The Two Faces of First-Rank Symptoms

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Keywords

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Abstract

Recently, there has been renewed interest in Schneider's first-rank symptoms (FRS) of schizophrenia, thanks in part to a meta-analysis of their diagnostic accuracy, which deserves much credit for its methodological rigor. Conceptualising FRS as a diagnostic test whose performance can be measured in terms of sensitivity and specificity involves some issues that require reflection. First, the full adequacy of sensitivity as a measure of diagnostic accuracy for FRS might be questioned. However, it is conceptually acceptable, though FRS are at a disadvantage as compared with many other psychiatric "diagnostic tests" that should have perfect sensitivity under ideal conditions. Also, from a psychopathological perspective it may well be argued that FRS cannot be conceptualised as a simple, inexpensive diagnostic test suitable for screening purposes; however, the history of the concept reveals some reasons why it may be legitimate to view them this way. While no other relevant study has appeared after the publication of the meta-analysis, data on a further 166 patients from a study that could not be included due to incompletely reported data were located. This brought the total to 4,236 patients from 17 studies on the ability of FRS to differentiate schizophrenia from other psychoses. The resulting summary estimates of sensitivity, specificity and pos-

itive and negative likelihood ratios are 60.2%, 75.9%, 2.50, and 0.52, respectively. FRS have a kind of double nature, as they can be legitimately considered as belonging to both a sophisticated framework grounded in phenomenological psychopathology and an eminently pragmatic framework grounded in clinical epidemiology. When FRS are conceptualised as simple clinical indicators that require low levels of inference, the available estimates of their diagnostic accuracy are a fairly valid appraisal of their performance and usefulness, and suggest that FRS have some value in differential diagnosis. However, when FRS are conceptualised as profoundly anomalous experiences that can be properly identified and evaluated only by using a phenomenological approach, these estimates can hardly be seen as a valid evaluation of their diagnostic significance. Phenomenologically informed studies are needed to address this research gap.

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Introduction

In the second half of the twentieth century, Schneider's first-rank symptoms (FRS) of schizophrenia have been at the centre of debates on the definition of schizophrenia and its diagnostic boundaries. In the last decades, FRS has continued to attract interest from fields such as neuropsychology and neurobiology, in which some of these symptoms are viewed as holding the key to further the understanding of the biological underpinnings of this complex disorder [1–3].

However, as far as psychiatric nosology is concerned, there has been a trend in international classification systems to downplay their diagnostic value. On the one hand, the DSM-5 has eliminated the special treatment of FRS, which in previous versions of the manual from the DSM-III onwards were subsumed under the constructs of bizarre delusions and “special” hallucinations and carried particular weight for the diagnosis of schizophrenia [4]. On the other hand, the ICD-11 does not include anymore a complete list of FRS in the description of schizophrenia, although it explicitly mentions “disturbances in self-experience” among the characteristic clinical features, and it acknowledges that “experiences of influence, passivity, or control are considered as core symptoms” [5].

Nevertheless, in recent years there has been renewed interest in their clinical value. A recent paper has called for the preservation of Schneider’s legacy [6] and expressed concern for the anticipated decision to cease to list in the ICD system some FRS such as delusional perception or “specific” complex hallucinations, and proposed to continue to mention FRS among the diagnostic criteria for schizophrenia. A pivotal role in this resurgence of interest in FRS has been played by the recent publication of a systematic review and meta-analysis [7, 8], which identified 21 studies suitable to be included in qualitative and quantitative synthesis, of which 16 reported results specifically concerning the differential diagnosis between schizophrenia and other psychotic disorders. The latter studies involved 4,070 participants and yielded a summary sensitivity and specificity of 58 and 76.7%, respectively. The authors concluded that although FRS cannot be recommended as a diagnostic test on its own for schizophrenia, they “remain a simple, quick and useful clinical indicator for an illness of enormous clinical variability” [7]. Commenting these results, some scholars agreed that FRS are of limited usefulness to detect schizophrenia due to their low sensitivity, while noting that their acceptable specificity suggested that they may still be helpful in differential diagnosis [6].

The Conceptualisation of FRS as a Diagnostic Test

On the one hand, the formal examination by meta-analysis of the operating characteristics of FRS as a “diagnostic test” deserves much credit both for its methodological rigor and for having sparked renewed interest in a concept, such as FRS, of enormous psychopathological importance. On the other hand, it should be noted that

the meta-analytic estimation of the diagnostic accuracy of FRS puts them in a particular conceptual framework concerning their significance, nature, and assessment. Such an approach treats FRS strictly as a diagnostic test whose performance can be conventionally measured in terms of sensitivity and specificity, basically a sort of screening test as they have been described as “a simple, quick clinical indicator” [7], though “not useful to detect schizophrenia due to their low sensitivity” [6].

This way of approaching the subject involves a couple of issues that would benefit from further reflection, namely, the appropriateness of sensitivity as a measure of diagnostic accuracy for FRS, as well as the conceptualisation of FRS as a simple and inexpensive diagnostic test suitable for screening purposes. This paper will first examine these issues, and then provide some reasons why FRS have a kind of double face, as they can be reasonably seen as belonging to both a sophisticated framework grounded in phenomenological psychopathology and an eminently pragmatic framework grounded in clinical epidemiology and involving operational definitions and diagnostic accuracy measures.

Issues in the Use of Sensitivity as a Measure of Accuracy for FRS

There might be reasons not to view sensitivity as a fully appropriate measure of accuracy for FRS. Many mental health screening instruments are expected to have, under perfect conditions, 100% sensitivity, as they include the diagnostic criteria for the condition that is screened for. For instance, the depression screening module of the Patient Health Questionnaire (PHQ) consists of nine items, each evaluating one of the DSM-IV criteria for major depressive episode [9]; similarly, the Primary Care Screener for Affective Disorders (PC-SAD) maps each DSM-IV criterion for major depressive episode with multiple items [10]. To be honest, such a high level of sensitivity is usually not achieved in practice [11, 12]. However, it is expected that, in ideal conditions, when all questions are understood and answered correctly, sensitivity would be 100%. A similar line of reasoning applies not only to screening instruments but also to many psychiatric diagnostic interviews.

