ARTICLE

Subjective wellbeing in psychosis: Mediating effects of psychological distress on happiness levels amongst individuals diagnosed with paranoid schizophrenia

Pawel D. Mankiewicz · David M. Gresswell · Colin Turner

Abstract: A correlational study examined the suppositions of Headey and Wearing's four-dimension model of subjective wellbeing (SWB) and psychological distress amongst people experiencing psychosis. The research objective was to replicate the model with the studied sample and to examine how emotional distress resulting from psychosis affects the individuals' satisfaction with life and positive affect levels. Forty-seven individuals with a diagnosis of paranoid schizophrenia completed self-report measures of psychoticism, paranoid ideation, depression and anxiety (Brief Symptom Inventory), positive affect (Affect Balance Scale), and life satisfaction (Satisfaction With Life Scale). Correlational patterns of the four-dimension model were replicated with individuals experiencing psychosis. Although the levels of depression and anxiety were clearly elevated in comparison with general population norms, the levels of positive affect remained similar to those in the general population, and the average life satisfaction appeared only slightly decreased. Depression was found to act as a dominant mediator between the severity of experiences of psychosis and satisfaction with life. Possible explanations for the findings are proposed and implications from the positive clinical psychology perspective are suggested. Based on the study outcomes it is argued that: (1) psychosis does not equal unhappiness, (2) psychosis does not immobilize adaptive mechanisms of SWB, (3) psychosis does not exempt individuals from positive mood set-points, and (4) psychosis does not indiscriminately lower life satisfaction.

Keywords: subjective wellbeing, happiness, satisfaction with life, positive affect, psychosis, paranoid schizophrenia, positive clinical psychology

1. Introduction

1.1 Cognition and affect in subjective wellbeing

Subjective wellbeing (SWB) has often been used as a general definition and synonym of happiness (Noddings, 2003) with the implication that happiness is intrinsically about subjective and individual experience (Nettle, 2005). Hence, happiness can be perceived as a positive subjective state defined by the individual who believes that his/her life and current events are going well (Diener & Biswas-Diener, 2008).

Empirical studies on SWB have consistently suggested that it consists of at least two integral aspects: affect, which represents the emotional experience of joy, and cognition, which represents evaluation of satisfaction with life (Carr, 2004). Nettle (2005) proposed that SWB

Pawel D. Mankiewicz
National Health Service, UK, and
University of Lincoln, UK
pawel.mankiewicz@nhs.net

might be understood on three mutually interacting levels: level 1 consists of momentary feelings, such as joy and pleasure, level 2 involves judgements about feelings and life (individual life satisfaction), and level 3 consists of general subjective quality of life and flourishing. Joy is the most immediate and direct sense of happiness and is brought on by a desired state being attained; little cognition is involved in this state beyond the recognition that the desired event has occurred (Nettle, 2005).

SWB, however, is not identical to short-term sensory pleasure, to which individuals quickly habituate (Peterson & Park, 2009). Hence, when people say they are happy, it does not mean that they are literally joyful all the time (Nettle, 2005). The process of overall self-appraisal of life is involved, and the degree to which individuals judge the perceived quality of their lives favourably results in different levels of life satisfaction (Veenhoven, 1991). This process may occur implicitly or explicitly (Andrews & Withey, 1974). Diener and Lucas (2000) explained that life satisfaction is the function of a person's evaluation of how they are doing in their lives generally, especially in the domains that are important to them. Each individual evaluates his/her life differently depending on their expectations, hierarchy of values, and previous experiences. It therefore follows that research on SWB needs to incorporate idiosyncratic assessments of individuals' thoughts and feelings about their lives (Diener & Lucas, 2000), and that in measures of life satisfaction the exact standards for happiness should be left up to the individual. Despite this idiosyncratic approach, self-reports of happiness appear highly reliable and agree significantly with observers' ratings, diary methods and behavioural measures (Peterson & Park, 2009).

However, judgements of life satisfaction are not merely a function of how individuals appraise their lives, but also of how they feel at the time of judgemental processes (Veenhoven, 1991). Schwarz and Strack (1991) argued that since moods increase the accessibility of mood-congruent information in memory, then if positive affect dominates at the time of the judgement, the selective retrieval of positive cognitions would result in an upbeat evaluation of one's life satisfaction. It follows that satisfaction with life appears partially dependent on an individual's emotional state (Lewinsohn, Redner, & Seeley, 1991).

In general, positive psychology researchers (e.g. Diener & Lucas, 2000; Argyle, 2001) seem to support the assumption that positive emotions are not merely the polar opposites of negative ones but that these two dimensions are at least partially independent and coexist with each other. Also, neurophysiological evidence indicating that the brain centres registering positive affect and negative affect are separate appears to support this assumption (Kahneman, 1999). It has been demonstrated that in frontal zones a differential lateralisation for positive and negative emotions exists, with relative left-hemispheric activation for positive emotions and relative right-hemispheric activation for negative emotions (Ahern & Schwartz, 1985; Alves, Fukusima, & Aznar-Casanova, 2008; Natale, Gur, & Gur, 1983). These structures, however, have been shown to work together to process and generate emotional information and emotional behaviour (Huppert, 2005). Furthermore, Posner, Russell and Peterson (2005) demonstrated that although the existence of relative lateralisation for positive and negative emotions has been supported by empirical research, a strictly dimensional neuroanatomical continuum does not exist, as all affective states arise from coexisting and overlapping neurophysiological systems.

1.2 Four-dimension model of SWB and psychological distress

Headey and Wearing (1991) provided evidence that some psychological distress can occur alongside moderately high general levels of happiness. Therefore, in their model SWB was

assumed to consist of at least three dimensions: positive affect, life satisfaction and negative affect. In a subsequent publication, Headey and Wearing (1992) argued that negative affect should be subdivided further, as the authors demonstrated that depression and anxiety, the two main forms of psychological distress, were at least partly independent and both influenced SWB levels. The authors reported that measures of depression and anxiety were only moderately correlated, and that while individuals could be satisfied with their lives and anxious, it was rare to find people who were satisfied and depressed. Both depression and anxiety were shown to be significant indicators of SWB through their inverse effect on a sense of satisfaction, and on frequency of positive affect.

Given their findings, Headey and Wearing (1992) proposed a four-dimension model of SWB and psychological distress. The four reciprocally interacting factors were: life satisfaction, positive affect, depression, and anxiety. Based on data collected from their Australian general population study, the authors established observed correlations between the four dimensions, as presented in Figure 1.

Figure 1. Observed correlations between four dimensions of SWB and psychological distress
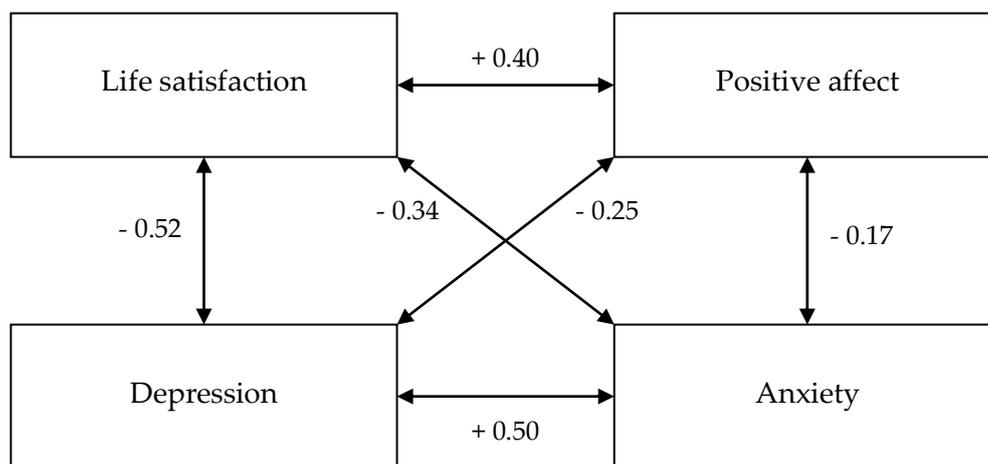
Note: Reproduced with permission from "Understanding Happiness" by B. Headey and A. Wearing (1992), p. 33.

1.3 Neglect of SWB in traditional clinical psychology

Seligman and Csikszentmihalyi (2000) argued that an exclusive focus on pathology has for a long time dominated the psychological discipline and has resulted in a negativistic model of human beings that lacks the positive features that make life worth living, and in a distorted view of normal human experience. The neglect of SWB within the field of clinical psychology might be explained by the field's long-established focus on people with severe psychological difficulties, which in practice often means tackling problems and reducing distress rather than promoting happiness (Conway & MacLeod, 2002).

Thus, given that the historic endorsement of the disease paradigm of human functioning has led to a neglect of human strengths and virtues in clinical psychology, it appears important for clinicians working with individuals with complex, severe and enduring psychological difficulties, such as psychosis, to understand how happiness models apply to their clients in order to inform possible means to maximise their SWB.

1.4 Diagnostic descriptions of psychosis

Although the medical construct of schizophrenia has been methodologically questioned for decades (e.g. Bentall, 1990; Boyle, 1993), psychosis continues to be typically described using a symptomatological approach. The characteristic symptoms of psychosis have been divided into two major clusters: positive and negative symptoms. Positive symptoms include hallucinations, delusions, thought disorder and cognitive processing abnormalities (Sass & Parnas, 2003). Negative symptoms refer to deficits in functioning and may include restricted emotional expression, impoverished speech, inattention, lack of motivation, apathy, poor concentration, social withdrawal, lowered activity levels, and avolition (Johns, Sellwood, McGovern, & Haddock, 2002).

