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Relationship Between Illness Representations, Psychosocial Adjustment, and Treatment Outcomes in Mental Disorders: A Mini Review

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Understanding and improving the psychosocial adjustments (e.g., quality of life, depression) and treatment outcomes (e.g., adherence, beliefs about treatments) of people with mental disorders are major health issues. The self-regulation model (SRM) postulates that illness representations play a central role on adjustment and treatment of people with physical illnesses. Recently, the SRM has been used with people with mental disorders. However, the manifestations of somatic and psychiatric disorders can be very different. Therefore, the use of SRM in the field of mental health is very complex. This difficulty, as well as the growing interest for illness representations in the field of mental health, justifies the utility to conduct a review on this topic. The current review shows that illness representations are related to psychosocial adjustment and/or treatment outcomes for people with various mental disorders [e.g., psychotic disorders, mood disorder, posttraumatic stress disorder (PTSD), attention deficit hyperactivity disorder (ADHD)]. However, some limitations to the applicability of SRM to mental disorders have been highlighted. These limitations should be considered in future studies.

Keywords: illness perceptions, self-regulation model, outcome, treatment, mental health

INTRODUCTION

Psychosocial adjustment of people with mental disorders is severely diminished, in particular, they live 10 years less than the general population (Walker et al., 2015), with a lower quality of life (Alonso et al., 2004; Fleury et al., 2013) and a higher level of disability (Alonso et al., 2004). To manage these disorders, the emphasis is on medication and/or psychosocial interventions. However, for many disorders, a low level of adherence to treatment has been observed (Lacro et al., 2002; García et al., 2016; Ho et al., 2016). Poor adherence hinders psychosocial adjustment, diminishes the effect of treatment, reduces quality of life, and increases the cost to the health care

system (World Health Organization, 2003). Therefore, understanding the processes involved in the psychosocial adjustment and adherence of people with mental disorders is a major health issue.

In physical illnesses, many studies have highlighted the central role of illness representations on psychosocial adjustment (for reviews and/or meta-analysis, see Hagger and Orbell, 2003; Foxwell et al., 2013; Al-Smadi et al., 2016; Hagger et al., 2017) and adherence (for a meta-analysis, see Brandes and Mullan, 2014). According to the self-regulation model (SRM; Leventhal et al., 1984), illness representations can be divided into six dimensions: *timeline* (considering whether the illness is acute, chronic, or cyclical); *consequences* (assessing its impact on life, including physical, emotional, social, and economic outcomes); *cure/control*, which can be divided into personal control (beliefs about personal abilities to control the illness), and treatment control (beliefs about the treatment's effectiveness in curing or managing the illness); *identity* (overall comprehensibility of the illness); *emotional representations* (emotional impact or emotional response to the illness); and *cause* (factors believed to be responsible for the illness or condition).

The SRM was originally created to try to understand what people think and how they cope with a concrete physical illness that can potentially affect their mental health. More recently, the SRM has been used with people with mental disorders. However, the manifestations of somatic and psychiatric disorders are very different. For example, the symptoms of a mental disorder can change an individual's cognitions, behaviors, and emotions. Therefore, the use of SRM in the field of mental health is very complex. To date, only two reviews (Lobban et al., 2003; Baines and Wittkowski, 2013) have examined the applicability of SRM for people with mental disorders. However, the most recent studies included in these reviews are from 2002 for one (Lobban et al., 2003) and 2011 for the other (Baines and Wittkowski, 2013). The growing interest for illness representations in the field of mental health justifies the utility to conduct more recent review. This mini review intends to answer the following question: what are the links between representations of illness, psychosocial adjustment, and treatment outcomes in individuals with a mental disorder. Additional information on each study included (e.g., population, design, and results) are available in the **Supplementary Material**.

METHOD

In order to identify the articles answering our question, we used the following keywords: *self-regulation model* OR *illness perception* * OR *illness representation* * OR AND *mental disorder* * OR *mental health*. We conducted electronic searches on PsycINFO, PsycARTICLES, Web of Science, and PubMed to identify studies published between 1980 and 2019. The following inclusion criteria were applied to the articles: (1) Published empirical study or research report examining illness representation in the field of mental health, (2) Dealing with psychosocial adjustment and/or treatment outcomes, and (3)

Article written in English or French and published in a peer-reviewed journal. In this review, 47 articles were selected.