FRS, on the other hand, are a priori expected not to have perfect sensitivity, because Kurt Schneider never claimed that they were present in all cases of schizophrenia over the entire course of the disease. He simply stated that when FRS “undeniably are present, and no un-

derlying somatic illness can be detected, we speak clinically in all modesty of schizophrenia” [13]. Indeed, he clearly explained that the diagnosis has often to be made in their absence: “We often have to base our diagnosis of schizophrenia on the second-rank symptoms, in exceptional cases now and then even merely on expressional (behavioural) symptoms, provided they are adequately distinct and are present in large numbers” [13]. Subsequent research corroborated the notion that FRS are not present in all cases of schizophrenia, even if a long time window is considered. In a large, prospective German study, FRS were observed in 77% of 502 patients [14]. Similarly, an Australian study on 857 patients with schizophrenia reported a lifetime prevalence of 80.5% for FRS [15].

Technically speaking, a diagnostic test assesses the likelihood that members of a defined population have a particular disease. From this perspective, the use of sensitivity as a diagnostic accuracy measure for FRS cannot be questioned, since, in the broader field of medicine, there are tests or procedures that are commonly used as screening tests and are not really expected to yield 100% sensitivity even under perfect conditions, such as clinical breast examination and mammography for breast cancer, or the Pap smear for cervical cancer. For instance, we can predict with certainty that in some patients with early breast cancer the lesion would still be so small that it would not be detected by palpation or even radiography.

Nevertheless, even if using sensitivity as a measure of diagnostic accuracy for FRS is conceptually acceptable, it should be recognised that the fact that FRS are expected to be found, even under perfect assessment, only in a portion of patients with schizophrenia implies that in terms of sensitivity they are at a disadvantage as compared with many other psychiatric “diagnostic tests” that are expected to yield 100% sensitivity under ideal conditions. This issue should be kept in mind in order to put the estimates of sensitivity for FRS in the proper light.

FRS as a Simple and Inexpensive Clinical Tool

A Psychopathological Perspective

The commonly cited desirable characteristics of screening tests are safety, acceptability, simplicity, and low cost [16]. It may be reasonably argued that FRS do not possess at least some of these characteristics, such as simplicity and low cost. Indeed, from a psychopathological perspective, it is quite difficult to endorse the view that

the assessment of FRS is simple and inexpensive. More than 60 years ago, it was noted that the diagnostic value of FRS depended on them being elicited in a psychopathological context [17], where they are not considered in isolation from each other as individually self-sufficient indicators of schizophrenia, but rather are regarded as meaningfully related aspects of a global change in the patient’s structure of consciousness. Indeed, Schneider himself warned that “what the patients themselves tell us about their experience needs the closest scrutiny and ascertainment beyond any doubt. Secure data only can be used. There is always the question whether what we believe to have grasped corresponds to what has really been experienced” [18].

From this perspective, it looks questionable to assume that simply asking the patient whether a given symptom, expressed by a simple question, is present or not would represent a valid assessment of complex disorders of self-experience, such as those indicated by Schneider as specific for schizophrenia. Mental symptoms, and especially puzzling and complex ones like FRS, while likely being expressions of a biological signal, are personalised interpretations of often blurred experiences, shaped by a dialogical negotiation between the patient and the clinician, rather than thing-like objects [19, 20]. It has been stated that without a reasonable amount of expertise in psychopathology, the findings of an assessment of FRS would “mean no more than a report on his auscultative findings on abnormal heart sounds by someone without knowledge and experience in cardiology” [21]. The best way to capture the Gestalt underlying FRS, which is constitutive of their diagnostic significance, is indeed to have a skilled mental health clinician perform a phenomenologically informed psychiatric interview [22].

The importance of a phenomenological approach to the assessment of FRS, together with the fact that a phenomenologically informed clinical interview is neither simple nor inexpensive, casts doubt on the appropriateness of conceiving FRS as a sort of screening test, whose performance in terms of sensitivity and specificity can be estimated in order to determine their usefulness.

A Historical Perspective

However, a careful look at the history of the concept of FRS reveals some reasons why it may be legitimate to view them also as a diagnostic test, possibly suitable for screening purposes.

First, Schneider offered FRS simply as a helpful pragmatic standard [23] and refrained from speculating about possible common features of these symptoms that could

account for their frequent association with schizophrenia, and from providing a philosophical formulation for them. This is particularly notable given that Kurt Schneider was a very cultured man, who not only graduated in medicine but also earned a philosophy degree under Max Scheler. His work heavily relied on Jaspers' phenomenological psychopathology. Schneider dedicated to Jaspers his philosophical dissertation, and carried on a prolonged correspondence with him, spanning over 30 years [24]. However, he did not select FRS for theoretical reasons regarding the nature of schizophrenia or a supposed structural priority of these symptoms with respect to other symptoms, but simply on the basis of a clinical, empirical observation of their relatively specific occurrence in that disorder: "these schizophrenic symptoms are entirely devoid of any theory and are intended purely pragmatically-diagnostically" [25]. In 1949, he published a paper [26] in which he highlighted loss of *Meinhaftigkeit* ("myselfness") as a theme common to many FRS, but he did not mention any philosophical work in support of this assertion [27]. In a similar vein, in *Klinische Psychopathologie* he wrote: "We are far from being able to presume a common structure for all these symptoms of first-rank importance" [13].

