK                                     | NK                        |  |     |
| El Sendiony (1976)                          | Egypt             | 110 | S, Par                            |                         |                   | 44 | 40                       | 40               | 20 (36)                                | 24 (44)                   | 'religious ideology'   |     |
| Ahmed (1978)                                | Pakistan          | 51  | S                                 | 422                     | 50.9              | 25 | 49                       | 49               | NK                                     | NK                        | 'religious content' n = 25<br>'religious and/or magic content' n = 34  |     |
| Kala and Wig (1978)                         | India             | 200 | ICD8: S, Par                      |                         |                   | 31 | 15.5                     | 15.5             | 8                                      | 23                        | 'Magic & religion' Modified from Rin et al. (1962)   | PSE |
| Kala and Wig (1982)                         | India             | 200 | ICD8: S, Par                      |                         |                   | 41 | 20.5                     | 20.5             | 25                                     | 16                        |  |     |
| Ndetei and Singh (1982)                     | Kenya             | 80  | All psych                         | 62                      | 78.4              | 17 | 27.4                     | 21.3             | NK                                     | NK                        | Modified PSE. RD classified as a sub-category of grandiose delusions   |     |

(Continued)

Table 2. (Continued)

| Publication                   | Country  | n     | Diagnosis                     | Prevalence of RD delusions |      | RD n  | % of delusional subjects | % of total sample | % of total sample | n (%) of delusional males | n (%) of delusional females   | Definition of RD | Information given about hallucinations |
|-------------------------------|--|-------|-------------------------------|----------------------------|------|-------|--------------------------|-------------------|-------------------|---------------------------|---|------------------|--|
|                               |  |       |                               | n                          | %    |       |                          |                   |                   |                           |   |                  |  |
| Ndetei and Vadher (1985)      | England  | 593   | All psych                     | 20                         | NIK  | 3.4   | NIK                      | 3.4               | NIK               | NIK                       | 'any religious symptoms regardless of whether they were delusions or just ideas'  |                  |  |
| Cothran and Harvey (1986)     | United States  | 41    | DSMIII: S, Mania              | 13                         | 54.2 | 31.7  | NIK                      | 31.7              | NIK               | NIK                       | 'Subjects were rated as delusional with religious content if they reported at least one delusion over the course of the SADS interview and delusional content included a report of religious state, experience, practice or belief that exceeded SADS/DSM-III criteria for legitimate subcultural experience' |                  |  |
| Kulhara et al. (1986)         | India  | 112   | ICD9: S                       | 14                         | 14.3 | 12.5  | NIK                      | 12.5              | NIK               | NIK                       | PSE   |                  |  |
| Andreassen (1987)             | United States  | 111   | S                             | 34                         | 33.3 | 30.6  | NIK                      | 30.6              | NIK               | NIK                       | SAPS  | [✓]              |  |
| Renvoize and Beveridge (1989) | England  | 118   | All psych                     | 30                         | 34.9 | 25.4  | NIK                      | 25.4              | NIK               | NIK                       | 'religious content'   | [✓]              |  |
| Jablensky et al. (1992)       | Colombia, Czechoslovakia, Denmark, India, Ireland, Japan, Nigeria, United Kingdom, United States, USSR | 1,379 | ICD9: S, Par, Other P, SA, PD | NIK                        | NIK  | ~10.0 | NIK                      | ~10.0             | NIK               | NIK                       | PSE Category 78   |                  |  |
| Kim et al. (1993)             | Korea  | 370   | DSMIII-R: S                   | 93                         | 25.1 | 20.4  | NIK                      | 20.4              | NIK               | NIK                       | 'Religious, supernatural' (Not clear if 'possession' counted separately)  |                  |  |
|                               | China (Korean-Chinese)   | 225   |                               | 0                          | 0    | 0     | NIK                      | 0                 | NIK               | NIK                       |   |                  |  |
|                               | China (Chinese)  | 176   |                               | 2                          | 1.1  | 0.9   | NIK                      | 0.9               | NIK               | NIK                       |   |                  |  |
| Tateyama et al. (1993)        | Germany  | 150   | ICD9: S                       | 32                         | 24.4 | 21.3  | 18                       | 21.3              | 18                | 14                        | No information given  |                  |  |
|                               | Japan  | 324   |                               | 22                         | 7.6  | 6.8   | 12                       | 6.8               | 12                | 10                        |   |                  |  |



Table 2. (Continued)