RESULTS

Illness Representations and Psychosocial Adjustment of People With Mental Disorders

Twelve studies have explored the relationship between psychosocial adjustment and illness representations in people with psychotic disorders (Lobban et al., 2004, 2005, 2006; Fialko et al., 2006; Watson et al., 2006; Stainsby et al., 2010; Cavelti et al., 2012a,b; Moriarty et al., 2012; Theodore et al., 2012; Gómez-de-Regil et al., 2014; Maguire et al., 2016). Poor psychosocial adjustment (e.g., high symptoms, low quality of life) was related to high identity (Lobban et al., 2005; Watson et al., 2006), high chronicity (Lobban et al., 2005; Fialko et al., 2006; Watson et al., 2006), high cyclicity (Lobban et al., 2005), high consequences (Lobban et al., 2005; Fialko et al., 2006; Watson et al., 2006; Stainsby et al., 2010; Theodore et al., 2012), and high emotional representations (Lobban et al., 2005; Cavelti et al., 2012b; Theodore et al., 2012; Gómez-de-Regil et al., 2014). Conversely, good psychosocial adjustment (e.g., high subjective well-being, high insight) was associated with high levels of personal control (Lobban et al., 2005), treatment control (Lobban et al., 2005; Cavelti et al., 2012b; Theodore et al., 2012), cure/control (Fialko et al., 2006; Watson et al., 2006), and coherence (Lobban et al., 2005; Stainsby et al., 2010; Cavelti et al., 2012b). A high level of perceived consequences was one of the strongest predictors of poor psychosocial adjustment (e.g., high symptoms, low functioning) (Lobban et al., 2004). Moreover, low levels of personal control and coherence and high levels of consequence, identity, concern, and emotional representation were predicted by self-rated mental health rated as being "poor and/or fair" (in comparison with excellent). Higher chronicity was predicted by self-rated mental health rated as being "very good" (in comparison with excellent; Maguire et al., 2016). Treatment control was helpful to explain the quality of life (Theodore et al., 2012). Moreover, cognitive and emotional representations mediated the link between residual symptoms and quality of life (Gómez-de-Regil et al., 2014). One study highlighted that the association between insight and depressive symptoms was mediated by chronicity and consequences (Cavelti et al., 2012a). In addition, illness representations were not related to the level of activity (Moriarty et al., 2012). Finally, for people with a high level of expressed emotion, a significant gap was observed between illness representations of relatives and patients (Lobban et al., 2006).

Four studies have explored the relationship between psychosocial adjustment and illness representations in people with a bipolar disorder (Lobban et al., 2013; Peay et al., 2013, 2014; Dodd et al., 2017). Good recovery was associated with high levels of treatment and personal control and low levels of perceived consequences, emotional representations, identity, and self-blame (Dodd et al., 2017). Identity, consequences, and

personal concern had an effect on time to relapse (Lobban et al., 2013). Personal control was negatively related to depression (Lobban et al., 2013). The relationship between representation of illness severity and adaptation was mediated by coping (Peay et al., 2013). Finally, severity perceived was not linked with parents' ability to cope with the risk of mood disorders in children (Peay et al., 2014).

Three studies have explored the relationship between psychosocial adjustment and illness representations in people with mixed mental disorders (Broadbent et al., 2008; Ward and Heidrich, 2009; Chan and Mak, 2016). A low level of functioning was related to a low level of control and high levels of identity, concern, emotional representations, timeline, and consequences (Broadbent et al., 2008). High personal control was a predictor of good recovery (Chan and Mak, 2016). Finally, stigma was negatively associated with identity (Ward and Heidrich, 2009) and personal control (Chan and Mak, 2016).

Three studies have explored the relationship between psychosocial adjustment and illness representations in people with depression (Kelly et al., 2007; Cabassa et al., 2008; Lu et al., 2014). Poor psychosocial adjustment (e.g., high symptoms) was associated with high levels of chronicity (Cabassa et al., 2008; Lu et al., 2014), identity, consequences, and emotional representations and low levels of control and coherence (Lu et al., 2014). High emotional representations promoted the use of maladaptive coping. A high level of consequences was related to a low level of problem-solving strategies (Kelly et al., 2007). Finally, the association between illness representations and emotional outcomes was mediated by maladaptive ruminations (Lu et al., 2014).