Diagnostic guidelines of the ICD-10 Classification of Mental and Behavioural Disorders (World Health Organisation, 1992) necessitate the presence of a minimum of one very clear positive symptom (such as delusions of control or hallucinatory voices) for most of the time during a period of one month or more, as the prime requirement for a diagnosis of schizophrenia. Additionally, paranoid delusions of persecution and/or prominent threatening or commanding hallucinations must be present in order to satisfy diagnostic criteria for paranoid schizophrenia.

1.5 Emotional distress in psychosis

Psychological distress has been acknowledged in most aetiological models of psychosis (Corcoran et al., 2003) and severe symptoms of depression and anxiety were found to be prevalent amongst people with diagnoses of schizophrenia (Marneros & Akiskal, 2007; Scheller-Gilkey, Thomas, Woolwine, & Miller, 2002). The prevalence of diagnostic comorbidity was found to be as high as 57.3%, of which approximately 62% of people were found to have some form of anxiety disorder (Good, 2002). Siris (1991) reviewed 29 studies investigating the incidence and prevalence of secondary depression in psychosis, and concluded that its occurrence amongst individuals diagnosed with schizophrenia ranged to as many as 70% of studied cases. In addition, his review highlighted that the personal wellbeing of persons with psychosis and depression was lower, they tended to experience more auditory hallucinations and suicidal ideations, they had lower self-esteem, and were more self-critical and hopeless.

Evidence suggests that experiencing positive symptoms of psychosis, especially auditory hallucinations, as dominating, insulting and commanding correlates with higher levels of psychological distress (Vaughan & Fowler, 2004). Norman and Malla (1991) reported that high levels of depression and anxiety were associated with hallucinations and delusions but not with negative symptoms. Also, studies reviewed by Bentall (2003) suggested that positive symptoms of psychosis, such as paranoid ideations, were accompanied by emotional distress, such as dysphoria and anxiety.

Cognitive models of psychosis suggest that depression and anxiety do not arise directly from positive symptoms of psychosis but rather from an individual's interpretation of those symptoms and personal meanings attached to those experiences (Fowler, Garety, & Kuipers, 1995). Hence, following the cognitive framework, the appraisal of unusual experiences appears to play the critical role in determining whether or not an individual arrives at a delusional interpretation of a hallucinatory experience (Steel, 2008). The cognitive content of emotions is hypothesised to be expressed in a symptom of psychosis, such as a delusional belief, which in turn directly contributes to the exacerbation of distress (Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002). Subsequently, anxiety will arise from the threat belief, while depression will

be associated with beliefs about the power of the persecutors, personal failure and deserved punishment (Freeman et al., 2002).

Overall, the picture of emotional experiences in psychosis as so far portrayed in the clinical and research literature appears to be largely negative and pessimistic. This bias might contribute to a discouraging supposition that the levels of positive affect and life satisfaction amongst individuals with experiences of psychosis might be considerably lower in comparison to the general population. However, as argued by Linley, Joseph, Harrington and Wood (2006), positive psychologists need to redress what is perceived as an imbalance in the focus of clinical research in applied psychology.

1.6 Positive psychology and psychosis – a non-existent relationship?

Psychological deficits and disability have traditionally been the focus of clinical psychology, which has rarely focused on individuals' resilience and resourcefulness. Even though examples of studies describing successfully implemented interventions and their positive impact on wellbeing of people with psychosis have been available in clinical literature (e.g. Bryson, Lysaker & Bell, 2002), Braehler and Harper (2008) still reported that quality of life of those diagnosed with schizophrenia remained low.

Although Romme (1993) argued that intervention and rehabilitation for people with psychosis should focus on enhancing all fundamental qualities of their lives, the empirical studies of SWB in psychosis appear underrepresented in comparison with psycho-pathologically oriented clinical research. Therefore, a need for a more positive approach to psychotic experiences was identified by Chadwick (1997), who argued that people diagnosed with schizophrenia have strengths as well as deficits, and that psychology has to focus on these capacities to increase dignity and life quality of people with psychosis. James (2001) suggested that overcoming a sense of powerlessness might be one of the factors contributing to the increase in SWB of people with psychosis. More recent and positive approaches to the education of mental health practitioners advocated for delivering a thorough training in combating discrimination towards individuals with psychosis, focusing on their human qualities and encouraging their hope (Houghton, Shaw, Hayward & West, 2006).

The applied positive psychology movement has aimed to generate an empirical knowledge base focusing on human strengths which would complement the deficit-based traditional stance. Hence, from the perspective of positive clinical psychology, as proposed by Joseph and Linley (2006), the role of mental health practitioners is not only to alleviate distress and treat symptoms, but also to promote health, build strengths and facilitate SWB. Thus, it can be argued that as a part of the change advocated by positive clinical psychology, we need to establish whether individuals with severe psychological difficulties, such as psychosis, can experience happiness in the way that people from the general population do. Bergsma and Veenhoven (2011) have recently instigated an empirical investigation of happiness levels amongst individuals with various psychiatric diagnoses and argued that mental disorder was not the same as unhappiness. Unfortunately, their study did not incorporate participants with diagnosis of schizophrenia. To address the identified gap in the existing knowledge, the present study aimed to examine the applicability of the four-dimension model of SWB and psychological distress to people experiencing psychosis.

1.7 The present study

A correlational study was conducted to examine the suppositions of the four-dimension model amongst individuals diagnosed with paranoid schizophrenia and to investigate how emotional

distress resulting from psychosis affects the individual's satisfaction with life and positive affect levels. Statistical analysis consisted of three subsequent stages. In stage 1, it was hypothesised that the correlational patterns proposed by the four-dimension model of SWB and psychological distress would be replicated with people experiencing psychosis (Hypothesis 1). In stage 2 of the analysis, based on the evidence derived from previous research in emotional distress in psychosis it was hypothesised that the self-reported severity of experiences of psychosis would be positively correlated with the anxiety and depression dimensions of the model (Hypothesis 2), and inversely correlated with the dimensions of positive affect and life satisfaction (Hypothesis 3). It was also predicted that the presence of psychosis would be accompanied by heightened levels of depression and anxiety in comparison to general population norms (Hypothesis 4), decreased levels of positive affect (Hypothesis 5), and consequently, reduced life satisfaction (Hypothesis 6). Finally, given the replicated correlational patterns of the four-dimension model, in stage 3, it was hypothesised that the effects that experiences of psychosis might have on individual life satisfaction would be mediated by the affective levels of depression, anxiety and positive affect (Hypothesis 7).

2. Method

2.1 Participants

In our study, 47 participants with active experiences of psychosis were recruited from mental health specialist in-patient wards and outpatient clinics around the National Health Service's Trusts in the East Midlands, UK. Participants were aged from 18 years to more than 60, had the capacity to give informed consent, and were diagnosed with paranoid schizophrenia.

Of the 42 participants who provided demographic information, 31 were men and 11 were women. Thirty-nine were of White British, two of White Irish and one of Black British Caribbean origin. Twenty-nine participants were outpatients and 13 in-patients. Most participants were single, four were married and four divorced. Thirty-two participants were unemployed, three were in part-time and one in full-time employment, three were students, and two were homemakers and/or carers.

2.2 Measures

The severity of psychosis, depression and anxiety symptoms were operationalized through the self-reported levels of burden they caused to an individual, and were measured with the Brief Symptom Inventory (Derogatis, 1993). The self-reported levels of positive affect, defined as joy or enjoyment, were assessed with the Affect Balance Scale (Bradburn, 1969). Satisfaction with life, defined as a cognitive appraisal of an individual's quality of life, was measured with the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985).

2.2.1 Brief Symptom Inventory (BSI)

The BSI is a 53-item self-report inventory, which has been designed to reflect the psychological complaint patterns amongst mental health in-patients and community outpatients. Each BSI item is rated on a five-point scale (0-4) reflecting a person's distress from "not at all" to "extremely". The BSI is a measure of current psychological symptom status and is scored on nine primary symptom dimensions: somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, psychoticism, and paranoid ideation (Derogatis, 1993).

The BSI appears to have satisfactory psychometric properties. Normative samples for BSI included 1002 adult psychiatric outpatients, 974 adult non-patients, 423 adult psychiatric inpatients, and 2408 adolescent non-patients. Internal consistency was established using Cronbach alpha coefficients for all nine dimensions, which ranged from 0.71 to 0.85, while test-retest reliability coefficients were estimated between 0.68 and 0.91 (Derogatis, 1993). Internal structure and construct validity was found to be sufficient: orthogonal varimax loadings determined from principal components analysis ranged from 0.35 to 0.71. Convergent and discriminant validity was examined through comparison with the *Minnesota Multiphasic Personality Inventory*; correlation coefficients scoped from 0.31 to 0.72 (Derogatis, 1993). The BSI has been also standardised and normalised on the British population (Francis, Rajan, & Turner, 1990; Ryan, 2007).

The BSI subscales scored for the purpose of this study were: psychoticism, paranoid ideation, depression, and anxiety. The severity of experiences of psychosis was measured with the subscales of psychoticism and paranoid ideation. Derogatis and Melisaratos (1983) described the subscale of psychoticism as representing a continuum progressing from a mild interpersonal alienation to a floridly psychotic state, and consisting of the first-rank symptoms of schizophrenia, including experiences of thought control. The paranoid ideation subscale represented a paranoid mode of thinking consisting of thoughts of projection, hostility, suspicion, centrality, and fear of loss of autonomy (Derogatis & Melisaratos, 1983). The content of both subscales combined appeared consistent with the clinical criteria for the diagnosis of paranoid schizophrenia, as summarised earlier in the article. Therefore, combined scores from both subscales were used to measure the individual levels of experiences of psychosis. The BSI subscales of depression and anxiety were scored to measure emotional distress arising from experiences of psychosis, which also formed the psychological distress facets of the four-dimension model.