Also, there is reasonable ground to believe that Schneider viewed FRS as clinical manifestations that could be relatively easily elicited and evaluated, possibly even by healthcare workers other than psychiatrists. He used the term "First-Rank Symptoms" for the first time at a conference in Berlin in 1938. Then, the following year he mentioned FRS in a monograph titled *Psychischer Befund und psychiatrische Diagnose* ("Mental State Findings and Psychiatric Diagnosis") [28]. This booklet appeared in three editions between 1939 and 1944, and in 1946 found its way into *Beiträge zur Psychiatrie* ("Contributions to Psychiatry") [29]. This extremely successful textbook ran through nine editions, and from the third edition in 1950 onwards was renamed *Klinische Psychopathologie* ("Clinical Psychopathology") [30]. What is surprising about *Psychischer Befund und psychiatrische Diagnose* is that this booklet was written not for psychiatrists, but for general practitioners. In the introduction, Schneider [28] wrote:

To publish a short and scientifically not particularly high-browed article as a monograph requires justification. My justification is this: I hope that I can achieve my intention better than by getting it out in a journal. I intend to help the general practitioner in making a psychiatric diagnosis. These guidelines aim at those psychiatric diagnoses where the general practitioner depends completely on psychopathological symptoms, i.e., schizophrenia

and cyclothymia. It is my experience that general practitioners very frequently overlook exactly those diagnoses. I want to point out at least the most frequent errors occurring when psychopathological phenomena are to be elicited and used for making a psychiatric diagnosis. At the end of this monograph, I attempt to establish a rank order of psychopathological symptoms, which might also be of interest to psychiatrists.

The latter statement is quite remarkable, and it provides a further suggestion that Schneider, at least in 1939, seemed to view FRS as clinical manifestations that could be relatively easily elicited and evaluated by non-psychiatrists. In later years, too, he did not appear to have substantially changed his mind, as in *Klinische Psychopathologie* he wrote: "One might perhaps add yet others to this list of schizophrenic first-rank symptoms. We prefer, however, to limit ourselves to those which conceptually and in the clinical examination can be ascertained without too much difficulty" [13].

The pragmatic emphasis of Schneider and his preference for symptomatic criteria that require low levels of inference and are likely more reliable might be better understood in a historical context. It has been highlighted that Schneider conceived his notion of FRS in a time when receiving a diagnosis of schizophrenia in Germany had dreadful consequences [6] for health and even life [31, 32]. During the 1930s and early 1940s, in a difficult age [33], Schneider kept himself distant from politics and declined the offer of several professorships in protest against the government [34]. From this perspective, his striving towards diagnostic reliability and his cautious approach to the diagnosis of schizophrenia, based on symptoms that are directly reported by the patients [6] and unequivocally cross the boundary separating illnesses of a given level of severity and non-understandability from those that lack such features [35], may appear in another light. Given that his approach promoted a narrow concept of schizophrenia, whose assessment is less easily biased by preconceptions, he may have indirectly saved many patients from immense suffering.

In any case, Schneider's statements that FRS "are entirely devoid of any theory and are intended purely pragmatically-diagnostically" [25] and that such symptoms "can be ascertained without too much difficulty in the clinical examination" [13], together with the fact that the book in which he first mentioned FRS [28] was aimed at general practitioners, suggest that it may be defensible to view them also as a "diagnostic test" suitable for screening purposes, whose performance can be described in terms of sensitivity and specificity.

Expanding the Meta-Analysis by Including Further Data

No other study of the diagnostic accuracy of FRS appeared after the publication of the meta-analysis in 2015 [7, 8]. However, some further data that can be included in the meta-analytic calculation are available. These data were collected in a study performed in Vienna in the 1980s on 200 first-admitted patients with functional psychosis [36] who received an ICD-9 diagnosis of 295, 296, 297, or 298. The patients were interviewed by trained raters with an expanded version of the Present State Examination [37] and were diagnosed by the interviewer according to various diagnostic criteria for functional psychoses. This study could not be included in the meta-analysis, because the reported data were insufficient to construct an appropriate 2×2 table summarising the presence of FRS by diagnostic group. In fact, it is reported that 97 patients received an ICD-9 diagnosis of schizophrenic disorder (ICD-9 295), that 84 of them presented with one or more FRS, and that 13.0% of the patients with episodic mood disorder (ICD-9 296), which in this context means psychotic mood disorder, experienced at least one FRS. However, it is not reported how many patients were diagnosed with psychotic mood disorder, which makes it impossible to construct an appropriate 2×2 table. Other papers [38–40] report data from the same patient group but, similarly, did not provide a breakdown by diagnosis. Information useful to construct a suitable 2×2 table is available, however, from a book chapter [41] based on the same patient group, in which it is reported that 69 out of 200 patients were diagnosed with psychotic mood disorder. This group is large enough to be compared with the group of patients with schizophrenic disorders, while the patients diagnosed with delusional disorder ($n = 24$) or other psychoses ($n = 10$) are too few to allow for statistically meaningful comparisons. The data on patients with schizophrenic disorders and psychotic mood disorders can be added to those already available in order to expand the meta-analytic estimate of the diagnostic accuracy of FRS.

Combining all information, it is possible to calculate that 9 of the 69 patients (13.0%) included in the Vienna study [36] presented with one or more FRS, and then to construct a 2×2 table summarising that FRS were observed in 84 of the 97 patients with an ICD-9 diagnosis of schizophrenic disorder (ICD-9 295) as compared with 9 of the 69 patients who received a diagnosis of psychotic mood disorder (ICD-9 296). The sensitivity and specific-

ity of FRS derived from this study is 86.6% (95% CI 78.2–92.7) and 87.0% (95% CI 76.7–93.9), respectively.

The meta-analysis published in 2015 included 16 studies on the ability of FRS to differentiate schizophrenia from other types of psychosis, for a total of 4,070 patients [7]. The inclusion of a further 166 patients from the Vienna study raises this total to 4,236 patients.

A new meta-analysis was performed using the “glmer” function in the R package “lme4” [42] to fit the bivariate model based on the generalised linear mixed model approach proposed by Chu and Cole [43], who extended the bivariate normal model [44] to meta-analyse pairs of sensitivity and specificity by using the binomial distribution to describe the within-study variability of sensitivity and specificity. In the 2015 meta-analysis, too, the model was fit based on the generalised linear mixed model approach described by Chu and Cole [7].

The summary sensitivity and specificity was 60.2% (95% CI 51.9–68.1) and 75.9% (95% CI 66.9–83.0), respectively. The positive and negative likelihood ratios were also calculated and were found to be 2.50 and 0.52, respectively.