Two studies have explored the relationship between psychosocial adjustment and illness representations in people with an eating disorder (Quiles Marcos et al., 2009; DeJong et al., 2012). For people with bulimia, low control was related to a high shape concern. A high level of emotional representations was associated with high levels of anxiety, dietary restraint, eating concern, and shape/weight concern. Finally, identity was positively associated with dietary restraint (DeJong et al., 2012). For people with various eating disorders, when both patients and their relatives had high personal control, patients had lower depressive and anxious symptomatology in comparison to dyads with different representations. Similarly, when both patients and their relatives had high treatment control, patients had better psychosocial adjustment than dyads with different scores (Quiles Marcos et al., 2009).

Finally, four studies have explored the relationship between psychosocial adjustment and illness representations in adolescents with a mental disorder (Munson et al., 2009; Moses, 2010, 2015; Wong et al., 2019). For adolescents with affective and disruptive disorders, a high level of the following causal attributions: trauma and social problems were related to high self-stigma (Moses, 2010). For adolescents with various mental disorders, high control and low chronicity were related to high self-esteem (Moses, 2015). For adolescents with mood disorders, high emotional representations predicted high stigma (Munson et al., 2009). For adolescents with attention deficit hyperactivity disorder (ADHD), a good quality of life was predicted by a low

level of "impact" representation (i.e., consequences, identity, concern, and emotional representation) and a high level of psychological or environmental causal attributions of ADHD. In addition, a high level of minimization was predicted by high levels of timeline, personal control, coherence, and low level of consequence perceived (Wong et al., 2019).

Illness Representations and Treatment Outcomes of People With Mental Disorders

Five studies have explored the relationship between treatment outcomes and illness representations in people with psychotic disorders (Watson et al., 2006; Rungruangsiripan et al., 2011; Beck et al., 2012; Cavelti et al., 2012b; Marcus et al., 2014). The necessity to take a treatment was related to high levels of treatment control (Beck et al., 2012; Cavelti et al., 2012b), chronicity, and cyclicity (Cavelti et al., 2012b). A high level of concern about treatment was associated with high scores of consequences (Beck et al., 2012; Cavelti et al., 2012b) and emotional representations (Cavelti et al., 2012b) and a low score of treatment control (Beck et al., 2012; Cavelti et al., 2012b). High distrust of medicine was related to high consequences and low treatment control (Beck et al., 2012). A study showed that cure/control was a predictor of the impact of cognitive and behavioral therapy (Marcus et al., 2014). Therapeutic alliance and medication side effects have impacted illness representations, which in turn, have impacted the intention to change (Rungruangsiripan et al., 2011). Finally, perceived consequences were negatively related to adherence to medication (Watson et al., 2006).

Five studies have explored the relationship between treatment outcomes and illness representations in people with a bipolar disorder (Hou et al., 2010; Oflaz et al., 2015; Averous et al., 2018; Etain et al., 2018; M'Bailara et al., 2019). Good treatment adherence was predicted by high treatment control and low emotional representation (Averous et al., 2018). Non-adherent patients had higher levels of perceived consequences and chronicity than adherent patients (Hou et al., 2010). Dropout patients had higher emotional representations and personal control, and lower consequences, than adherent patients (Oflaz et al., 2015). Two studies have shown that after educational therapies, illness representations were improved (Etain et al., 2018; M'Bailara et al., 2019).

Five studies have explored the relationship between treatment outcomes and illness representations in people with mixed mental disorders (Hunot et al., 2007; Broadbent et al., 2008; Vanheusden et al., 2009; Williams and Steer, 2011; Reich et al., 2015). High chronicity, control (personal and treatment), and coherence, and low emotional representations, were associated with a positive attitude toward treatment (Broadbent et al., 2008). High levels of control and coherence, and a low level of consequences perceived, were related to greater engagement in treatment (Williams and Steer, 2011). Perceived consequences, treatment control, and beliefs about intrapsychic causes were positively associated with health services use (Vanheusden et al., 2009). Illness representations were predictors of motivation

for psychotherapy (Reich et al., 2015). Finally, one study did not find a link between illness representations and adherence (Hunot et al., 2007).