| Publication                        | Country                       | n           | Diagnosis   | Prevalence of delusions |             | RD   |             | % of total sample |             | % of total sample |                          | Definition of RD                                    | Information given about hallucinations |
|------------------------------------|-------------------------------|-------------|---|-------------------------|-------------|------|-------------|-------------------|-------------|-------------------|--------------------------|---|--|
|                                    |                               |             |   | n                       | % of sample | n    | % of sample | n                 | % of sample | n                 | % of sample              |   |  |
| Azhar et al. (1995)                | Malaysia – Penang (Malay)     | 82          | ICD9: S   | 9                       | NK          | 11   | NK          | NK                | NK          | NK                | PSE                      |   |  |
|                                    | Malaysia – Penang (Chinese)   | 84          |   | 4                       | NK          | 5    | NK          | NK                | NK          | NK                |                          |   |  |
|                                    | Malaysia – Kota Bharu (Malay) | 84          |   | 37                      | NK          | 44   | NK          | NK                | NK          | NK                |                          |   |  |
| Kanemoto et al. (1996)             | Japan                         | 33          | Interictal P                                      | 1                       | NK          | 3    | NK          | NK                | NK          | NK                | SAPS                     | ✓   |  |
|                                    |                               | 30          | Postictal P                                       | 7                       | NK          | 23.3 | NK          | NK                | NK          | NK                |                          |   |  |
|                                    |                               | 25          | Chronic P + CPS                                   | 0                       | NK          | 0    | NK          | NK                | NK          | NK                |                          |   |  |
| Tateyama et al. (1998)             | Japan                         | 324         | ICD9: S   | 22                      | 6.8         |      |             | 12                | (8.4)       | 10                | (6.8)                    | Huber and Gross (1977)                              |  |
|                                    | Austria                       | 101         |   | 92                      | 91.10       |      |             | 9                 | (20)        | 11                | (23.4)                   |   |  |
|                                    | Germany                       | 150         |   | 131                     | 87.30       |      |             | 18                | (30)        | 14                | (19.7)                   |   |  |
| Appelbaum et al. (1999)            | United States                 | 1,136       | DSMIII-R: S, S-form, S-aff, Aff, Other P, SA, PD  | 328                     | 29          |      |             | 93                | 28.4        | 8.2               | NK                       | 'content-based typology based largely on DSM-III-R' |  |
| Stompe et al. (1999)               | Austria                       | 126         | DSMIII-R: S                                       | 27                      | NK          |      |             | 21.4              | NK          | NK                | Huber and Gross (1977)   |   |  |
| Kulhara et al. (2000)              | Pakistan                      | 108         |   | 5                       | NK          |      |             | 4.6               | NK          | NK                |                          |   |  |
|                                    | North India                   | 40          | ICD10: S  | 4                       | 10.8        |      |             | 10                | NK          | NK                | PSE                      | [✓]   |  |
| Raja, Azzoni, and Lubich (2000)    | Italy                         | 313 (cases) | DSMIV: S, S-form, S-aff, Aff, Other P, (patients) | 271                     |             |      |             | 20.1              | 27          | 36                | SAPS item on RD score >1 |   |  |
| Getz, Fleck, and Strakowski (2001) | United States                 | 133         | DSMIV: P  | 45                      | NK          |      |             | 33.8              | NK          | NK                | SAPS item on RD score >1 | ✓   |  |
| Gutiérrez-Lobos et al. (2001)      | Austria                       | 639         | ICD8: S, Aff, Org, Par, N, SA                     | 42                      | 6.6         |      |             | NK                | 15          | (6.3)             | 27                       | (6.8)   | 'religious or metaphysical' [✓]        |

(Continued)

Table 2. (Continued)

| Publication                                   | Country                     | n   | Diagnosis                             | Prevalence of delusions |             | RD  | % of delusional subjects | % of total sample | % of total sample | n (%) of delusional males | n (%) of delusional females | Definition of RD   | Information given about hallucinations |
|---|-----------------------------|-----|---------------------------------------|-------------------------|-------------|-----|--------------------------|-------------------|-------------------|---------------------------|-----------------------------|--|--|
|   |                             |     |                                       | n                       | % of sample |     |                          |                   |                   |                           |                             |  |  |
| Kim et al. (2001)                             | Korea (Seoul)               | 143 | DSMIV: S                              | 599                     | 92.2        | 67  | 47.1                     | NK                | NK                | NK                        | NK                          | 'religious/supernatural' theme<br>'possession' classified separately   |  |
| Siddle, Haddock, Tarrier, and Faragher (2002) | China (Shanghai)            | 147 |                                       |                         |             | 12  | 7.9                      | NK                | NK                | NK                        | NK                          |  |  |
|   | Taiwan (Taipei)             | 140 |                                       |                         | 57          | 41  |                          | NK                | NK                | NK                        | NK                          |  |  |
|   | England                     | 193 | DSMIV: S, S-aff, S-form, Other P      |                         |             | 45  | NK                       | 23.3              | NK                | NK                        | NK                          | PSE + Sims (1995) criteria<br>Algorithm to establish RD  | ✓                                      |
| Suhail and Cochrane (2002)                    | England (White)             | 50  | S, Par, S-aff                         |                         |             | 7   | 14                       | 14                | NK                | NK                        | NK                          | PSE Category 78  | ✓                                      |
| Suhail (2003)<br>Smith et al. (2005)          | England (British-Pakistani) | 53  |                                       |                         |             | 11  | 21                       | 21                | NK                | NK                        | NK                          |  |  |
|   | Pakistan                    | 98  |                                       |                         |             | 11  | 11                       | 11                | NK                | NK                        | NK                          |  |  |
|   | Pakistan                    | 98  | DSMIV: S                              |                         |             | 11  | 11                       | 11                | 9                 | 2                         | 2                           | PSE Category 78  |  |
|   | England                     | 20  | DSMIV: S, S-aff, S-form, Aff, Other P |                         |             | 11  | 55                       | 55                | NK                | NK                        | NK                          | Clinical Assessment in Neuropsychiatry (WHO, 1992)   | [✓]                                    |
| Miller and McCormack (2006)                   | United States               | 77  | DSMIV: S, S-form, S-aff               |                         |             | 36  | NK                       | 46.8              | 53                | 24                        | 24                          | 'false fixed beliefs of a religious nature'<br>36 patients identified in this study had RD 'that significantly affected their functioning'<br>2 categories of RD identified: 'clearly' RD and 'delusions with religious content' | [✓]                                    |
| Rudalevičienė et al. (2008)                   | Lithuania                   | 295 | ICD10: S                              |                         |             | 190 | NK                       | 64.4              | 89 (62.2)         | 101 (66.4)                | 101 (66.4)                  | Semi-structured questionnaire – FPS<br>No information given  |  |
| Brakoulas and Starcevic (2008)                | Australia                   | 90  | S, S-aff, Aff, SA, Other P            | 90                      | 56          | 24  | 26.7                     | 18.5              | NK                | NK                        | NK                          | No information given   |  |
| Skodlar, Dernovsek, and Kocmur (2008)         | Slovenia                    | 120 | S                                     |                         |             | 38  | NK                       | 31.7              | NK                | NK                        | NK                          | No information given   |  |