Limitations of the Literature on the Diagnostic Accuracy of FRS

Methodological Shortcomings of the Studies

As underscored by many authors who reviewed this literature [21, 22, 45, 46] and by the authors of the meta-analysis themselves [7], most studies suffer from methodological limitations, such as not being specifically designed as diagnostic test accuracy studies; missing a definition – or having an unclear definition – of FRS; knowledge of the index test result when interpreting the reference standard; lack of reliability assessment; inclusion of FRS in the reference standard; and lack of a phenomenological approach to the assessment interview. Also, a variety of diagnostic criteria were used in the studies, such as the ICD-8, ICD-9, ICD-10, Research Diagnostic Criteria, DSM-II, DSM-III, DSM-III-R, DSM-IV, and Feighner’s diagnostic criteria. Moreover, it is not certain beyond any doubt that in all instances the diagnosis was made by a psychiatrist, as 9 studies did not provide information about the professional qualification of the person who made the diagnosis. These limitations reduce the strength of any conclusion that can be drawn from the extant research.

Absence of a Real “Gold Standard”

An even more serious issue is that there is no real reference standard or “gold standard” test against which FRS can be compared. A gold standard test is a diagnostic test that is usually regarded as definitive. In principle, it should have 100% sensitivity and 100% specificity and thus would never make a classification error. In many areas of medicine, however, that may not be the case, and the gold standard is simply regarded as the best available test [47]. As far as schizophrenia is concerned, the situation is even worse because the gold standard is akin to a moving target, given the ever-changing conceptualisation of schizophrenia and its many competing diagnostic definitions. Therefore, bias through misclassification of the true disease status due to an imperfect gold standard [48] almost by definition affects studies of the diagnostic accuracy of FRS to some degree. Given the lack of validating criteria, any operational definition of schizophrenia – and, hence, any gold standard – is to some extent arbitrary [49]. Indeed, Schneider himself had alluded to this issue: “Rarely there are truly ‘intermediary’ cases which could be assigned with equal justification to either type... One should really no longer argue about such cases: ‘this is a cyclothymia, no, this is a schizophrenia.’ One can argue like this about an uncertain general paralysis of the insane versus a cerebral tumour. Here the ‘is’ can be verified” [18].

Likelihood Ratios as an Alternative Measure of Diagnostic Accuracy for FRS

While the properties of a diagnostic test are often described using sensitivity and specificity, they are not the only statistics for summarising diagnostic accuracy and do not answer all the questions a clinician is interested in. Importantly, they do not give hints about how a particular test result predicts the risk of the disease of interest. This is an important issue, as the decision to obtain a given test is usually made on the assumption that its results will significantly change the pre-test probability that a specific disease is present, that is, the probability of disease that exists before the testing is done [50]. If a diagnostic test did not substantially increase the clinician’s confidence in making or excluding a diagnosis, it would be useless.

Other statistics, named predictive values, give probabilities of a given disease for particular test results, but they depend on the prevalence of that disease in the studied population. Likelihood ratios are alternative statistics that have some desirable properties which make them particularly useful clinically [50, 51]. They summarise how many

times more likely or less likely patients with the disease of interest have a positive or negative result, respectively, as compared with people without that disease. In other words, the positive likelihood ratio indicates how much to increase the probability of disease if the test is positive, while the negative likelihood ratio is a measure of how much to decrease it if the test is negative. Thus, likelihood ratios help a clinician adapt the results of a diagnostic accuracy study to his or her patients, as they can be used to compute the probability of the disease in question while adjusting for varying prior probabilities from different clinical contexts [50]. While the post-test probability that the patient has the disease in question can be estimated by relatively straightforward calculations, a simpler way is utilizing a useful tool called Fagan’s nomogram.

The usefulness of likelihood ratios as a measure of the clinical utility of FRS was already underlined more than two decades ago [52]. The pre-test probability that the patient has schizophrenia is dependent on the presence of other symptoms and on the prevalence of schizophrenia in the clinical setting in question. Applying the meta-analytically estimated positive likelihood ratio of 2.50 when the pre-test probability that the patient suffers from schizophrenia is low, say 10%, as it might be in a community mental health centre and when little other clinical information or history is available, the presence of FRS would increase the post-test probability only to 21.7%. On the other hand, if the pre-test probability is high, say 50%, as one may expect in a psychiatric inpatient ward or if there is other corroborative evidence from the patient’s history or examination, the presence of FRS would raise the probability that the patient suffers from schizophrenia to 71.4%. Although, as previously noted [52], calculations of this kind are rough, they show the power of combining the likelihood ratio of a diagnostic marker, such as FRS, with other information, including clinical experience. Indeed, in clinical situations where there is reason to suspect schizophrenia, the presence of FRS supports the diagnosis. However, these calculations demonstrate as well why in clinical situations where other information is unavailable or limited, the presence of FRS should be interpreted with greater caution.

Putting It All Together: The Two Faces of FRS

FRS can be seen as an attempt by Schneider to operationalise some of the experiences that Jaspers mentioned as examples of schizophrenic incomprehensibility, such as “made” phenomena, deeply abnormal body and organ

sensations, and delusional perception [53, 54]. While Schneider emphasised the pragmatic value of FRS, he also noted that symptoms such as thought insertion, withdrawal, and broadcasting entail “a radical qualitative change in the thought processes as described by Gruhle” [13], referring to a transformation of the form of consciousness that involves a diminished sense of mineness of experience. Gruhle wrote extensively about self-disturbances and used the term “paralysis of the ego” (*Ichlähmung*) to indicate a disturbance in the consciousness of activity with experiences of alien control [55]. Gruhle regarded a diminished sense of pre-reflective self-awareness as the core feature of schizophrenia, attributing to it the status of the “schizophrenic basic mood” (“schizophrene Grundstimmung”) [56]. Schneider also highlighted the experiential “permeability of the barrier between the self and the outside world” (“Durchlässigkeit der Ich-Umwelt-Schranke”) that underlies many FRS [25]. Moreover, he expressed strong support for Jaspers’ application of phenomenology to the clinic [57]. Therefore, there is reason to assume that Schneider saw the diagnostic significance of many FRS as rooted in a disturbance of self-experience. Hence, they can be considered as legitimately belonging to both the phenomenological tradition and a more pragmatic conceptual framework involving operational definitions and diagnostic accuracy measures. As such, they have a kind of double nature.