Four studies have explored the relationship between treatment outcomes and illness representations in people with depression (Aikens et al., 2008; O'Mahen et al., 2009; Houle et al., 2013; Elwy et al., 2016). Timeline was a predictor of the need to receive treatment (Aikens et al., 2008) and treatment use (medication or psychotherapy/counseling) in women with perinatal depression (O'Mahen et al., 2009). A low coherence was a predictor of a high perception of the harmfulness of medication (Aikens et al., 2008). A high level of consequences perceived was associated with a high level of commitment to psychotherapy (Houle et al., 2013). Veterans with high levels of cyclicity and control were less likely to receive guideline-concordant depression treatment (Elwy et al., 2016). The belief that depression was caused by a chemical imbalance was associated with a higher need to take treatment. The belief that depression was caused by bad luck/chance was related to a higher perception of the harmfulness of medications (Aikens et al., 2008). Social attributions (e.g., problems in the family) were positively related to commitment in psychotherapy (Houle et al., 2013).

One study explored the relationship between treatment outcomes and illness representations in veterans with posttraumatic stress disorder (PTSD) (Spoont et al., 2005). High scores for consequences and causes were related to a greater likelihood of taking part in psychotherapy. High control was related to receipt of medication. Finally, psychosocial and biological causes were positively related to medication underuse.

Lastly, four studies have explored the relationship between treatment outcomes and illness representations in adolescents (Munson et al., 2009, 2010; Emilsson et al., 2017; Wong et al., 2019). For adolescents with mood disorders, treatment control was positively related to help seeking (Munson et al., 2009), and a high level of consequences was associated with high adherence (Munson et al., 2010). For adolescents with ADHD, high levels of emotional representations and consequences were linked to high unintentional non-adherence (Emilsson et al., 2017). Finally, low personal control and high emotional representations were related to high adherence to behavioral therapy (Wong et al., 2019).

DISCUSSION

Understanding the determinants of the psychosocial adjustment and adherence of people with mental disorders is a major health issue. The current review has shown that illness representations are related to both psychosocial adjustment and treatment outcomes in people with mental disorders. More specifically, in adulthood, illness representations are associated with adherence to medication and psychotherapies (for bipolar disorders, psychotic disorders, depression, mixed mental disorders, and PTSD). In addition, illness representations are associated with the individual's attitude toward medications, such as the need to take them, their harmfulness, as well as distrust of medicine (for psychotic disorders, depression, and mixed mental disorders). The few studies conducted among adolescents have shown similar patterns and have highlighted that illness representations

are linked to adherence (for ADHD and mood disorders) and propensity to seek help (for mood disorders). Thus, illness representations play an essential role in adherence and in the treatment decision-making process.

Furthermore, concerning associations between illness representations and psychosocial adjustment, in adulthood, illness representations are associated with symptoms (depressive symptoms, anxiety symptoms, positive and negative symptoms, shape concern, dietary restraint, and suicidal ideations). In psychotic disorders, illness representations are related to quality of life, self-esteem, self-rated mental health, global functioning, insight, and recovery. Finally, illness representations are linked to stigma (for mixed mental disorders) and coping (for depression and bipolar disorder). The few studies conducted with adolescents have shown similar patterns and have highlighted that illness representations are related to stigma (for mood disorders and affective and disruptive disorders), coping (for ADHD), quality of life (for ADHD), and self-esteem (for various mental disorders).

The associations between illness representations, psychosocial adjustment, and treatment outcomes in people with mental disorders indicate that illness representations should be more focused on clinical practice. Specifically, Marcus et al. (2014) recommend targeting illness perceptions (particularly controllability) in the early stages of cognitive behavioral therapy in order to improve engagement and, therefore, outcomes. To change illness representations, psychoeducation seems to be a promising intervention, increasing control and belief in the effectiveness of treatment, and reducing negative emotions about the disorder (Etain et al., 2018; M'Bailara et al., 2019). If one of the objectives of psychoeducation is to improve patients' knowledge, these authors specify that it is not the increase in knowledge as a result of psychoeducation that improves outcomes, but rather changes in illness representations. In the field of mental health, the practice guidelines recommend the use of psychoeducation (Connolly and Thase, 2011; Norman et al., 2017), and these data provide new explanations for understanding the effectiveness of psychoeducation.