Table 2. (Continued)

| Publication                   | Country                | n       | Diagnosis                      | Prevalence of delusions |             | RD      | % of total delusional subjects |                          | % of total delusional sample | n (%) of delusional males | n (%) of delusional females  | Definition of RD | Information given about hallucinations |
|-------------------------------|------------------------|---------|--------------------------------|-------------------------|-------------|---------|--------------------------------|--------------------------|------------------------------|---------------------------|--|------------------|--|
|                               |                        |         |                                | n                       | % of sample |         | n                              | % of delusional subjects |                              |                           |  |                  |  |
| Gecici et al. (2010)          | Turkey                 | 373     | DSMIV: S                       | 346                     | 92.8        | 58      | 16.8                           | 15.5                     | 34 (16.8)                    | 24 (16.7)                 | Huber and Gross (1977)   | ✓                |  |
| Mohr et al. (2010)            | Switzerland and Canada | 236     | ICD10: S, S-aff                | 123                     | 52.1        | 38      | 30.9                           | 16.1                     | 27 (71)                      | 8 (29)                    | 'delusions with religious content'   |                  |  |
| Suhail and Ghauri (2010)      | Pakistan               | 53      | DSMIV: S                       |                         |             | 33      | 62.3                           | NK                       | NK                           | NK                        | PSE Category 78  | ✓                |  |
| de Araujo Filho et al. (2011) | Brazil                 | 29      | TLE-MTS + Psy-ep               |                         |             | 4       | 13.8                           | NA                       | NK                           | NK                        | No information given   |                  |  |
| Linskey (2011)                | India                  | 6<br>50 | JME + Psy-ep<br>DSMIII: S, Aff |                         |             | 2<br>16 | 33.3<br>32                     | NA<br>32                 | NK<br>NK                     | NK<br>NK                  | 'religious' ('magical' & 'spirit-possession' classified separately)                        |                  |  |
| Cannon and Kramer (2012)      | United States          | 102     | S, Par, Mania, Other P         |                         |             | 39      | 38                             | 38                       | NK                           | NK                        | No information given   |                  |  |
| Iyassu et al. (2014)          | England                | 383     | ICD10: S, S-aff, Other P       | 383                     | 89.7        | 87      | 22.7                           | 20.5                     | 60                           | 27                        | RD= Item 12 on SAPS: 'The patient is preoccupied with false beliefs of a religious nature' | ✓                |  |
| Connell et al. (2014)         | South Africa           | 73      | S                              | 60                      | 82          | 42      | 70                             | 57.5                     | NK                           | NK                        | After Drinnan and Lavender (2006) and Jones and Watson (1997)                              |                  |  |

Refer Appendix 1 for abbreviations.

North America, whereas only one study included subjects from South America (Colombia).

Only five studies in the sample incorporated some kind of longitudinal analysis. Mitchell and Vierkant (1988) compared patients admitted in 1933–1939 with those admitted in 1986–1987. Skodlar, Dernovsek, and Kocmur (2008) selected case notes from each 10-year period between 1881 and 2000. Similarly, Cannon and Kramer (2011) sampled case notes by decade across the course of the 20th century. These three studies will be discussed further below. In another two studies, RD and RH were not distinguished. Atallah, El-Dosoky, Coker, Nabil, and El-Islam (2001) conducted a longitudinal analysis of case notes in a psychiatric hospital in Egypt across the period 1975–1996 and found peaks of religious symptoms in the mid-1970s to early 1980s and again in the early/mid-1990s. Krzystanek et al. (2012) studied case notes of patients admitted to a neuropsychiatric hospital in Poland in 1932, 1952, 1972 and 1992 and found religious topics identified in delusions and/or hallucinations in 50%, 46%, 49% and 42%, respectively.

Studies of RD (Table 2) have found between 1.1% and 80% of deluded subjects to report at least some religious content in their delusions. More typically, figures between 20% and 60% are reported. However, variable definitions of what counted as religious content were employed. In eight studies, no information at all was given concerning the definitions employed. Themes related to magic, death, spirit possession, witchcraft, the supernatural and so on were sometimes included and sometimes not included. Often it appears that it was taken for granted that what was ‘religious’ should be obvious to both the researcher and reader.