2.2.2 Affect balance scale (ABS)

The ABS is a 10-item rating scale containing Positive Affect Scale (PAS, five statements reflecting positive feelings) and Negative Affect Scale (NAS, five statements reflecting negative feelings). The statements are presented in a 'yes' or 'no' format. PAS questions receive a rating of 1 for 'yes' and 0 for 'no', whereas NAS ratings are reversed. The affect balance score is computed by subtracting negative affect scores from positive affect scores and adding a constant of 5 to avoid negative scores. The whole set of ten questions can be administered in less than 5 minutes (Bradburn, 1969). For the purpose of this research only the PAS scores were used.

The ABS was demonstrated to have good internal reliability: alpha coefficient was reported to be 0.72 by Devins, Beiser, Dion, Pelletier, and Edwards (1997), and 0.74 by Godoy-Izquierdo, Martinez, and Godoy (2008). Test-retest reliability of the ABS was established as 0.76 (Ryff, 1989). Factorial invariance resulted with the following outcomes: adjusted goodness-of-fit value was 0.98, and its Bentler and Bonett Index estimated as 0.91 (Devins et al., 1997). The ABS was also reported to show a convergent validity with other measures of related constructs, such as Depression-Happiness Scale (Lewis, McCollam, & Joseph, 2000). The following psychometric properties were described for the PAS: test-retest reliability was established as 0.83 (Ryff, 1989), Cronbach alpha coefficient was found to be 0.82 (Godoy-Izquierdo et al., 2008), and convergent validity with other single-item indicators of happiness ranged from 0.34 to 0.38 (Lewis et al., 2000).

2.2.3 Satisfaction with life scale (SWLS)

The SWLS contains five items rated on a 7-point scale, from "strongly disagree" to "strongly agree", reflecting individual appraisals of subjective wellbeing. Total scores fall into one of the levels of satisfaction, from "extremely dissatisfied" to "extremely satisfied" (Peterson, 2006).

Normative data for the SWLS have been established on a diverse and cross-cultural population, including psychiatric inpatients, psychotherapy clients, prisoners, persons suffering from physical disabilities, older adults, and students. The SWLS demonstrated strong internal reliability and temporal stability: coefficient alpha for the scale was 0.87, and a 2-month stability coefficient was established as 0.82 (Diener et al., 1985). Over longer time periods, the test-retest reliability decreased to a level of 0.54, which demonstrated that the SWLS had a temporal stability property (for up to four years), while it has also been shown to hold sufficient sensitivity to detect change in life satisfaction during, for example, a course of intervention (Pavot & Diener, 1993). The SWLS was also reported to demonstrate satisfactory validity. The loading of Compton's happiness factor has been established to be as high as 0.83 and item-total correlations were reported to range between 0.57 and 0.75 (Argyle, 2001). As presented by Pavot and Diener (1993), correlation of SWLS with other self-report and non self-report measures of subjective wellbeing and satisfaction was found to range from 0.28 (informant reports) to 0.68 (e.g. Andrews/Withey Scale).

2.3 Procedure

The recruitment to the current study and assessments were carried out by practising clinical psychologists amongst the clients with whom they had an established therapeutic relationship and working alliance. Clinical psychologists determined whether a particular client within their caseloads met the inclusion criteria for the research. Potential participants were given leaflets containing information about the study project. Those who agreed to take part were then asked to sign a consent form and complete the questionnaires. The measures were administered to the participants by their psychologists in a fixed order: BSI, PAS and SWLS. Completion of the full assessment set took approximately 15-20 minutes.

3. Results

3.1 Stage 1: Replication of the four-dimension model

The levels of depression and anxiety were demonstrated to correlate positively ($r = 0.667$, sig < 0.001) with each other. Satisfaction with life was shown to be positively correlated with positive affect ($r = 0.418$, sig = 0.003) and inversely correlated with depression ($r = -0.473$, sig < 0.001) and anxiety ($r = -0.394$, sig = 0.003). Positive affect was also demonstrated to inversely correlate with depression ($r = -0.274$, sig = 0.031) and with anxiety ($r = -0.169$, sig = 0.129). The latter correlation was low and statistically non-significant. This finding seemed understandable in the light of previous research which demonstrated that it was not uncommon for an individual to be both anxious and joyful (Headey & Wearing, 1992).

The findings supported our initial prediction (Hypothesis 1). The correlational patterns of the four-dimension model of SWB and psychological distress established for the general population were replicated with people experiencing psychosis. Pearson r correlation coefficients and their significance levels for the replicated four-dimension model are shown in Table 1 (below).

Table 1. Pearson 1-tailed r correlation coefficients and their significance levels between the four dimensions of SWB and psychological distress model within the studied sample

Four dimensions of SWB & psychological distress	Depression	Anxiety	Positive affect	Life satisfaction
Depression	---	r = 0.667 sig < 0.001	r = -0.274 sig = 0.031	r = -0.473 sig < 0.001
Anxiety	r = 0.669 sig < 0.001	---	r = -0.169 sig = 0.129	r = -0.394 sig = 0.003
Positive affect	r = -0.274 sig = 0.031	r = - 0.169 sig = 0.129	---	r = 0.418 sig = 0.003
Life satisfaction	r = -0.473 sig < 0.001	r = -0.394 sig = 0.003	r = 0.418 sig = 0.003	---

3.2 Stage 2: Psychosis and four dimensions of SWB and psychological distress

As shown in Table 2, the levels of psychoticism and paranoid ideation were shown to be strongly positively correlated with the dimensions of depression (r = 0.716, sig < 0.001) and anxiety (r = 0.721, sig < 0.001) within the four-dimension model (Hypothesis 2). The intensity of psychoticism and paranoid ideation was demonstrated to be reversely correlated with the dimension of life satisfaction (-0.349, sig = 0.008), and was found to show a reversed correlation with positive affect (Hypothesis 3), though statistically non-significant (r = -0.219, sig = 0.069).

Table 2. Pearson 1-tailed r correlation coefficients and their significance levels between the self-reported severity of psychosis and the four dimensions of SWB and psychological distress

Study model dimensions	Depression	Anxiety	Positive affect	Life satisfaction
Psychoticism & paranoid ideation	0.716 sig < 0.001	0.721 sig < 0.001	-0.219 sig = 0.069	-0.349 sig = 0.008

Table 3 (below) presents descriptive sample statistics and general population norms for the study model dimensions. As predicted (Hypothesis 4), the average levels of depression and anxiety in the studied sample were both increased by at least 1 *SD* in comparison with the community norms. Given the correlational patterns reported in stage 1, the finding appears consistent with the study model, since the sample levels of psychoticism were increased by approximately 2 *SD* and the levels of paranoid ideation were heightened by approximately 1.5 *SD* from the norms.

Our sample mean for the positive affect dimension was similar to the British general population mean. Hence, contrary to our prediction (Hypothesis 5), the participants exhibited levels of positive affect close to the British average. However, the sample mean score on SWLS was placed within the 'slightly dissatisfied' range of scores. In comparison, normative data described by Diener et al. (1985) reported that the non-clinical population mean falls within the 'slightly satisfied' score range. Consequently, our sample's satisfaction with life was reduced by approximately 1 *SD* in comparison with the general population trend. This result supported our prediction (Hypothesis 6).

Table 3. Descriptive sample statistics and normative data for the study model dimensions

Study model dimensions		Mean	Standard deviation
Psychoticism	sample statistics	1.57	0.93
	BSI norms*	0.27	0.48
Paranoid ideation	sample statistics	1.48	1.04
	BSI norms*	0.54	0.65
Depression	sample statistics	1.58	1.04
	BSI norms*	0.42	0.65
Anxiety	sample statistics	1.48	0.99
	BSI norms*	0.45	0.60
Positive affect	sample statistics	2.96	1.73
	ABS norms**	2.84	Not reported
Life satisfaction	sample statistics	16.40	7.11
	SWLS norms***	23.50	6.43

Note: (*) British non-patient norms reported by Francis et al. (1990).

(**) British non-clinical norms reported by Basabe et al. (2000).

(***) Non-clinical norms reported by Diener et al. (1985).

3.3. Stage 3: Mediating role of psychological distress

A variable is assumed to mediate the relationship between a predictor and an outcome variable if the predictor first has an effect on the mediator, which in turn influences the outcome variable (Miles & Shevlin, 2001). In other words, a mediated relationship between variables occurs if a predictor has its effect on the outcome variable via another variable, the mediator. The starting point to construct a mediational model is a theoretically informed possibility that a mediator variable occurs 'between' the studied predictor and outcome variables (Bennett, 2000). As suggested by Frazier, Tix, and Barron (2004), decisions about potential mediators are based on previous research and existing theories, and are best made *a priori* in the design stage rather than *post hoc*. In the present study, mediators were identified on theoretical grounds and the development of the proposed mediational model (see Figure 2 below) was informed by previous research discussed in earlier paragraphs.

As argued by MacKinnon, Fairchild and Fritz (2007), mediating processes often include multiple mediators, which are likely to provide a more accurate estimation of mediation effects in a variety of research contexts. Subsequently, mediation models which consist of more than one mediator are straightforward extensions of the single-mediator models. Derived from the hypothesised mediational pathways, Figure 3 (below) depicts three mediational sub-models, which were investigated separately in order to establish mediating properties for each of the proposed mediators.