However, some limitations to the applicability of SRM to mental disorders can be noted. Indeed, it is crucial to emphasize that the SRM was originally created to try to understand concrete somatic illness and not mental disorders. Yet, most studies just apply the SRM to mental disorders, arguing that the associations between illness representations, coping, and outcomes show its applicability to mental disorders (e.g., Kelly et al., 2007; Cabassa et al., 2008; Lu et al., 2014). Nevertheless, there are limitations to the use of the SRM for mental disorders. First, the lack of validity of the measurement tools (e.g., Munson et al., 2009). Most studies use scales designed for somatic disorders, but which have not been validated for people with mental disorders. Second, some authors note the need to study illness representations based on the symptomatology of individuals (e.g., Lobban et al., 2004; Averous et al., 2018). Indeed, some psychiatric symptoms can change people's cognitions, behaviors, and emotions, which can alter their relationship to reality and to their disorder, and consequently, their illness representations. It is important to note that even for somatic diseases, it is complex to determine whether

illness representations should be considered as states or traits (Ogden, 2012). The changing nature of these constructs is a central issue in this model. Third, for mental disorders, it can be difficult to dissociate the symptoms of the mental disorders on the one hand, and representations of illness on the other (Lobban et al., 2004). For example, a low personal control in people with psychosis may refer to both illness representations and the symptoms of the disorder, since psychosis can lead to significant difficulties in managing impulses, behaviors, and thoughts.

Therefore, in future studies, it appears necessary to confirm more rigorously the applicability of SRM to mental disorders or even to propose an SRM adapted to mental disorders. To this end, it would be relevant to include insight in the SRM adapted to mental disorders. Indeed, insight is highly diminished in many mental disorders (Amador et al., 1991; Varga et al., 2006) and plays a major role in adjustment and adherence (Novick et al., 2015). In addition, the role of illness perceptions in positive psychosocial outcomes has been highlighted for chronic somatic illnesses (Hagger and Orbell, 2003) but very little for mental disorders. In the future, it would be interesting to study in more

detail the role of illness representations on the well-being of people with mental disorders.

AUTHOR CONTRIBUTIONS

PA, EC, and LD conceived the study and drafted the manuscript. All authors agreed to the current form of the manuscript.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01167/full#supplementary-material>