Skodlar et al. (2008) found that the frequency of delusions in Slovenia with religious and magical themes fluctuated during the study period 1881–2000, with low levels observed in the periods 1901–1920 and 1961–1980. Cannon and Kramer (2011) did not find variation in RD across the 20th century in the United States.

There generally seems to be a positive relationship between religiosity and RD. Cothran and Harvey (1986) and Siddle, Haddock, Tarrier, and Faragher (2002) report higher religiosity in those with RD. Getz, Fleck, and Strakowski (2001) report that religious involvement prior to admission predicted severity of RD and that Protestants are significantly more likely to report RD than Roman Catholics. Suhail and Ghauri (2010) report that more religious patients were more likely to have RD. However, Rudalevičienė, Stompe, Narbekovas, Raškauskienė, and Bunevičius (2008) concluded from their multivariate analysis that religiosity does not directly influence the religious content of delusions.

Siddle et al. (2002) reported that patients with RD had higher symptom scores, were functioning less well and were prescribed more medication. Similarly, Raja, Azzoni,

and Lubich (2000) found that patients with RD started neuroleptic treatment earlier, had worse global functioning and more severe psychopathology. However, Mohr et al. (2010) reported that RD were not associated with greater clinical severity, and McCabe, Fowler, Cadoret, and Winokur (1972) found that RD did not distinguish good and poor prognosis groups of patients. Similarly, in a subsequent publication, Siddle, Haddock, Tarrier, and Faragher (2004) reported that in the subjects included in their 2002 study, after 4 weeks of treatment there was no difference in response to treatment between patients who had RD and those who did not.

Studies of RH (Table 3) provide much less quantitative information. In some studies, content of delusions and hallucinations is not distinguished and it is noted only that there is religious content to delusions and/or hallucinations. Only a few studies distinguish between religious themes appearing within the content of auditory verbal hallucinations (AVH) and ascription of a religious identity to the perceived source of the AVH. Very few studies give any significant information on hallucinations in modalities other than the auditory. As with studies of RD, definitions of what counts as ‘religious’ content of hallucinations are variable and often imprecise.

Mott, Small, and Anderson (1965) observed spiritual themes in 18%–26% of AVH. Renvoize and Beveridge (1989) found that 28.6% of patients with hallucinations (which were ‘mainly auditory and visual’) had a religious theme. Atallah et al. (2001) found that only 135 (21.3%) out of 632 patients with religious symptoms had auditory RH. In the same study, 105 (16.2%) had visual RH and 12 (1.9%) had tactile RH. Kim et al. (2001) found religious/supernatural themes in 12.2% of the auditory hallucinations of their Chinese subjects and in 36% of their Korean subjects. Kent and Wahass (1996) found that religious themes were less common in hallucinations experienced by subjects in the United Kingdom than in Saudi Arabia and also less common in third-person voices than in second-person voices. Mitchell and Vierkant (1988) found that command hallucinations more often included religious content in the 1930s than in the 1980s.

Mott et al. (1965) found that 16%–20% of AVH were ascribed to religious personages. Scott (1967) found that 51.8% of AVH in a study in South Africa were ascribed to God. Kim et al. (2001) found that a religious/supernatural identity was ascribed to the source of the voices in 11.9% of their Chinese subjects and 28.5% of their Korean subjects. Suhail and Cochrane (2002) found that 10% ( $n=5$ ) of their White English subjects and 9% ( $n=5$ ) of their British-Pakistani subjects, but only 6% ( $n=6$ ) of their Pakistani subjects living in Pakistan, reported hearing voices which they identified as God. In a sample of 373 patients with schizophrenia in Turkey, Gecici et al. (2010) identified only 15 subjects who heard voices that they believed to be from God, 10 who heard the voice of the

Table 3. Empirical studies of religious hallucinations.

| Publication                                 | Country                          | Study subjects |         | Diagnosis | Prevalence of hallucinations      |    | Definition of RH | Information given about hallucinations   | RD (% of total sample)   |      |
|---|----------------------------------|----------------|---------|-----------|-----------------------------------|----|------------------|--|--|------|
|   |                                  | Total, n       | Male, n |           | Female, n                         | n  |                  |  |  | %    |
| Rin et al. (1962)                           | Taiwan – Chinese                 | 126            | 52      | 74        | Par                               | 56 | AH               | Content = 'religion and gods' – no distinction made between delusions and hallucinations   | Symptom content 'not so fluently expressed in hallucinations as in delusions'  | 9.5  |
| Weinstein (1962)                            | Taiwan – Formosan Virgin Islands | 94             | 45      | 49        | P                                 | 52 | AH               | 'Delusions and hallucinations concerning religion ...'<br>'The majority of these delusions and hallucinations concerned God and Jesus'. Religion reported separately to death (within which beliefs about spirits included) and Obeah (witchcraft) | Content of RD and RH not distinguished in this study   | 7.4  |
| Kiev (1963)                                 | England                          | 10             | NK      | NK        | S                                 |    |                  | NA   | 'Most' RD accompanied by 'hallucinatory commands to preach and heal ...'   | 80   |
| Mott, Small, and Anderson (1965)            | United States                    | 50             | 14      | 36        | S                                 | 33 | 66               | Spiritual theme = 'seeing dead relatives, visions of spirits, etc'<br>Ascribed identity or sources = 'religious personages'  | n = 9 (18%) spirituality a major theme<br>n = 8 (16%) ascribed to religious personages   | NK   |
| Gordon (1965)                               | England                          | 50             | 44      | 6         | SA (alcoholic)                    | 38 | 76               |  | n = 12 (24%) spirituality a major theme<br>n = 10 (20%) ascribed to religious personages<br>n = 13 (26%) spirituality a major theme<br>n = 6 (12%) ascribed to religious personages      | NK   |
| Scott (1967)                                | South Africa                     | 112            | 61      | 51        | S, S-form, Aff, S-aff, Org, PD, N |    |                  | No information given   | 'religiose content was usually associated in the schizophrenics with auditory, and often visual, hallucinations, the patients frequently seeing visions and receiving commands from God' | 39.3 |
| McCabe, Fowler, Cadoret, and Winokur (1972) | United States                    | 100            | 0       | 100       | P                                 | 85 | 85               | No information given   | 44/85 = 51.8% ascribed to God  | NK   |
|   |                                  | 28             | 8       | 20        | Good prognosis S                  | 52 | AH               | No information given   | More likely to have VH ( $p < .01$ )   | 46   |