The mediational sub-models assume three-variable systems in which the following causal associations occur: *a* representing the relation of the predictor variable to the mediator, *b* representing the relation of the mediator to the outcome variable adjusted for the predictor variable, and *c'* representing the indirect-only relation of the predictor variable to the outcome variable adjusted for the mediator.

Figure 2. Hypothesised mediational pathways between the severity of psychoticism and paranoid ideation and the levels of life satisfaction (with the demonstrated correlational directions)
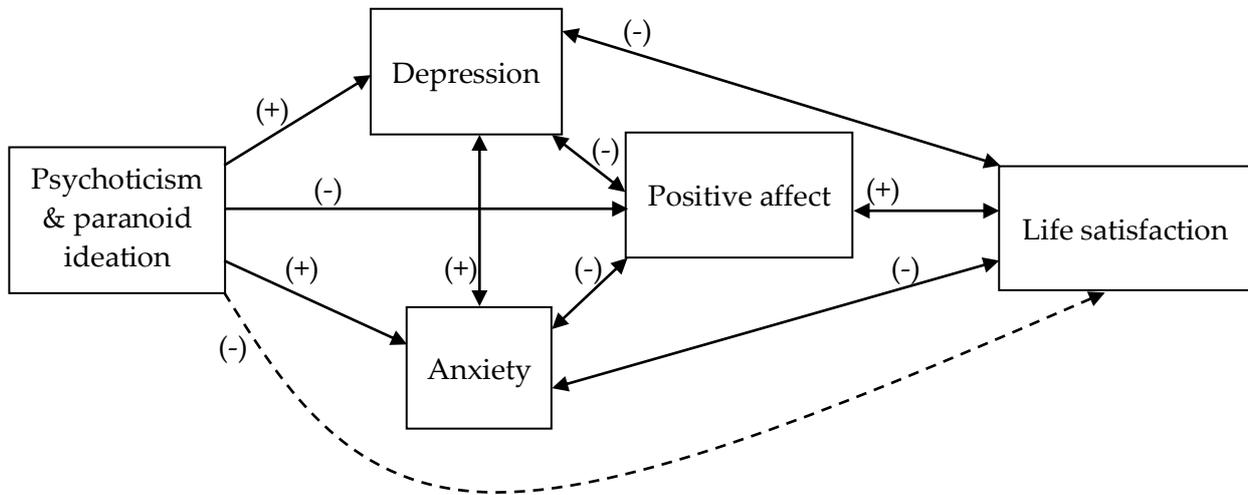

Figure 3. Mediational sub-models: depression, anxiety and positive affect as hypothesised mediators in the association between psychoticism and paranoid ideation (predictor variable) and satisfaction with life (outcome variable)
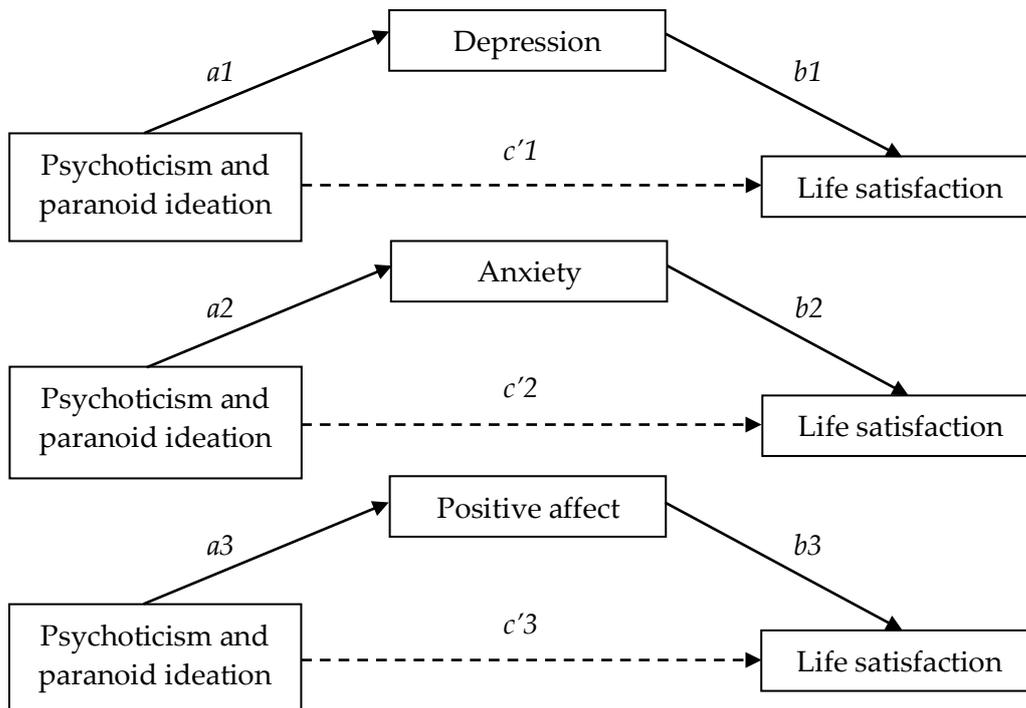
3.3.1 Causal steps in mediation analysis

The causal steps approach to mediation analysis (Bennett, 2000; MacKinnon, et al., 2007; Miles & Shevlin, 2001) was employed. In order to establish mediating properties of the hypothesised mediators, the stepped analysis needs to consist of the following four stages: (1) the predictor variable must be shown to significantly relate to the outcome variable using regression, (2) the predictor variable must be demonstrated to significantly relate to the mediating variable using

regression, (3) using multiple regression, the mediator must be shown to be significantly related to the outcome variable while the predictor variable remains controlled, and (4) when controlling for the mediator, the coefficient relating the predictor variable to the outcome variable must be smaller (in absolute value) than the coefficient calculated in step 1, or the relationship between the predictor and the outcome variable must be less significant than in step 1. When in step 4 the relationship between the predictor variable and the outcome variable is smaller than in step 1 (but still greater than zero) and the coefficient is statistically significant, then the data suggest partial mediation. If, when controlling for the mediator, the effect of the predictor variable on the outcome variable is zero, or the relationship is at least no longer statistically significant, then the data are consistent with a dominant mediation model.

3.3.2 Outcomes of mediation analyses

Table 4 summarises results of mediation analyses with depression, anxiety and positive affect as mediating variables. In step 1, psychoticism and paranoid ideation were shown to be significantly inversely related to life satisfaction: B = -1.431, sig = 0.016. Coefficient B suggested that with a single unit increase in psychoticism and paranoid ideation, an individual's satisfaction with life decreased by approximately one and a half units. Furthermore, based on R square value, psychoticism and paranoid ideation were estimated to account for 12.2% of variance in the levels of life satisfaction. Given that the predictor and outcome variables remained the same, the results of causal step 1 applied to each of the mediational sub-models.

Table 4. Results of mediation analyses

Causal steps	R square	Coefficient B	B significance
Step 1	0.122	- 1.431	0.016
Mediation analysis 1:	PPI* →	Depression →	SWL**
Step 2 (path a1)	0.513	0.432	< 0.001
Step 3 (path b1)	0.224	- 3.123	0.020
Step 4 (path c'1)	-	- 0.082	0.917
Mediation analysis 2:	PPI →	Anxiety →	SWL
Step 2 (path a2)	0.519	0.412	< 0.001
Step 3 (path b2)	0.164	- 2.130	0.143
Mediation analysis 3:	PPI →	Positive affect →	SWL
Step 2 (path a3)	0.048	- 0.219	0.139

Note: (*) Psychoticism and paranoid ideation. (**) Satisfaction with life.

In step 2 of analysis 1, psychoticism and paranoid ideation were demonstrated to be significantly related to depression, the mediating variable: B = 0.432, sig < 0.001. With a single unit change in predictor variable, the depression levels increased by approximately a half of a unit. Also, psychoticism and paranoid ideation were shown to account for 51.3% of variance in depression levels. In step 3, when controlling for the predictor variable, depression was demonstrated to be significantly related to life satisfaction (path b1 in Figure 3): B = -3.123, sig = 0.020. The value for Coefficient B suggested that when psychoticism and paranoid ideation is controlled, with a single unit change in depression, an individual's life satisfaction decreased by more than three units. Furthermore, when controlling for the predictor variable, depression was shown to account for 22.4% of variance in life satisfaction. In step 4, when controlling for the mediator, the predictor variable's association with the outcome variable (path c'1 in Figure

3) was shown to be close to zero and statistically non-significant: B = -0.082, sig = 0.917. Thus, the results suggested that when controlling for depression, the change in life satisfaction associated with a single unit change in psychoticism and paranoid ideation was close to zero and, in addition, was statistically non-significant. According to the methodology described by Miles and Shevlin (2001), the amount of mediation was estimated by calculating the difference between the absolute values of coefficients in steps 1 and 4. The amount of mediation was therefore 1.349, which accounted for 94.26% of the initial B coefficient.

Consequently, the data obtained from mediation analysis 1 were consistent with a dominant mediational model suggesting that depression acts as a dominant mediator in the relationship between psychoticism and paranoid ideation (predictor variable) and satisfaction with life (outcome variable). Hence, the outcomes appeared to partially support our hypothesis. Yet, if the dominant mediating role of depression were to be supported with further evidence, then both anxiety and positive affect would be shown as statistically non-significant mediators in the current study model.