On the one hand, FRS represent profoundly anomalous experiences that can be properly identified and evaluated only by using a phenomenological approach that focuses on their experiential dimension rather than concentrating exclusively on their propositional aspects [58]. In this perspective, FRS are not considered as ontologically independent atomic entities that can be known from a third-person perspective, but are seen as strange and bizarre experiences involving a profound change in the structure of consciousness that can only be adequately understood from a first-person perspective focusing on experience and subjectivity [59] and from a second-person perspective grounded in notions of engagement, resonance, and responsiveness [60, 61]. Concerning the latter, it should be highlighted that Schneider himself, predating the introduction of the concept of *Praecox-Gefühl* by Rümke [62, 63], emphasised the importance of the doctor-patient relationship for making the diagnosis of schizophrenia:

This is in workaday psychiatry usually the method of diagnosis. It concerns what is referred to as rapport or contact. Here the relevant fact is that schizophrenics seem to occupy another, alien space that one cannot simply relate to them as to a healthy indi-

vidual or to a psychopath or to a cyclothymic depressive. It is difficult to express this other than in images and it is impossible to articulate this method as a concept [64].

Indeed, the role of intersubjectivity in the diagnosis of psychosis, which was already suggested by pioneer studies [65], was recently corroborated by research showing a significant association between higher levels of a clinician’s difficulty in attuning to the patient and the diagnosis of schizophrenia [66] and the severity of positive and negative symptoms [67].

On the other hand, FRS can also be viewed as relatively simple clinical indicators that require low levels of inference on the part of the evaluator. Their uniform occurrence in patients from different cultures gives justification for their use as epidemiological tools [68]. This second face of FRS has particular relevance in low-income countries, where there is typically one psychiatrist per a population of 1,000,000 [69] – and to a lesser extent in middle-income countries, too. In similar situations, FRS, even if evaluated by a non-psychiatrist, may have substantial practical utility to help identify patients for whom an assessment by a mental health specialist should be prioritised [7]. Also, given that FRS are rarely observed in hallucinatory or delusional states due to a variety of somatic disorders [70], in countries or situations where there is limited access to other diagnostic tests, even a rudimentary assessment of FRS may still be useful to differentiate schizophrenia from somatic causes of psychotic states [6]. Furthermore, it has been suggested that they might be useful as initial screening questions in community surveys or waiting-room screening [46].

Conclusions

When FRS are conceived as simple clinical indicators at a low level of inference, the results of the meta-analytic estimate of their diagnostic accuracy can be considered as a valid appraisal of their performance and usefulness. In fact, many of the methodological limitations that characterise most studies, such as a missing or unclear definition of FRS and lack of a phenomenological approach to their assessment, lose their importance as they reflect what would happen in those conditions where the assessment is carried out by a psychiatrist with no or limited training in phenomenological psychopathology, or even by a non-psychiatrist. Their relatively low sensitivity, while limiting their usefulness to identify schizophrenia, is nevertheless expected and can hardly be seen as a flaw, given that

Schneider never claimed that FRS were detectable in all patients. Their fairly good specificity and their acceptable positive likelihood ratio suggest that FRS may still be useful discriminants in differential diagnosis [6, 71], although their overall clinical utility as a diagnostic test is modest [46].

However, when FRS are conceptualised from a psychopathological perspective as strange and incomprehensible experiences that cannot be reduced merely to their propositional content and require substantial expertise and skill to be properly evaluated, the meta-analytic estimates can hardly be seen as a valid evaluation of their diagnostic significance. It is worth remarking that some FRS are extremely difficult to assess properly.

For instance, a reasonable degree of psychopathological expertise and a careful exploration of the patient's experience is necessary to distinguish a delusion-like notion linked to a perception from a delusional perception, while a much greater expertise is needed to differentiate delusional perception in the proper sense (where the new abnormal meaning is contained in the perception itself) from a delusional notion linked to a perception (where the abnormal new meaning is only linked to the perception) [72].

Also, without a decent amount of psychopathological expertise, true experiences of somatic passivity are not easy to distinguish from other abnormal bodily experiences that do not qualify as FRS. Some authors, indeed, went to great lengths to show the complexity of FRS and the difficulties that may arise from accurately identifying them [45, 73]. Other authors, when discussing their own results, noted that a possible reason for the instances of discrepancy between the presence of FRS and diagnosis was a mistake made in the identification of the phenomenon in question. After examining the reasons given for saying that a particular FRS was present in the discrepant cases, they noted: "It is extremely doubtful, to say the least, whether or not FRS were present in many of these discrepant cases. In fact, some of the examples can be used to illustrate common false positive ratings" [74]. Unfortunately, although some of the studies are of good overall quality, none of the studies performed to date is free from methodological limitations in the assessment of FRS that make the results difficult to interpret from a phenomenological perspective [22].

John Wing [75] elegantly summarised the essence of the matter:

Kurt Schneider [...] described a clinical syndrome. His claims for it were modest. He did not say that FRS were essential for a particular diagnosis, nor that they could never occur in the pres-

ence of affective symptoms. He thought that most clinicians who recognised the syndrome in their patients' descriptions of internal experiences would, in absence of evident brain disease, make a diagnosis of schizophrenia. He was right.

It should be noted, however, that Schneider was describing this clinical syndrome with its peculiar phenomena to the clinicians of his time, who usually had received at least a fair degree of training in phenomenological psychopathology and were familiar with the symptoms he designated as first rank, given that at least since the early 19th century symptoms such as somatic passivity, thought insertion, thought withdrawal, thought broadcasting, made acts, made feelings, made impulses, and made actions had been commonly observed and noted within the psychiatric literature. A recent review identified as many as 40 psychiatric texts from 37 different authors, published between 1810 and 1932, that described such symptoms [76].