(Continued)

Table 3. (Continued)

| Publication                    | Country       | Study subjects |         | Diagnosis | Prevalence of hallucinations   |    | Definition of RH | Information given about hallucinations   | RD (% of total sample) |
|--------------------------------|---------------|----------------|---------|-----------|--|----|------------------|--|------------------------|
|                                |               | Total, n       | Male, n |           | Female, n  | n  |                  |  |                        |
| Littlewood and Lipsedge (1981) | England       | 25             | 10      | 15        | Poor prognosis S, Aff, Par, Other P, PD                                      | 36 | 36               | 36   | 25                     |
|                                |               | 244            | NK      | NK        |  |    |                  | More likely to have 'Special types' of AH and haptic hallucinations ( $p < .05$ )<br>None  | NK                     |
| Andreassen (1987)              | United States | 111            | NK      | NK        | S  | 83 | 75               | 75   | 30.6                   |
| Mitchell and Vierkant (1988)   | United States | 150            | 89      | 61        | Delusions and hallucinations reported in files                               |    |                  | Voices commenting – 58%<br>Voices conversing – 57%<br>Perceived source of AVH include God (16), Holy Ghost/spirits (5), angels<br>Perceived source of AVH include God (3), devils/demons (9), the 'Trinity', Matthew (of scriptures)   | NK                     |
| Renvoize and Beveridge (1989)  | England       | 118            | 54      | 64        | RDC: S, Aff, Other   | 28 | 24               | 'religious theme'  | 25.4                   |
| Brewerton (1994)               | Hawaii        | 50             | 31      | 19        | DSMIII-R: S, S with temporal lobe EEG abnormalities, Aff, P secondary to CPS |    |                  | 'clearly noted religious themes as part of the delusions and/or hallucinations'<br>Religion defined according to Webster's Dictionary: 'belief in a divine or superhuman power or powers to be obeyed and worshipped' or 'any specific system of belief, worship, conduct, etc, often involving a code of ethics and a philosophy'<br>No information given | NK                     |
| Kanemoto et al. (1996)         | Japan         | 33             | 18      | 15        | Interictal P   |    |                  | n = 9 voices commenting<br>n = 12 other AH   | 3                      |
|                                |               | 30             | 17      | 13        | Postictal P  |    |                  | n = 6 somatic/tactile hallucinations<br>n = 1 voices commenting<br>n = 3 other AH<br>n = 5 somatic/tactile hallucinations<br>n = 8 voices commenting<br>n = 11 other AH<br>n = 3 somatic/tactile hallucinations  | 23.3                   |
|                                |               | 25             | 17      | 8         | Chronic P + CPS  |    |                  |  | 0                      |

Table 3. (Continued)