In step 2 of analysis 2, the predictor was demonstrated to significantly relate to anxiety: B = 0.412, sig < 0.001. The coefficient B value suggested that with a single unit change in psychoticism and paranoid ideation, the anxiety levels of an individual increased by almost a half of a unit. Moreover, psychoticism and paranoid ideation were shown to account for 51.9% of variance in anxiety levels. However, in step 3, when controlling for the predictor, the relationship between anxiety and life satisfaction was no longer significant: sig = 0.143. Consequently, the data suggested that anxiety was not a statistically significant mediator of the relationship between the predictor and outcome variables, and the analysis did not proceed to step 4.

In step 2 of analysis 3, psychoticism and paranoid ideation were shown not to act as a significant predictor of positive affect: sig = 0.139. Again, the data suggested that positive affect was not a statistically significant mediator. Consequently, steps 3 and 4 of the analysis were not undertaken.

3.3.3 Effect size and statistical power

As suggested by MacKinnon et al. (2007), standardised regression coefficients served as effect size measures for individual relations in mediation analyses. Table 5 presents standardised coefficients Beta for steps 1 to 4 of mediation analyses in the present study (significance levels correspond to those reported for B coefficients). Statistical power (1-β error prob.) of the multiple regression stages of the analyses was computed using G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007) and was established as 0.948 for mediation analysis 1, and 0.782 for mediation analysis 2.

Table 5. Standardised coefficients Beta for steps 1 to 4 of mediation analyses in the present study

	Mediation analysis 1	Mediation analysis 2	Mediation analysis 3
Coefficient Beta for step 1	- 0.349	- 0.349	- 0.349
Coefficient Beta for step 2	0.716	0.721	- 0.219
Coefficient Beta for step 3	- 0.459	- 0.297	---
Coefficient Beta for step 4	- 0.020	---	---

4. Discussion

4.1 Psychosis does not equal unhappiness

Campbell (2007) reported a number of studies describing how people with experiences of psychosis felt trapped within a negative professional framework, which in their opinion encouraged the dismissal of significant positive aspects of their experience, and appeared stigmatising and discriminatory. In our investigation, we attempted to pursue a positive psychology approach to studying SWB in psychosis, and to extend the focus of applied positive psychology research onto individuals with severe mental health difficulties.

We tested the suppositions of the four-dimension model of SWB and psychological distress amongst people diagnosed with paranoid schizophrenia. The results supported most of the stated hypotheses and indicated that the model could be successfully utilised to gain some understanding of SWB levels amongst individuals with experiences of psychosis. Since the correlations between the dimensions of life satisfaction, positive affect, depression and anxiety were exceptionally similar to those reported by Headey and Wearing (1992), it might be concluded that the four-dimension model of SWB and psychological distress applies not only to individuals from a non-clinical population, but also to people with complex, severe and enduring mental health difficulties, such as psychosis. This finding seems rather important, since it indicates that the levels of SWB amongst people diagnosed with paranoid schizophrenia, arguably the most severe form of psychosis, appear largely similar to the levels demonstrated within the general population. Moreover, a range of the sample scores on the dimensions of positive affect and life satisfaction indicated that individuals experiencing psychosis might even feel very joyful and extremely satisfied with their lives. Hence, contrary to the traditional deficit-oriented and misery-focused portrayal of psychosis, we can now present data to support the argument that in some instances individuals with experiences of psychosis can report levels of SWB that are similar to those identified within the general population.

4.2 Psychosis does not immobilize adaptive mechanisms of SWB

Compared with a trend in the non-clinical population to be slightly satisfied with life, participants in our study appeared on average slightly dissatisfied with their lives. Given the study model, we proposed that it was the emotional distress accompanying experiences of psychosis that accounted for this dissatisfaction, rather than the objective presence or absence of symptoms clustered in the diagnosis of paranoid schizophrenia. The elevated levels of psychoticism and paranoid ideation clearly correlated with depression and anxiety dimensions within the model, and resulted in heightened levels of both dimensions in comparison to the general population norms. Consequently, increased levels of psychological distress were accompanied by reduced satisfaction with life amongst individuals experiencing psychosis.

Interestingly, levels of positive affect in our sample were similar to those reported in the general population. We propose that because of those levels of positive affect (despite clearly elevated experiences of depression and anxiety), the average satisfaction with life reported in the sample was only slightly lowered in comparison with general population trends. The most immediate explanation of this surprising finding might be located within the four-dimension model itself, which originally suggested that positive and negative affect are separate and only moderately correlated entities (Headey & Wearing, 1992).

Further explanation of our finding can be based on a dynamic equilibrium theory of happiness developed by Headey (2006). In their Australian general population study, Headey

and Wearing (1992) demonstrated that the majority of people, regardless of their socio-economic status, feel fairly happy with their lives. The authors proposed that every individual in any stable life situation, that is in the absence of major life changes, arrives at an equilibrium state in which their situation is viewed as being almost as satisfying as the life a person expects. In an equilibrium state, the present circumstances are regarded as considerably better than the worst previous period in a person's life. Consequently, a state of equilibrium that consists of high average levels of happiness appears to be associated with a set of idiosyncratic perceptions, aspirations and expectancies. As suggested by Headey and Wearing (1991), "human beings construct their world to arrive at a psychologically consistent set of perceptions – an equilibrium state – which supports or bolsters a feeling of wellbeing" (p. 8).

In the dynamic equilibrium theory, Headey (2006) proposed that both positive and negative major life events, such as winning a large sum in a lottery or becoming seriously ill, are typically habituated to and people return to their usual, individually-set equilibrium states of happiness. Thus, on most occasions after major negative life events initially increase levels of psychological distress and decrease levels of positive affect, these return to their idiosyncratic base levels and the equilibrium in individual SWB is reinstated. Therefore, it appears that in the present study individuals diagnosed with paranoid schizophrenia were able to adapt to even such disconcerting and unsettling experiences as onset of psychosis, acute episodes of paranoia and hearing voices, or admissions to inpatient wards, and return to their individual equilibrium states.

4.3 Psychosis does not exempt individuals from positive mood set-points

In their positive mood set-point theory, Diener and Diener (1996) proposed that there is a positive, rather than neutral, baseline for affect in human beings, which has significant adaptive, evolutionary, motivational, social, learning and intrinsic functions. For instance, positive moods give negative events maximum informational value and therefore such events can be easily noticed and quickly attended to. Also, it is pertinent for motivational reasons that people are not in a negative mood most of the time. Positive moods energise approach tendencies, which must prevail in human behaviour in order to obtain food, shelter, social contact, sex and so forth. Although the exact set-point varies amongst individuals depending on a person's socialisation and temperament, for most people it remains in the positive range (Diener & Diener, 1996).

Since the general levels of positive affect in our sample were demonstrated to be similar to those reported in the general population, we propose that the experiences of psychosis do not automatically disturb positive mood set-points of individuals diagnosed with paranoid schizophrenia.

4.4 Psychosis does not indiscriminately reduce satisfaction with life

The results of our mediation analyses were consistent with a dominant mediational model and demonstrated that depression acted as a dominant mediator in the relationship between psychoticism and paranoid ideation (predictor) and satisfaction with life (outcome). The data supported the indirect-only X➔M➔Y mediation type (Zhao, Lynch, & Chen, 2010), in which an increase in the levels of psychoticism and paranoid ideation (X) would reduce satisfaction with life (Y) only if accompanied by increased depression levels (M). Thus, the results suggested that experiences of psychosis might indirectly affect individual life satisfaction through their influence on depression levels.

Consequently, the hypothesised mediational model was partially supported by the results, as considering the correlational patterns between the studied model dimensions we expected anxiety and positive affect to act as partial mediators as well. However, given the weak and statistically non-significant correlation between psychoticism/paranoid ideation and positive affect, it appears understandable that the latter did not have any significant mediating properties. Furthermore, this finding seems consistent with one of the underlying suppositions of the four-dimension model of happiness and psychological distress, in which positive and negative affect are separate and only moderately correlated entities that coexist with each other.

Given the size and significance levels of anxiety correlation coefficients with both predictor and outcome variables, the results of analysis 2, which suggested no significant mediational properties of anxiety, were more surprising. However, again, the possible explanation for this finding appears to be placed within the empirical foundations of the four-dimension model reported by Headey and Wearing (1992). The authors argued that although depression and anxiety were both major influences on SWB through their inverse effect on a sense of satisfaction, and on frequency of positive emotions, the two main forms of psychological distress were at least partly independent, and while individuals could be satisfied with their lives and anxious, it was very rare to find people who were both satisfied and depressed.

Also, the findings appear to remain in agreement with a cognitive model of depression, in which negative and self-defeating cognitions are unconditional and over-generalised and subsequently affect individual perception of one's whole life (Sanders & Wills, 2005). This does not seem to leave much space for positive and joyful experiences. Additionally, as argued by Csikszentmihalyi (1988, 1997, 2002), heightened levels of anxiety might precipitate and even accompany the experiences of enjoyment. Hence, there is a low and statistically non-significant reversed correlation between anxiety and positive affect.

5. Study limitations

5.1 Ambiguous implications for the practice of positive clinical psychology

Given the results of the current study, it seems plausible to suggest that in order to enhance satisfaction with life of a person with experiences of psychosis, psychological interventions would need to focus primarily on reducing symptoms of depression. And traditional clinical psychology that emphasises the alleviation of emotional distress offers exactly such interventions: psychological therapies for depression (e.g. Barkham & Parry, 2008). Yet, applied positive psychology may propose an alternative approach that complements the traditional deficit-based stance.