The fact that Schneider was not actually teaching psychiatrists about FRS, but only sought to underscore the diagnostic value of FRS, likely accounts for the sketchiness and vagueness of the descriptions of symptoms that he provided in *Klinische Psychopathologie*, which lack the rigorousness of modern operational criteria [22]. For instance, to describe audible thoughts (*Gedankenlautwerden*), he simply stated that this symptom consists in hearing one's own thoughts aloud and gave two laconic examples: "A schizophrenic woman said: 'I hear my own thoughts. I can hear them when everything is quiet.' A schizophrenic man said: 'When I try to think, my head gets full of noise; it's as if my own brain were in an uproar with my thoughts'" [13]. In a similar vein, to illustrate thought withdrawal (*Gedankenentzug*), he gave the following examples:

A schizophrenic man stated that his thoughts were "taken from me years ago by a parish council." They had constantly robbed him of all his thoughts.

and

A skilled shirt-maker knew how large the collars should be, but when she proceeded to make them there were times when she could not calculate at all. This was not ordinary forgetting [...]. She attributed all this to being hypnotised by a priest.

It is reasonable to hypothesise that in the hands of skilled clinicians well versed in psychopathology, FRS have good discriminatory power for the diagnosis of schizophrenia, as they instantiate certain aspects of incomprehensibility described by Jaspers [53, 54], and are believed to represent the final expression of alterations in

the basic and foundational self-world structure of subjectivity that occur at an early stage of the illness [74–79] and that aggregate selectively in schizophrenia and schizotypal disorder as compared with other psychiatric diagnoses [80]. An association between FRS and self-disorders has been reported [81], and multi-stage processes of transition from basic symptoms and self-disorders to FRS, particularly the *Ich-Störungen*, have indeed been carefully studied and described [82, 83]. This hypothesis remains to be tested by phenomenologically informed research, as no study of diagnostic accuracy to date has adequately investigated this issue.

At a time when the trend in medical practice is towards briefer contact with patients, psychopathological expertise is declining alarmingly [84], and the psychiatric profession faces several challenges [85], it is crucial to emphasise the importance, depth, and complexity of patient experiences and subjectivity [86], and to take every opportunity to remark how much a clinical evaluation can be enriched by a good knowledge of psychopa-

thology. The results of the available studies, excellently synthesised by the meta-analysis [7], suggest that FRS, even in their “trivialised” form, may have some diagnostic value and practical usefulness, particularly in situations where resources are limited. However, there is reason to believe that only a “phenomenological leverage” [22] can enable them to deploy their full discriminatory power.

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Disclosure Statement

The author has no conflicts of interest to declare.

References

- Graham-Schmidt KT, Martin-Iverson MT, Waters FA. Self- and other-agency in people with passivity (first rank) symptoms in schizophrenia. *Schizophr Res*. 2018 Feb;192: 75–81.
- Sterzer P, Mishara AL, Voss M, Heinz A. Thought Insertion as a Self-Disturbance: An Integration of Predictive Coding and Phenomenological Approaches. *Front Hum Neurosci*. 2016 Oct;10:502.
- Tikka SK, Nizamie SH, Das AK, Agarwal N, Goyal N. Schneiderian first rank symptoms in schizophrenia: a developmental neuroscience evaluation. *Int J Dev Neurosci*. 2016 May;50:39–46.
- Tandon R, Gaebel W, Barch DM, Bustillo J, Gur RE, Heckers S, et al. Definition and description of schizophrenia in the DSM-5. *Schizophr Res*. 2013 Oct;150(1):3–10.
- World Health Organization. International Statistical Classification of Diseases and Related Health Problems (11th Revision) [Internet]. 2018. Available from: <https://icd.who.int/browse11/l-m/en>.
- Heinz A, Voss M, Lawrie SM, Mishara A, Bauer M, Gallinat J, et al. Shall we really say goodbye to first rank symptoms? *Eur Psychiatry*. 2016 Sep;37:8–13.
- Soares-Weiser K, Maayan N, Bergman H, Davenport C, Kirkham AJ, Grabowski S, et al. First rank symptoms for schizophrenia. *Cochrane Database Syst Rev*. 2015 Jan; 1:CD010653.
- Soares-Weiser K, Maayan N, Bergman H, Davenport C, Kirkham AJ, Grabowski S, et al. First Rank Symptoms for Schizophrenia (Cochrane Diagnostic Test Accuracy Review). *Schizophr Bull*. 2015 Jul;41(4):792–4.
- Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. *JAMA*. 1999 Nov;282(18):1737–44.
- Rogers WH, Wilson IB, Bungay KM, Cynn DJ, Adler DA. Assessing the performance of a new depression screener for primary care (PC-SAD). *J Clin Epidemiol*. 2002 Feb;55(2): 164–75.
- Levis B, Benedetti A, Thombs BD; DEPRESSION Screening Data (DEPRESSD) Collaboration. Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. *BMJ*. 2019 Apr;365:l1476.
- Picardi A, Adler DA, Abeni D, Chang H, Pasquini P, Rogers WH, et al. Screening for depressive disorders in patients with skin diseases: a comparison of three screeners. *Acta Derm Venereol*. 2005;85(5):414–9.
- Schneider K. *Klinische Psychopathologie*. 5th ed. Stuttgart: Thieme; 1958.
- Huber G, Gross G, Schüttler R, Linz M, Clemens S. Longitudinal studies of schizophrenic patients. *Schizophr Bull*. 1980;6(4): 592–605.
- Toh WL, Castle DJ, Rossell SL. What is the future for Schneiderian first-rank symptoms, in the Diagnostic and Statistical Manual of Mental Disorders and otherwise? *Aust N Z J Psychiatry*. 2016 Sep;50(9):831–3.
- Fletcher RH, Fletcher SW, Fletcher GS. *Clinical epidemiology: the essentials*. 5th ed. Philadelphia: Lippincott Williams & Wilkins; 2014.
- Müller-Suur H. Das sogenannte Praecoxgefühl. *Fortschr Neurol Psychiatr*. 1958;26: 145–52.
- Schneider K. Kraepelin und die gegenwärtige Psychiatrie. *Fortschr Neurol Psychiatr*. 1956;24:1–7.
- Marková IS, Berrios GE. Epistemology of mental symptoms. *Psychopathology*. 2009; 42(6):343–9.
- Berrios GE. Formation and meaning of mental symptoms. *Dialogues Phil Ment Neuro Sci*. 2013;6:39–48.
- Hoenig J. Schneider's first rank symptoms and the tabulators. *Compr Psychiatry*. 1984 Jan-Feb;25(1):77–87.
- Nordgaard J, Arnfred SM, Handest P, Parnas J. The diagnostic status of first-rank symptoms. *Schizophr Bull*. 2008 Jan;34(1):137–54.
- Cutting J. First rank symptoms of schizophrenia: their nature and origin. *Hist Psychiatry*. 2015 Jun;26(2):131–46.
- Janzarik W, Viviani R, Berrios GE, Jaspers, Kurt Schneider and the Heidelberg school of psychiatry. *Hist Psychiatry*. 1998 Jun;9(34 Pt 2):241–52.