| Publication   | Country          | Study subjects | Diagnosis | Prevalence of hallucinations |  | Definition of RH   | Information given about hallucinations   | RD (% of total sample) |
|---|------------------|----------------|-----------|------------------------------|--|--|--|------------------------|
|   |                  |                |           | Total, n                     | Type                                   |  |  |                        |
| Kent and Wahass (1996)                                | Saudi Arabia     | 40             | NIK       | NIK                          | ICD10: S                               | Religious themes = 'relationship between the patient and his god, eg instructions to read a holy book, chastisement after death, or mention of paradise'   | Second-person voices 53% religious   | NIK                    |
|   |                  | 35             | NIK       | NIK                          |  | Superstitious content = 'mention of demons, magic and spirits'   | Third-person voices 33% religious  |                        |
|   |                  |                |           |                              |  | No information given   | Second-person voices 11% religious   |                        |
| Kulhara et al. (2000)                                 | North India      | 40             | 19        | 21                           | ICD10: S                               |  | 70% hallucinated   | 10                     |
|   |                  | 5,275          | NIK       | NIK                          | S, S-aff, Aff                          | 'Religious symptoms' defined as all symptoms with religious content, including 'everything from increased praying or reading religious books, increased religiosity, spending all one's time in the church or mosque, to believing oneself to be (or be married to) a religious figure, on a religious mission to save the world, and so on. In addition, supernatural beliefs such as black magic (A'mal), demon possession, or the evil eye were included' | No information on content  | NIK                    |
|   |                  |                |           |                              |  |  | n = 135/632 patients with religious symptoms (21.3%) had auditory RHs, 105 (16.62%) had visual RHs and 12 (1.9%) had tactile RHs |                        |
| Atallah, El-Dosoky, Coker, Nabil, and El-Islam (2001) | Egypt            | 71             | 42        | 29                           | DSMIV: P                               | No information given   | SAPS Hallucination Score = 3.4   | 43                     |
|   |                  | 29             | 18        | 11                           |  |  | SAPS Hallucination Score = 3.6   | 20.7                   |
|   |                  | 33             | 22        | 11                           |  |  | SAPS Hallucination Score = 3.2   | 24.2                   |
| Gutiérrez-Lobos et al. (2001)                         | Austria          | 639            | 239       | 400                          | ICD8: S, Aff, Org, Par, Other P, N, SA | NA   | Mean age for 1st hearing voices 44.4 years   | NIK                    |
|   |                  | 182            | 119       | 63                           | DSMIV: S                               | 'Religious/supernatural themes'  | 12 (11.9%) AH with supernatural/religious identity   | NIK                    |
| Kim et al. (2001)                                     | China (Shanghai) |                |           |                              |  |  | 12 (12.2%) AH with religious/supernatural theme  |                        |

(Continued)

Table 3. (Continued)

| Publication                                   | Country                     | Study subjects |         | Diagnosis | Prevalence of hallucinations |           | Definition of RH | Information given about hallucinations  | RD (% of total sample) |
|---|-----------------------------|----------------|---------|-----------|------------------------------|-----------|------------------|---|------------------------|
|   |                             | Total, n       | Male, n |           | Female, n                    | n         |                  |   |                        |
|   |                             | 214            | 125     | 89        | 130                          | 61        | Any              |   |                        |
|   | Korea (Seoul)               |                |         |           |                              |           |                  | 37 (28.5%) AH with supernatural/religious identity<br>41 (36%) AH with religious/supernatural theme   |                        |
| Siddle, Haddock, Tarrier, and Faragher (2002) | England                     | 193            | 135     | 58        | 128                          | 60        | 60 AH<br><50 AH  | Over 50% of the sample reported no AH<br>RD most commonly secondary to hallucination<br>RD more likely to indicate more certainty in an external cause for their voices than an internal cause<br>Voice of God: 5 (10%) | 23.3                   |
| Suhail and Cochrane (2002)                    | England (White)             | 50             | 38      | 12        | 44                           | 88        | AVH              | Voices identified as God  | 14                     |
|   | England (British-Pakistani) | 53             | 31      | 22        | 13                           | 26        | VH               |   |                        |
|   | Pakistan                    | 98             | 48      | 50        | 38                           | 72        | AVH              | Voice of God: 5 (9%)  | 21                     |
|   |                             |                |         |           | 13                           | 24        | VH               | Voice of God: 6 (6%)  | 11                     |
|   |                             |                |         |           | 51                           | 52        | AVH              |   |                        |
|   |                             |                |         |           | 6                            | 6         | VH               |   |                        |
| Smith et al. (2005)                           | England                     | 20             | 14      | 6         | 7                            | 35        | AH               | Clinical Assessment in Neuropsychiatry (WHO, 1992)  | 55                     |
|   |                             |                |         |           |                              |           |                  | n = 7 had AH  |                        |
| Gecici et al. (2010)                          | Turkey                      | 373            | 215     | 158       | 236                          | 63        | AH               | AVH classified according to source (God/Prophet/Devil)<br>VH classified according to object seen (Prophet, Devil, God, saint)<br>No information given   | 15.5                   |
|   |                             |                |         |           |                              |           |                  | n = 15 voices from God, n = 10 voices from the Prophet, n = 9 voices from the Devil (VH n = 9, n = 11, n = 10 respectively)<br>More/less religious patients did not differ on AVH (65% vs 76%)                          |                        |
| Suhail and Ghauri (2010)                      | Pakistan                    | 53             | 40      | 13        | 74                           | AVH       |                  | VH of spirits/ghosts/jinee/holy – n = 3 (12%) in less religious group and n = 14 (50%) in more religious group  | NIK                    |
|   |                             |                |         |           | 59                           | VH        |                  |   |                        |
|   |                             |                |         |           | 55                           | Olfactory |                  |   |                        |



Table 3. (Continued)

| Publication   | Country | Study subjects |           | Diagnosis                   | Prevalence of hallucinations |     | Definition of RH | Information given about hallucinations  | RD (% of total sample) |
|---|---------|----------------|-----------|-----------------------------|------------------------------|-----|------------------|---|------------------------|
|   |         | Total, n       | Female, n |                             | n                            | %   |                  |   |                        |
| de Araujo Filho et al. (2011)                             | Brazil  | 29             | 18        | TLE-MTS with Psy-ep         | 29                           | 100 | Any              | None  | NA                     |
| Huang et al. (2011)                                       | Taiwan  | 6              | 2         | JME with Psy-ep<br>DSMIV: S | 6                            | 100 | Any              | 7 (12.7%) of total sample had 'psychopathology with religious content' (RD, RH or ritual behaviour)<br>RD/RH related to higher religiosity<br>RD/RH associated with lower satisfaction with psychiatric therapy and received more magico-religious healing<br>None specifically | NK                     |
| Krzysztańek, Krysta, Klasik, and Krupka-Matuszczyk (2012) | Poland  | 400            | 196       | S                           |                              |     |                  | 'symptoms with religious content'<br>Thematic groups = the Holy Trinity, the Virgin Mary, the Bible, saints, religious imagery, church and names of deities   | NK                     |
| Iyassu et al. (2014)                                      | England | 383            | 117       | ICD10: S, S-aff, Other P    | 248                          | 65  | Any              | RD group scored more highly on hallucinations   | 20.5                   |