Positive clinical psychology practice offers a range of strengths-based interventions that focus on amplifying an individual's experiences of joy and on increasing a person's satisfaction with life. Joseph and Linley (2006) argued that positive clinical psychologists identify human strengths and promote mental health as assets which buffer against mental illness through educational, relational and social interventions. The four-dimension model seems to depict clearly how the enhanced levels of joy and life satisfaction may operate as buffers against psychological distress. However, the model does not appear to suggest what exactly might be done in order to increase an individual's SWB from the positive psychology perspective. Neither does the dynamic equilibrium theory. Indeed, the model seems to imply that the levels of both depression and anxiety ought to be reduced to increase a person's happiness, which is rather consistent with the traditional clinical psychology stance. The dynamic equilibrium theory, on the other hand, suggests that if left on their own individuals would sooner or later return to their equilibrium levels of SWB. These theoretical inconsistencies with the applied

positive psychology approach seem to make the potential clinical implications of the present study rather ambiguous.

Yet, some guidance for psychological interventions from the perspective of positive clinical psychology can be found in the theory of flow developed by Csikszentmihalyi (1988, 1997, 2002). The theory proposed that SWB can be enhanced through engagement with everyday life and through involvement in absorbing tasks, such as work or leisure activities, in which a person exercises individual strengths, talents and interests. The involvement and absorption in activities that individuals do for their own sake lead to unique harmony and order in consciousness. Such optimal experiences help an individual to develop and cultivate an optimistic perception of oneself and the future. These theoretical propositions informed the practical recommendations that Carr (2005) gave to mental health professionals aspiring to pursue a positive psychology approach in their clinical practice. For instance, the author suggested that "clinicians may help clients identify their talents and explore ways to use these frequently to generate flow experiences" (p. 5). Given the crucial role that activities, hobbies and work might play in the recovery of people with severe mental health difficulties (Bryson et al., 2002; Davies, Hopkins, Campisi, & Maggs, 2012), the practical recommendations derived from the theory of flow appear consistent with the needs of individuals experiencing psychosis.

5.2 Unexamined aetiology of psychological distress in psychosis

The study did not investigate why individuals with psychosis often react with heightened levels of psychological distress. As already discussed, throughout the last two decades the subject of emotional distress in psychosis has been thoroughly investigated by cognitive psychology researchers. Hence, for conceptual purposes, we have taken a cognitive perspective on this matter. Cognitive models of psychosis propose that it is not a delusional or hallucinatory experience in itself that accounts for emotional distress of an individual experiencing psychosis. It is rather the individual's appraisal or interpretation of that experience that triggers a particular emotional reaction (Chadwick, Birchwood, & Trower, 1996). Perhaps, the clearest cognitive framework for experiences such as delusions or hallucinations has been based on Ellis' A-B-C model, where A stands for 'activating event', B stands for 'belief' about activating event, and C stands for 'consequences' of holding a particular belief, including emotional, behavioural and physiological reactions (Dudley & Kuyken, 2006). Within the A-B-C framework, hallucinations are the activating events (As), which are interpreted and appraised by an individual (Bs). These interpretations might be delusional or paranoid in their content, and subsequently trigger associated emotional reactions (Cs), such as anxiety or depression (Chadwick et al., 1996). For instance, when a person experiences a threatening auditory hallucination, s/he might think s/he has lost control over her/his life and deserves punishment and, as the result of this belief, becomes depressed. Consequently, given the four-dimension model of SWB and psychological distress, the person's levels of joy and life satisfaction would be negatively affected.

5.3 Unexplored external indicators of general wellbeing

The study focused entirely on the subjective aspects of wellbeing. Thus, objective indicators were not considered within the studied model. There has been an ongoing debate about the relevance of external factors for SWB that continues to take place in the positive psychology literature. As explained by Argyle (2001), the major weakness of objective indicators is that we do not yet know which to investigate uniformly, as different people might have radically

different hierarchies of values. Hence, indiscriminate inclusion of a set cluster of external influences might pose a risk of distorting results of nomothetic quantitative studies.

Veenhoven (1991) argued that SWB relates more strongly to psychological variables than to socio-economic indicators, whilst Argyle and Martin (1991) concluded that the effect of objective indicators on subjective satisfaction was statistically non-significant. For instance, a number of studies reported that a vast majority (up to 96%) of unmarried, unemployed and relatively uneducated people reported being satisfied with their lives (Diener & Diener, 1996). Also, as Western societies got richer during the last five decades, their people have not become any happier, yet at the same time average income has more than doubled (Layard, 2005). Furthermore, Haidt (2006) reviewed the existing empirical studies and concluded that there was no evidence suggesting that personal or occupational success increases overall SWB. Almost zero association was found between having children and happiness (Powdthavee, 2009).

Schwarz and Strack (1991) reported that most objective life circumstances account for less than 5% of the variance in measures of SWB and the combination of a dozen objective domains of life accounts for less that 10%. Thus, the assumption of general external laws affecting one's happiness appears to have turned out unfruitful, as the evidence suggests that levels of SWB draw on inner sources rather than on outer ones (Schimmack & Lucas, 2007). It seems that, unless the basic life needs are jeopardized, people from all socio-economic and ethnic groups report their satisfaction well above neutral (Diener & Lucas, 2000). As noticed by Peterson and Park (2009), "most people rate themselves as somewhat above the midpoint of a happiness scale, whether they are multimillionaires in the United States… or homeless prostitutes in Calcutta…" (p. 304). Hence, the four-dimension model's focus on internal emotional processes might be seen as both its limitation and its strength.

5.4 Convenience sampling and selective participation

Non-probability convenience sampling was adopted for the purpose of this study. Due to the limited number of potential participants and predicted difficulties with engaging individuals with active psychosis (as described by Evans-Jones, Peters and Barker, 2009), the study needed to be conducted with those accessible and agreeing to participate. As argued by Leary (2004), non-probability samples are entirely acceptable for psychological research, since the goal is typically not to describe how the population behaves but rather test some specific hypotheses regarding relations between variables in a particular sample. "We may wonder whether the results generalise to other kinds of samples, but this question does not undermine the quality of particular study" (p. 126).

As suggested by Gassie (1968), research findings might be generalised from one situation to another if the study sample is representative of both situations. Hence, how representative our sample has been of people with psychosis in general and how might it differ from individuals who experience psychosis but remain outside of specialist care? The response rate in our study appeared at least satisfactory: the majority of the individuals who received the research information sheet expressed their interest in contributing to the exploration of SWB levels in psychosis and agreed to fill in the questionnaires. Our participants were recruited from a range of specialist care settings: acute care wards, rehabilitation wards and outpatient community-based clinics. Therefore, a range of stages of recovery from acute psychotic episodes was included. Furthermore, relatively high standard deviations of the psychoticism and paranoid ideation scales indicated that the range of current levels of psychosis varied considerably

within the sample, which indicated that severity of psychosis was indeed fairly well represented: from an acute to a relative recuperation stage.

The study was not conducted in early intervention services. Hence, individuals with first episodes of psychosis, or those at risk of developing psychosis, were not included. Neither were persons who were in remission from psychotic experiences and consequently did not require a psychological intervention, or those who never searched for specialist care. Thus, while generalising the present research outcomes, the specificity of the studied sample (i.e. individuals with present psychosis across the range of recovery stages in receipt of specialist care) needs to be taken into consideration.

5.5 Limitations of mediation analysis

The stepped approach to mediation analysis may appear to imply that if the statistical assumptions of causal steps were met and a series of regressions were conducted, then a definite answer about mediating effects would be provided. Bramwell (1996) argued that since mediation analysis relies on purely correlational techniques, rather than on experimental manipulation of cause and effect, it cannot provide any conclusive evidence that the direction of causality is that which a researcher predicts. Similarly, Bryman and Cramer (2001) proposed that a correlational study cannot establish the causal effects and the generation of causal explanations from correlational research can be meaningless; these effects can only be inferred. Since causal inferences generally cannot be made on the basis of non-experimental studies, then correlational data must rather be interpreted merely in correlational terms and the only conclusion that can be made is that the causal model is consistent with the data. Again, as suggested by Bryman and Cramer (2001), in order to make inferences about the likely direction of cause and effect, "the researcher must look to probable directions of causation... or to theories which suggest that certain variables are more likely to precede others" (p. 229). In addition, Kenny (2008) argued that, given the causal assumption that underlies a mediational analysis, if the study model is misspecified, then the mediation analysis' results are not so much meaningless as misleading. Therefore, it is of major importance for any researcher to justify the assumptions that have been made in any mediational model.

In the present study, the justification for causational directions in mediational models was established on the grounds of previous research conducted on the subjects of emotional distress in psychosis and cognitive and affective components of SWB. It is argued here that the indirect-only causational model with depression as the dominant mediator was consistent with the obtained data. However, it is also acknowledged that the findings presented should be interpreted in correlational terms; a definite *proof* for the direction of causality should not be inferred.

Yet, Kenny (2008) strongly disagreed with the idea that experimental studies are the only legitimate design for drawing causal conclusions. The author argued that the experimental requirement for manipulation prevents studying many variables of which manipulation would be unethical. Additionally, if the mediators are internal psychological properties or processes then these variables can only be measured, not manipulated. "If we can only study variables that we manipulate, we have a science that artificially limits itself from studying as causes variables that cannot be manipulated" (Kenny, 2008, p. 356). Kenny's conclusions appeared pertinent in the context of the present research. Given the subject studied, the idea of constructing an experiment in which the investigated variables were experimentally *manipulated* appeared highly unethical, if at all possible.