- 25 Schneider K. Primäre und sekundäre Symptome bei der Schizophrenie. *Fortschr Neurol Psychiatr Grenzgeb.* 1957 Sep;25(9):487–90.
- 26 Schneider K. Notiz über Ichstörungen und Entfremdungen. *Fortschr Neurol Psychiatr.* 1949;17:343–7.
- 27 Cutting J, Mouratidou M, Fuchs T, Owen G. Max Scheler's influence on Kurt Schneider. *Hist Psychiatry.* 2016 Sep;27(3):336–44.
- 28 Schneider K. *Psychischer Befund und psychiatrische Diagnose.* Leipzig: Thieme; 1939.
- 29 Schneider K. *Beiträge zur Psychiatrie.* Wiesbaden: Thieme; 1946.
- 30 Schneider K. *Klinische Psychopathologie.* 3rd ed. Stuttgart: Thieme; 1950.
- 31 Gejman PV. Ernst Rüdin and Nazi euthanasia: another stain on his career. *Am J Med Genet.* 1997 Jul;74(4):455–6.
- 32 Torrey EF, Yolken RH. Psychiatric genocide: Nazi attempts to eradicate schizophrenia. *Schizophr Bull.* 2010 Jan;36(1):26–32.
- 33 Seeman MV. Psychiatry in the Nazi era. *Can J Psychiatry.* 2005 Mar;50(4):218–25.
- 34 Huber G. Kurt Schneider, 1887–1967. *Am J Psychiatry.* 1994;151(10):1492.
- 35 Crow TJ. Commentary on “First-Rank Symptoms or Rank-and-File Symptoms?” *Br J Psychiatry.* 1996;169:548–50.
- 36 Berner P, Katschnig H, Lenz G. First-rank symptoms and Bleuler's basic symptoms. New results in applying the polydiagnostic approach. *Psychopathology.* 1986;19(5):244–52.
- 37 Wing JK, Cooper JE, Sartorius N. *Measurement and classification of psychiatric symptoms.* Cambridge: Cambridge University Press; 1974.
- 38 Katschnig H, Simhandl C. New developments in the classification and diagnosis of functional mental disorders. *Psychopathology.* 1986;19(5):219–35.
- 39 Lenz G, Katschnig H, David H. Symptoms, diagnosis and time in hospital. A polydiagnostic study of schizophrenia. *Psychopathology.* 1986;19(5):253–8.
- 40 Lenz G, Simhandl C, Thau K, Berner P, Gabriel E. Temporal stability of diagnostic criteria for functional psychoses. Results from the Vienna follow-up study. *Psychopathology.* 1991;24(5):328–35.
- 41 Lenz G. The polydiagnostic approach in psychiatric research: schizoaffective psychoses. In: Pichot P, Berner P, Wolf R, Thau K, editors. *Psychiatry: the state of the art. Clinical psychopathology, nomenclature and classification.* New York: Plenum; 1985. vol. 1, pp. 103–8.
- 42 Partlett C, Takwoingi Y. Meta-analysis of test accuracy studies in R: a summary of user-written programs and step-by-step guide to using glmer. Version 1.0. August 2016 [Internet]. Available from: <http://methods.cochrane.org/sdt/>.
- 43 Chu H, Cole SR. Bivariate meta-analysis of sensitivity and specificity with sparse data: a generalized linear mixed model approach. *J Clin Epidemiol.* 2006 Dec;59(12):1331–2.
- 44 Reitsma JB, Glas AS, Rutjes AW, Scholten RJ, Bossuyt PM, Zwinderman AH. Bivariate analysis of sensitivity and specificity produces informative summary measures in diagnostic reviews. *J Clin Epidemiol.* 2005 Oct;58(10):982–90.
- 45 Koehler K. First rank symptoms of schizophrenia: questions concerning clinical boundaries. *Br J Psychiatry.* 1979 Mar;134(3):236–48.
- 46 Mitchell AJ. First-rank symptoms: a first-rank diagnostic test? *BJPsych Adv.* 2015;21(3):147–9.
- 47 Versi E. “Gold standard” is an appropriate term. *BMJ.* 1992 Jul;305(6846):187.
- 48 Whiting P, Rutjes AW, Reitsma JB, Glas AS, Bossuyt PM, Kleijnen J. Sources of variation and bias in studies of diagnostic accuracy: a systematic review. *Ann Intern Med.* 2004 Feb;140(3):189–202.
- 49 McGuffin P. Commentary on “First-Rank Symptoms or Rank-and-File Symptoms?” *Br J Psychiatry.* 1996;169:542.
- 50 Deeks JJ, Altman DG. Diagnostic tests 4: likelihood ratios. *BMJ.* 2004 Jul;329(7458):168–9.
- 51 Greenhalgh T. How to read a paper. Papers that report diagnostic or screening tests. *BMJ.* 1997 Aug;315(7107):540–3.
- 52 Geddes JR, Christofi G, Sackett DL. Commentary on “First-Rank Symptoms or Rank-and-File Symptoms?” *Br J Psychiatry.* 1996;169:544–5.
- 53 Jaspers K. *Allgemeine Psychopathologie.* 4th ed. Berlin: Springer; 1946.
- 54 Sass LA, Byrom G. Self-disturbance and the bizarre: on incomprehensibility in schizophrenic delusions. *Psychopathology.* 2015;48(5):293–300.
- 55 Gruhle HW. Die Psychopathologie. In: Bumke O, editor. *Handbuch der Geisteskrankheiten*, vol. 9, part 5: Die Schizophrenie. Berlin: Springer; 1932.
- 56 Gruhle H. Schizophrenie Grundstimmung (Ich-Störung). In: Berze J, Gruhle H, editors. *Psychologie der Schizophrenie.* Berlin: Springer; 1929. pp. 86–94.
- 57 Huber G. The psychopathology of K. Jaspers and K. Schneider as a fundamental method for psychiatry. *World J Biol Psychiatry.* 2002 Jan;3(1):50–7.
- 58 Henriksen MG. On incomprehensibility in schizophrenia. *Phenomenol Cogn Sci.* 2013;12(1):105–29.
- 59 Parnas J, Sass LA, Zahavi D. Rediscovering psychopathology: the epistemology and phenomenology of the psychiatric object. *Schizophr Bull.* 2013 Mar;39(2):270–7.
- 60 Fuchs T. The phenomenology and development of social perspectives. *Phenom Cogn Sci.* 2013;12(4):655–83.
- 61 Fuchs T. Pathologies of intersubjectivity in autism and schizophrenia. *J Conscious Stud.* 2015;22:191–214.
- 62 Rümke HC. Das Kernsymptom der Schizophrenie und das “Praecox-Gefühl.” *Zentralbl Gesamte Neurol Psychiatrie.* 1942;102:168–75.
- 63 Pallagrosi M, Fonzi L. On the concept of praecox feeling. *Psychopathology.* 2018;51(6):353–61.
- 64 Schneider K. *Psychiatrische Vorlesungen für Ärzte.* 2nd ed. Leipzig: Thieme; 1936.
- 65 Grube M. Towards an empirically based validation of intuitive diagnosis: Rümke's ‘praecox feeling’ across the schizophrenia spectrum: preliminary results. *Psychopathology.* 2006;39(5):209–17.
- 66 Pallagrosi M, Fonzi L, Picardi A, Biondi M. Association between clinician's subjective experience during patient evaluation and psychiatric diagnosis. *Psychopathology.* 2016;49(2):83–94.
- 67 Picardi A, Pallagrosi M, Fonzi L, Biondi M. Psychopathological dimensions and the clinician's subjective experience. *Psychiatry Res.* 2017 Dec;258:407–14.
- 68 Jablensky A, Sartorius N, Ernberg G, Anker M, Korten A, Cooper JE, et al. Schizophrenia: manifestations, incidence and course in different cultures. A World Health Organization ten-country study. *Psychol Med Monogr Suppl.* 1992;20:1–97.
- 69 McKenzie K, Patel V, Araya R. Learning from low income countries: mental health. *BMJ.* 2004 Nov;329(7475):1138–40.
- 70 Marneros A. Schizophrenic first-rank symptoms in organic mental disorders. *Br J Psychiatry.* 1988 May;152(5):625–8.
- 71 Carpenter WT Jr. Commentary on “First-Rank Symptoms or Rank-and-File Symptoms?” *Br J Psychiatry.* 1996;169(5):541–2.
- 72 Koehler K. Delusional perception and delusional notion linked to a perception. *Psychiatr Clin (Basel).* 1976;9(1):45–58.
- 73 Mellor CS. First rank symptoms of schizophrenia. I. The frequency in schizophrenics on admission to hospital. II. Differences between individual first rank symptoms. *Br J Psychiatry.* 1970 Jul;117(536):15–23.
- 74 Wing J, Nixon J. Discriminating symptoms in schizophrenia. A report from the international pilot study of schizophrenia. *Arch Gen Psychiatry.* 1975 Jul;32(7):853–9.
- 75 Wing J. Commentary on “First-Rank Symptoms or Rank-and-File Symptoms?” *Br J Psychiatry.* 1996;169:545.
- 76 Kendler KS, Mishara A. The Prehistory of Schneider's First-Rank Symptoms: Texts from 1810 to 1932. *Schizophr Bull.* 2019 Sep;45(5):971–90.
- 77 Parnas J. The core Gestalt of schizophrenia. *World Psychiatry.* 2012 Jun;11(2):67–9.