Refer Appendix I for abbreviations.

prophet Mohammed and 9 who heard voices from the devil.

The relationship between RD and RH seems to have received surprisingly little attention. In a small and early study of West Indian immigrants in London, Kiev (1963) reported that 'most' RD were accompanied by 'hallucinatory commands to preach and heal ...' In a similar but larger early study, Gordon reported that

The religious content was usually associated in the schizophrenics with auditory, and often visual, hallucinations, the patients frequently seeing visions and receiving commands from God.

Suhail and Ghauri (2010) report that more religious patients are both more likely to experience RD and to hear voices of 'paranormal agents'. Siddle et al. (2002) report that RD occur most commonly secondary to RH. Iyassu et al. (2014) reported that 75.9% of those with RD and 61.7% of those with other delusions had 'anomalous experiences' (by which they meant hallucinatory experiences in any modality).

## Discussion

Religious content of delusions and hallucinations would appear to be relatively common, and yet there is a lack of agreed definition as to where the boundaries of what is truly 'religious' lie. Even where standardised instruments such as the Present State Examination (PSE) or Scale for the Assessment of Positive Symptoms (SAPS) have been used, much is left to the discretion of the researcher. The lack of definition provides further cause for concern where, in some studies, little or no attention appears to have been paid to the religious affiliation or context of the research subjects. In the case of RH, only a few studies have distinguished between content and identity or source of AVH. All of this raises the important question of what properly constitutes 'religious' content of delusions and/or hallucinations.

To take a narrower view of things, it might be argued that religious content should be understood to reflect or refer to traditional religious beliefs, persons or stories. Thus, references to 'sin' (as opposed to more general concerns of morality), divinity, resurrection or reincarnation, and witchcraft would all appear to qualify as religious, as would references to figures such as Buddha, Jesus or Mohammed. However, much traditional religious belief has now become detached from its original context and is upheld by those who follow newer spiritual paths which they may determine as 'spiritual but not religious'. For example, spirit possession is a feature of various religious traditions, including the major monotheistic faiths, but interaction with spirits of various kinds is also seen in the so-called New Age spiritualities. References to the supernatural, superstition, magic and voices of (or delusions concerning) the dead are similarly ambiguous.

To broaden the category of interest to 'spiritual' (rather than religious) would be in danger of making the boundaries even more blurred. However, definitions of spirituality generally encompass relatively few subsidiary concepts (Cook, 2004), and these might prove to be more helpful categories for future research. For example, delusions might be classified according to whether they refer to immanent or transcendent relationships. (Immanent relationships refer to those with people and things in the natural order and transcendent relationships to those with a non-material, spiritual or divine order understood as being above and beyond the natural. For further discussion, see Cook, 2013.) As Koenig, King, and Carson (2012) have pointed out, definitions of religion and spirituality commonly emphasise broadly transcendent over immanent concerns (although see also Cook (2013)). Similarly, content might be classified according to reference to matters of meaning or purpose in life, concepts of life-force or soul, ultimate concerns and other deeply held values, all of which may reflect either religious concerns or spiritual-but-not-religious concerns, or perhaps both of these or neither of these.

An important difference between delusions and hallucinations is that delusional thought (with the important exception of thought insertion) is generally owned as ego-syntonic. Hallucinations are identified as originating from external agency, and so the source or identity of that agency becomes a separate, albeit related, concern to the matter of the content of the hallucination. Few studies to date have clearly or carefully addressed this important distinction, and the identity of AVH has often not been clarified. Thus, for example, the author once encountered a patient who reported what appeared to be an olfactory hallucination of the smell of rotting meat, which in itself is not a religious theme. However, taken in the whole context of the clinical history, and in particular of a delusional belief that she was demon-possessed, this hallucination had clear religious significance and was attributed by the patient to the activity of evil spirits.

It is therefore not immediately apparent that there is a simple answer as to how RD/RH should be defined, but it is clear that better characterisation and description of terms within future research will be important. It would also appear likely that the prevalence of RD and RH may have been underestimated in at least some studies.

Notwithstanding these concerns, the frequency of occurrence of RD and RH does clearly appear to vary widely with time and place. In most cases, as in the comparisons between Saudi Arabia and the United Kingdom (Kent & Wahass, 1996) or Korea and China (Kim et al., 2001), it would appear likely that this reflects an influence of culture and environment on the individual. The work of Suhail and Cochrane (2002) suggests that the culture in which one lives may be more important than country of

origin in determining whether or not the source of RH is identified as being from God.