6. Future directions

When interpreting the results of mediational analysis, the issue of an alternative equivalent model must be acknowledged. That is, for any given mediational model there are likely to be alternative models with different patterns of relations amongst the studied variables that are consistent with the data (Frazier et al., 2004). As noticed by MacKinnon et al. (2007, p. 595),

> although the consideration of a third variable may appear simple, three-variable systems can be very complicated, and there are many alternative explanations of observed relations other that mediation.

The four-dimension model of SWB and psychological distress chosen for the purpose of the present study, although supported with evidence, is only one of a number of happiness concepts. Successful replication of the model with the studied sample and its employment for the purpose of the proposed mediational pathways was only an initial attempt to investigate SWB amongst individuals with complex and enduring mental health difficulties.

It is important to remember that although the dominant mediational properties of depression were consistent with the obtained data, psychoticism and paranoid ideation accounted only for 12.2% of variance in the levels of satisfaction with life amongst the study participants. Also, when controlling for the predictor variable, depression accounted for 22.4% of variance in life satisfaction. Thus, it appears essential that future studies focus on establishing the other determinants of satisfaction with life amongst individuals experiencing psychosis. For instance, the mentioned theory of flow may serve as an alternative equivalent model and provide some indications for additional personal determinants of life satisfaction amongst individuals with severe psychological difficulties (e.g. an ability to become engaged in and absorbed with activities), which might inform the focus of future research.

Furthermore, as proposed by Forgeard, Jayawickreme, Kern, and Seligman (2011), future research on the subject of wellbeing should endeavour to capture the complex and multifaceted nature of wellbeing and combine both subjective and objective measures. The authors argued that "subjective measures are insufficient; objective measures provide essential additional information by conveying the circumstances in which individuals live and develop" (p. 98). This assertion seems particularly relevant to the sample studied, as it is fundamentally important to acknowledge the objective disadvantages and widespread stigmatisation that are faced by people with psychosis (e.g. Lingwood, 2006; Thornicroft, 2006). Hence it seems essential that future research incorporates a holistic approach to the wellbeing of individuals with severe mental health difficulties, and that both internal (personal, psychological) and external (objective) variables are taken into consideration.

Authors

Pawel D. Mankiewicz
National Health Service, UK, and University of Lincoln, UK
pawel.mankiewicz@nhs.net

David M. Gresswell
University of Lincoln, UK

Colin Turner
National Health Service, UK

References

Ahern, G.L. & Schwartz, G.E. (1985). Differential lateralization for positive and negative emotion in the human brain: EEG spectral analysis. *Neuropsychologia, 23*(6), 745-755. http://dx.doi.org/10.1016/0028-3932(85)90081-8

Alves, N.T., Fukusima, S.S., & Aznar-Casanova, J.A. (2008). Models of brain asymmetry in emotional processing. *Psychology and Neuroscience, 1*(1), 63-66.

Andrews, F.M. & Withey, S.B. (1974). Developing measures of perceived life quality: Results from several national surveys. *Social Indicators Research, 1*, 1-26. http://dx.doi.org/10.1007/BF00286419

Argyle, M. (2001). *The psychology of happiness* (2nd ed.). London, United Kingdom: Routledge.

Argyle, M. & Martin, M. (1991). The psychological causes of happiness. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 77-100). Oxford, United Kingdom: Pergamon Press.

Barkham, M. & Parry, G. (2008). Balancing rigour and relevance in guideline development for depression: The case for comprehensive cohort studies. *Psychology and Psychotherapy: Theory, Research and Practice, 81*, 399-417. http://dx.doi.org/10.1348/147608308X322862

Basabe, N., Paez, D., Valencia, J., Rime, B., Pennebaker, J., Diener, E., & Gonzalez, J.L. (2000). Sociocultural factors predicting subjective experience of emotion: A collective level analysis. *Psicothema, 12*, 55-69.

Bennett, J.A. (2000). Mediator and moderator variables in nursing research: Conceptual and statistical differences. *Research in Nursing & Health, 23*, 415-420. http://dx.doi.org/10.1002/1098-240X(200010)23:5<415::AID-NUR8>3.0.CO;2-H

Bentall, R.P. (Ed.) (1990). *Reconstructing schizophrenia.* London, United Kingdom: Routledge.

Bentall, R.P. (2003). *Madness explained: Psychosis and human nature.* London, United Kingdom: Penguin Books.

Bergsma, A. & Veenhoven, R. (2011). The happiness of people with a mental disorder in modern society. *Psychology of Well-Being: Theory, Research and Practice, 1*(2), 1-6.

Boyle, M. (1993). *Schizophrenia: A scientific delusion?* London, United Kingdom: Routledge.

Bradburn, N.M. (1969). *The structure of psychological well-being.* Chicago, IL: Aldine Publishing Company.

Braehler, C. & Harper, S.F. (2008). Identifying psychological needs in psychosis: Perceptions and priorities of CMHT keyworkers. *Clinical Psychology Forum, 182*, 13-17.

Bramwell, R. (1996). Advanced uses of multiple regression: Modelling mediated and moderated effects. In J. Haworth (Ed.), *Psychological research: Innovative methods and strategies* (pp. 67-77). London, United Kingdom: Routledge.

Bryman, A. & Cramer, D. (2001). *Quantitative data analysis with SPSS release 10 for Windows: A guide for social scientists.* Hove, United Kingdom: Routledge.

Bryson, G., Lysaker, P., & Bell, M. (2002). Quality of life benefits of paid work activity in schizophrenia. *Schizophrenia Bulletin, 28*(2), 249-257. http://dx.doi.org/10.1093/oxfordjournals.schbul.a006935

Campbell, P. (2007). Hearing my voice. *The Psychologist, 20*(5), 298-299.

Carr, A. (2004). *Positive psychology: The science of happiness and human strengths.* London, United Kingdom: Routledge.

Carr, A. (2005). Positive psychology. *Clinical Psychology, 45*, 5-6.

Chadwick, P., Birchwood, M., & Trower, P. (1996). *Cognitive therapy for delusions, voices and paranoia.* Chichester, United Kingdom: John Wiley & Sons.

Chadwick, P.K. (1997). *Schizophrenia: The positive perspective: In search of dignity for schizophrenic people.* New York, NY: Brunner-Routledge.

Conway, C. & MacLeod, A. (2002). Well-being: Its importance in clinical practice and research. *Clinical Psychology, 16,* 26-29.

Corcoran, C., Walker, E., Hout, R., Mittal, V., Tessner, K., Kestler, L., & Malaspina, D. (2003). The stress cascade and schizophrenia: Etiology and onset. *Schizophrenia Bulletin, 29*(4), 671-692. http://dx.doi.org/10.1093/oxfordjournals.schbul.a007038

Csikszentmihalyi, M. (1988). The flow experience and its significance for human psychology. In M. Csikszentmihalyi, & I.S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 15-35). Cambridge, United Kingdom: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511621956.002

Csikszentmihalyi, M. (1997). *Finding Flow. The psychology of engagement with everyday life.* New York, NY: Perseus Books Group.

Csikszentmihalyi, M. (2002). *Flow: The classic work on how to achieve happiness.* London, United Kingdom: Rider.

Davies, J., Hopkins, M., Campisi, M., & Maggs, R.G. (2012). Developing high relational support services for individuals with long term mental health needs: Scheme description and service evaluation. *Mental Health and Social Inclusion, 16*(1), 31-40. http://dx.doi.org/10.1108/20428301211205883

Derogatis, L.R. (1993). *Brief Symptom Inventory: Administration, scoring, and procedures manual* (4th ed.). Minneapolis, MN: Pearson.

Derogatis, L.R. & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. *Psychological Medicine, 13,* 595-605. http://dx.doi.org/10.1017/S0033291700048017

Devins, G.M., Beiser, M., Dion, R., Pelletier, L.G., & Edwards, R.G. (1997). Cross-cultural measurements of psychological well-being: The psychometric equivalence of Cantonese, Vietnamese, and Laotian translations of the Affect Balance Scale. *American Journal of Public Health, 87*(5), 794-799. http://dx.doi.org/10.2105/AJPH.87.5.794

Diener, E., & Biswas-Diener, R. (2008). *Happiness: Unlocking the mysteries of psychological wealth.* Malden, MA: Blackwell Publishing. http://dx.doi.org/10.1002/9781444305159

Diener, E. & Diener, C. (1996). Most people are happy. *Psychological Science, 7*(3), 181-185. http://dx.doi.org/10.1111/j.1467-9280.1996.tb00354.x

Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*(1), 71-75. http://dx.doi.org/10.1207/s15327752jpa4901_13

Diener, E. & Lucas, R.E. (2000). Subjective emotional well-being. In M. Lewis, & J.M. Haviland (Eds.), *Handbook of emotions* (2nd ed.) (pp. 325-337). New York, NY: Guilford.

Dudley, R. & Kuyken, W. (2006). Formulation in cognitive-behavioural therapy. In L. Johnstone, & R. Dallos (Eds.), *Formulation in psychology and psychotherapy: Making sense of people's problems* (pp. 17-46). Hove, United Kingdom: Routledge.

Evans-Jones, C., Peters, E., & Barker, C. (2009). The therapeutic relationship in CBT for psychosis: Client, therapist and therapy factors. *Behavioural and Cognitive Psychotherapy, 37,* 527-540. http://dx.doi.org/10.1017/S1352465809990269

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175-191. http://dx.doi.org/10.3758/BF03193146

Forgeard, M.J.C., Jayawickreme, E., Kern, M.L., & Seligman, M.E.P. (2011). Doing the right thing: Measuring wellbeing for public policy. *International Journal of Wellbeing, 1*(1), 79-106.