- 78 Henriksen MG, Parnas J. Clinical manifestations of self-disorders and the Gestalt of schizophrenia. *Schizophr Bull.* 2012 Jun; 38(4):657–60.
- 79 Gross G, Huber G. The relevance of the psychopathology of Kurt Schneider for today's psychiatry. *Acta Neuropsychiatr.* 2008;200: 27–35.
- 80 Parnas J, Henriksen MG. Disordered self in the schizophrenia spectrum: a clinical and research perspective. *Harv Rev Psychiatry.* 2014 Sep-Oct;22(5):251–65.
- 81 Nordgaard J, Henriksen MG, Berge J, Nilsson LS. First-rank symptoms and self-disorders in schizophrenia. *Schizophr Res.* 2019 Aug;210:306–7.
- 82 Klosterkötter J. The meaning of basic symptoms for the genesis of the schizophrenic nuclear syndrome. *Jpn J Psychiatry Neurol.* 1992 Sep;46(3):609–30.
- 83 Fuchs T. From self-disorders to ego disorders. *Psychopathology.* 2015;48(5):324–31.
- 84 Andreasen NC. DSM and the death of phenomenology in America: an example of unintended consequences. *Schizophr Bull.* 2007 Jan;33(1):108–12.
- 85 Katschnig H. Are psychiatrists an endangered species? Observations on internal and external challenges to the profession. *World Psychiatry.* 2010 Feb;9(1):21–8.
- 86 Strauss J. The diagnosis of schizophrenia: practice and concept. In: Maj M, Sartorius N, editors. *Schizophrenia*. Chichester: John Wiley & Sons; 1999. pp. 38–40.