However, within any given environment, and notwithstanding the findings of Rudalevičienė et al. (2008), it might also be expected that personal religiosity would also play a part. Thus, personal beliefs that precede any illness, disorder or disturbance would be expected to contribute to shaping the content of psychopathology.

Some support for the impact of personal religiosity may be found in other published research. In normal volunteers without mental illness who are subjected to a primed word-detection task, subjects high in religiosity are more likely to report false perception with religious content than are those low in religiosity (Reed & Clarke, 2014). In a study of 1,006 subjects with schizophrenia, undertaken across six different countries, 15.5% of Roman Catholics, but only 3.8% of Muslim patients, reported delusions of guilt, suggesting that religious confession may influence delusional content independently of culture (Stompe et al., 2006). On the other hand, qualitative research involving subjects with RD suggests that it is clearly possible to be influenced by religious beliefs without considering oneself to be religious (Drinnan & Lavender, 2006, p. 326).

It must also be the case that the content of primary psychopathology itself plays an important part in shaping the content of other psychopathology. Very few studies appear to have addressed this, but where they have given the matter attention it appears to be agreed that the content of RH is often the primary basis for forming secondary RD. In principle, there would seem to be no reason to suppose that the reverse relationship might not also occur – that is, that the religious content of delusions is determinative of the religious content of hallucinations. More research on this would appear to be needed.

Notwithstanding reports in the German literature (Stompe et al., 2003) that RD are less common than formerly, it is not entirely clear that they are in continued or consistent decline in the 20th and 21st century studies included in the present review. The retrospective case note studies included in the present review showed a fluctuating rather than inexorably declining prevalence of RD. Furthermore, if we observe in Table 2 the proportion of delusional subjects reporting RD in studies undertaken in any one country (e.g. the United States or the United Kingdom) over the last 50 years or so, we do not gain a clear picture of steady decline but rather of fluctuation.

The research findings considered here suggest that religious content of delusions and hallucinations, and the perceived source of RH, may not always be identified in clinical practice. More careful enquiry into the relationship between faith (or spirituality) and psychopathology might elicit a fuller understanding of the patient's beliefs and experiences. This may be important in helping patients to feel more fully

understood and, if handled sensitively, in building trust. In some cases, it may also have diagnostic significance.

Given that we now know that voices are heard in religious contexts which are not necessarily associated with major mental illness and that some voice hearers appear to derive benefit from dialogue with their voices (Luhmann, 2012a), the question arises as to whether or not engagement of dialogue with RH might be helpful in the course of treatment.

## Conclusion

RD and RH are commonly encountered in major mental illness, albeit prevalence varies according to time, place and personal religiosity. Comparisons between studies, and accurate estimates of prevalence, are hampered by lack of clear working definitions of exactly what constitutes a 'religious' delusion or hallucination and also by failure to obtain data on religious affiliation of research subjects. There is need for more critical attention to these issues in research design, and it is proposed here that a focus on transcendent concerns may well prove fruitful for future research, especially within multi-ethnic groups, and in other contexts where there is a plurality of religious belief and affiliation. Study of RH has especially been neglected, and more attention needs to be paid in future research to hallucinatory experiences in all modalities, rather than focusing almost exclusively on AVH, to distinguish between the content of the hallucination and its believed source or identity and to establish whether the RD or RH constitute the primary source of religious themes.

## Funding

The author is pleased to acknowledge funding from a Wellcome Trust Strategic Award (WT098455MA).

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**Appendix I****Abbreviations**

|           |  |       |  |
|-----------|--|-------|--|
| Aff       | affective disorder                                 | op    | out-patients   |
| All psych | all psychiatric diagnoses                          | CR    | case record study  |
| CPS       | complex partial seizures                           | IS    | interview study  |
| JME       | juvenile myoclonic epilepsy                        | AH    | auditory hallucinations  |
| MTS       | mesial temporal sclerosis                          | AVH   | auditory verbal hallucinations   |
| N         | neurosis   | NA    | not applicable   |
| Org       | organic psychosis                                  | NK    | not known  |
| Other P   | other Psychosis                                    | PICU  | psychiatric intensive care unit  |
| Par       | paranoid psychosis                                 | RD    | religious delusions  |
| P         | psychosis (any/all – unless otherwise specified)   | RH    | religious hallucinations   |
| P-CPS     | psychosis secondary to complex partial seizures    | VH    | visual hallucinations  |
| PD        | personality disorder                               | FPS   | Fragebogen fur Psychotische Symptome   |
| Psy-ep    | psychosis of epilepsy                              | PANSS | Positive and Negative Symptom Scale  |
| S         | schizophrenia                                      | PSE   | Present State Examination  |
| S-aff     | schizoaffective disorder                           | SADS  | Schedule for Affective Disorders and Schizophrenia                               |
| S-form    | schizophreniform disorder                          | SAPS  | Scale for the Assessment of Positive Symptoms                                    |
| SA        | substance abuse                                    | DSM   | <i>Diagnostic and Statistical Manual of the American Psychiatric Association</i> |
| S-TEEG    | schizophrenia with temporal lobe EEG abnormalities | ICD   | International Classification of Diseases   |
| TLE       | temporal lobe epilepsy                             | RDC   | Research Diagnostic Criteria   |
| ip        | in-patients  | ✓     | Information provided in the publication  |
|           |  | [✓]   | Some information provided in the publication                                     |