Fowler, D., Garety, P., & Kuipers, E. (1995). *Cognitive behaviour therapy for psychosis: Theory and practice.* Chichester, United Kingdom: John Wiley & Sons.

Francis, V. M., Rajan, P., & Turner, N. (1990). British community norms for the Brief Symptom Inventory. *British Journal of Clinical Psychology, 29,* 115–116. http://dx.doi.org/10.1111/j.2044-8260.1990.tb00857.x

Frazier, P.A., Tix, A.P., & Barron, K.E. (2004). Testing moderator and mediator effects in counseling psychology. *Journal of Counseling Psychology, 51*(1), 115-134.

Freeman, D., Garety, P.A., Kuipers, E., Fowler, D., & Bebbington, P.E. (2002). A cognitive model of persecutory delusions. *British Journal of Clinical Psychology, 41,* 331-347. http://dx.doi.org/10.1348/014466502760387461

Gassie, E.W. (1968). On generalizing research findings. *Journal of Cooperative Extension, 6,* 151-154.

Godoy-Izquierdo, D., Martinez, A., & Godoy, J.F. (2008). The Affect Balance Scale: Its psychometric properties as a tool for measuring positive and negative affect in the Spanish population. *Clinica y Salud, 19*(2), 157-189. http://scielo.isciii.es

Good, J. (2002). The effect of treatment of a comorbid anxiety disorder on psychotic symptoms in a patient with a diagnosis of schizophrenia: A case study. *Behavioural and Cognitive Psychotherapy, 30,* 347-350. http://dx.doi.org/10.1017/S1352465802003090

Haidt, J. (2006). *The happiness hypothesis: Putting ancient wisdom and philosophy to the test of modern science.* London, United Kingdom: Arrow Books.

Headey, B. (2006). Happiness: Revisiting set point theory and dynamic equilibrium theory to account for long term change. *Discussion Papers, 607,* 1-18. Berlin, Germany: German Institute for Economic Research. Retrieved July 2, 2009, from http://www.diw.de

Headey, B. & Wearing, A. (1991). Subjective well-being: A stocks and flows framework. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 49-73). Oxford, United Kingdom: Pergamon Press.

Headey, B., & Wearing, A. (1992). *Understanding happiness: A theory of subjective well-being.* Melbourne, Australia: Longman Cheshire.

Houghton, P., Shaw, B., Hayward, M., & West, S. (2006). Psychosis revisited: Taking a collaborative look at psychosis. *Mental Health Practice, 9*(6), 40-43.

Huppert, F.A. (2005). *Positive emotions and cognition: Developmental, neuroscience and health perspectives.* Proceedings of the 8th Sydney Symposium of Social Psychology. Retrieved May 3, 2011, from www.sydneysymposium.unsw.edu.au

James, A. (2001). *Raising our voices: An account of the Hearing Voices movement.* Gloucester, United Kingdom: Handsell Publishing.

Johns, L.C., Sellwood, W., McGovern, J., & Haddock, G. (2002), Battling boredom: Group cognitive behaviour therapy for negative symptoms of schizophrenia. *Behavioural and Cognitive Psychotherapy, 30,* 341-346. http://dx.doi.org/10.1017/S1352465802003089

Joseph, S. & Linley, P.A. (2006). *Positive therapy: A meta-theory for positive psychological practice.* London, United Kingdom: Routledge.

Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 3-25). New York, NY: Russell Sage.

Kenny, D.A. (2008). Reflections on mediation. *Organizational Research Methods, 11*(2), 353-358. http://dx.doi.org/10.1177/1094428107308978

Layard, R. (2005). *Happiness: Lessons from a new science.* London, United Kingdom: Penguin Books.

Leary, M.R. (2004). *Introduction to behavioural research methods* (4th ed.). Boston, MA: Pearson Education.

Lewinsohn, P.M., Redner, J.E., & Seeley, J.R. (1991). The relationship between life satisfaction and psychological variables: New perspectives. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 141-169). Oxford, United Kingdom: Pergamon Press.

Lewis, C.A., McCollam, P., & Joseph, S. (2000). Convergent validity of the depression-happiness scale with the bradburn affect balance scale. *Social Behavior and Personality, 28*(6), 579-584. http://dx.doi.org/10.2224/sbp.2000.28.6.579

Lingwood, L. (2006). Building bridges to social inclusion. In C. Jackson & K. Hill (Eds.), *Mental health today: A handbook* (pp. 21-27). Brighton, United Kingdom: Pavilion Publishing.

Linley, P.A., Joseph, S., Harrington, S., & Wood, A.M. (2006). Positive psychology: Past, present, and (possible) future. *The Journal of Positive Psychology, 1*(1), 3-16. http://dx.doi.org/10.1080/17439760500372796

MacKinnon, D.P., Fairchild, A.J., & Fritz, M.S. (2007). Mediation analysis. *Annual Review of Psychology, 58,* 593-614. http://dx.doi.org/10.1146/annurev.psych.58.110405.085542

Marneros, A. & Akiskal, H.S. (Eds.) (2007). *The overlap of affective and schizophrenic spectra.* Cambridge, United Kingdom: Cambridge University Press.

Miles, J. & Shevlin, M. (2001). *Applying regression and correlation: A guide for students and researchers.* London, United Kingdom: Sage.

Natale, M., Gur, R.E., & Gur, R.C. (1983). Hemispheric asymmetries in processing emotional expressions. *Neuropsychologia, 21*(5), 555-565. http://dx.doi.org/10.1016/0028-3932(83)90011-8

Nettle, D. (2005). *Happiness: The science behind your smile.* Oxford, United Kingdom: Oxford University Press.

Noddings, N. (2003). *Happiness and education.* Cambridge, United Kingdom: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511499920

Norman, R.M.G. & Malla, A.K. (1991). Dysphoric mood and symptomatology in schizophrenia. *Psychological Medicine, 21,* 897-903. http://dx.doi.org/10.1017/S0033291700029883

Pavot, W. & Diener, E. (1993). Review of the satisfaction with life scale. *Psychological Assessment, 5*(2), 164-172.

Peterson, C. (2006). *A primer in positive psychology.* Oxford, United Kingdom: Oxford University Press.

Peterson, C., & Park, N. (2009). Increasing happiness in lasting ways. *The Psychologist, 22*(4), 304-307.

Posner, J., Russell, J.A., & Peterson B.S. (2005). The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development and psychopathology. *Development and Psychopathology, 17*, 715–734. http://dx.doi.org/10.1017/S0954579405050340

Powdthavee, N. (2009). Think having children will make you happy? *The Psychologist, 22*(4), 308-310.

Romme, M. (1993). Rehabilitation. In M. Romme, & S. Escher (Eds.), *Accepting voices* (pp. 227-235). London, United Kingdom: Mind Publications.

Ryan, C. (2007). British outpatient norms for the brief symptom inventory. *Psychology and Psychotherapy. Theory, Research and Practice, 80,* 183-191.

Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*(6), 1069-1081.

Sanders, D. & Wills, F. (2005). *Cognitive therapy: An introduction* (2nd ed.). London, United Kingdom: Sage Publications.

Sass, L.A. & Parnas, J. (2003). Schizophrenia, consciousness, and the self. *Schizophrenia Bulletin, 29*(3), 427-444. http://dx.doi.org/10.1093/oxfordjournals.schbul.a007017

Scheller-Gilkey, G., Thomas, S.M., Woolwine, B.J., & Miller, A.H. (2002). Increased early life stress and depressive symptoms in patients with comorbid substance abuse in schizophrenia. *Schizophrenia Bulletin, 28*(2), 223-231. http://dx.doi.org/10.1093/oxfordjournals.schbul.a006933

Schimmack, U. & Lucas, R. (2007). Marriage matters: Spousal similarity in life satisfaction. *Schmollers Jahrbuch, 127,* 1-7.

Schwarz, N. & Strack, F. (1991). Evaluating one's life: A judgement model of subjective well-being. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 27-47). Oxford, United Kingdom: Pergamon Press.

Seligman, M.E.P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14.

Siris, S.G. (1991). Diagnosis of secondary depression in schizophrenia: Implications for DSM-IV. *Schizophrenia Bulletin, 17*(1), 75-98. http://dx.doi.org/10.1093/schbul/17.1.75

Steel, C. (2008). Cognitive behaviour therapy for psychosis: Current evidence and future directions. *Behavioural and Cognitive Psychotherapy, 36,* 705-712. http://dx.doi.org/10.1017/S1352465808004785

Thornicroft, G. (2006). Challenging discrimination against people with mental health problems. In C. Jackson & K. Hill (Eds.), *Mental health today: A handbook* (pp. 37-43). Brighton, United Kingdom: Pavilion Publishing.

Vaughan, S. & Fowler, D. (2004). The distress experienced by voice hearers is associated with the perceived relationship between the voice hearer and the voice. *British Journal of Clinical Psychology, 43,* 143-153. http://dx.doi.org/10.1348/014466504323088024

Veenhoven, R. (1991). Questions on happiness: Classical topics, modern answers, blind spots. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being: An interdisciplinary perspective* (pp. 7-26). Oxford, United Kingdom: Pergamon Press.

World Health Organisation. (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines.* Geneva, Switzerland: Author.

Zhao, X., Lynch, J.G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37*(2), 197-206. http://dx.doi.org/10.1086/651257