REFERENCES

- Aikens, J. E., Nease, D. E., and Klinkman, M. S. (2008). Explaining patients' beliefs about the necessity and harmfulness of antidepressants. *Ann. Fam. Med.* 6, 23–29. doi: 10.1370/afm.759
- Alonso, J., Angermeyer, M. C., Bernert, S., Bruffaerts, R., Brugha, T. S., Bryson, H., et al. (2004). Disability and quality of life impact of mental disorders in Europe: results from the european study of the epidemiology of mental disorders (ESEMeD) project. *Acta Psychiatr. Scand. Suppl.* 109, 38–46. doi: 10.1111/j.1600-0047.2004.00329.x
- Al-Smadi, A. M., Ashour, A., Hweidi, I., Gharaibeh, B., and Fitzsimons, D. (2016). Illness perception in patients with coronary artery disease: a systematic review. *Intern. J. Nurs. Pract.* 22, 633–648. doi: 10.1111/ijn.12494
- Amador, X. F., Strauss, D. H., Yale, S. A., and Gorman, J. M. (1991). Awareness of illness in schizophrenia. *Schizophr. Bull.* 17, 113–132. doi: 10.1093/schbul/17.1.113
- Averous, P., Charbonnier, E., Lagouanelle-Simeoni, M. C., Proserpi, A., and Dany, L. (2018). Illness perceptions and adherence in bipolar disorder: an exploratory study. *Comprehens. Psychiatr.* 80, 109–115. doi: 10.1016/j.comppsy.2017.10.003
- Baines, T., and Wittkowski, A. (2013). A systematic review of the literature exploring illness perceptions in mental health utilising the self-regulation model. *J. Clin. Psychol. Med. Settings* 20, 263–274. doi: 10.1007/s10880-012-9337-9
- Beck, E.-M., Vögelin, R., Wirtz, M., Cavelti, M., Kvrjic, S., and Vauth, R. (2012). Do patients with schizophrenia distinguish between attitudes toward antipsychotic medication and pharmacotherapy in general? *J. Nerv. Ment. Dis.* 200, 33–43. doi: 10.1097/NMD.0b013e31823e5875
- Brandes, K., and Mullan, B. (2014). Can the common-sense model predict adherence in chronically ill patients? A meta-analysis. *Health Psychol. Rev.* 8, 129–153. doi: 10.1080/17437199.2013.820986
- Broadbent, E., Kydd, R., Sanders, D., and Vanderpyl, J. (2008). Unmet needs and treatment seeking in high users of mental health services: role of illness perceptions. *Austr. N. Zeal. J. Psychiatry* 42, 147–153. doi: 10.1080/00048670701787503
- Cabassa, L. J., Lagomasino, I. T., Dwight-Johnson, M., Hansen, M. C., and Xie, B. (2008). Measuring Latinos' perceptions of depression: a confirmatory factor analysis of the illness perception questionnaire. *Cult. Divers. Ethnic Minor. Psychol.* 14, 377–384. doi: 10.1037/a0012820
- Cavelti, M., Beck, E. M., Kvrjic, S., Kossowsky, J., and Vauth, R. (2012a). The role of subjective illness beliefs and attitude toward recovery within the relationship of insight and depressive symptoms among people with schizophrenia spectrum disorders. *J. Clin. Psychol.* 68, 462–476. doi: 10.1002/jclp.20872
- Cavelti, M., Contin, G., Beck, E. M., Kvrjic, S., Kossowsky, J., Stieglitz, R. D., et al. (2012b). Validation of the illness perception questionnaire for schizophrenia in a German-speaking sample of outpatients with chronic schizophrenia. *Psychopathology* 45, 259–269. doi: 10.1159/000330262
- Chan, R. C. H., and Mak, W. W. S. (2016). Common sense model of mental illness: understanding the impact of cognitive and emotional representations of mental illness on recovery through the mediation of self-stigma. *Psychiatry Res.* 246, 16–24. doi: 10.1016/j.psychres.2016.09.013
- Connolly, K. R., and Thase, M. E. (2011). The clinical management of bipolar disorder: a review of evidence-based guidelines. *Prim. Care Compan. CNS Disord.* 13:10r01097. doi: 10.4088/PCC.10r01097
- DeJong, H., Hillcoat, J., Perkins, S., Grover, M., and Schmidt, U. (2012). Illness perception in bulimia nervosa. *J. Health Psychol.* 17, 399–408. doi: 10.1177/1359105311416874
- Dodd, A. L., Mezes, B., Lobban, F., and Jones, S. H. (2017). Psychological mechanisms and the ups and downs of personal recovery in bipolar disorder. *Br. J. Clin. Psychol.* 56, 310–328. doi: 10.1111/bjc.12140
- Elwy, R. A., Glickman, M. E., Bokhour, B. G., Dell, N. S., Mueller, N. M., Zhao, S., et al. (2016). Using mixed methods to examine the role of veterans' illness perceptions on depression treatment utilization and HEDIS concordance. *Med. Care* 54, e35–e42. doi: 10.1097/MLR.0000000000000056
- Emilsson, M., Gustafsson, P. A., Öhnström, G., and Marteinsdottir, I. (2017). Beliefs regarding medication and side effects influence treatment adherence in adolescents with attention deficit hyperactivity disorder. *Eur. Child Adolesc. Psychiatry* 26, 559–571. doi: 10.1007/s00787-016-0919-1
- Etain, B., Scott, J., Cochet, B., Bellivier, F., Boudebesse, C., Drancourt, N., et al. (2018). A study of the real-world effectiveness of group psychoeducation for bipolar disorders: is change in illness perception a key mediator of benefit? *J. Affect. Disord.* 227, 713–720. doi: 10.1016/j.jad.2017.11.072
- Fialko, L., Freeman, D., Bebbington, P. E., Kuipers, E., Garety, P. A., Dunn, G., et al. (2006). Understanding suicidal ideation in psychosis: findings from the psychological prevention of relapse in psychosis (PRP) trial. *Acta Psychiatr. Scand.* 114, 177–186. doi: 10.1111/j.1600-0447.2006.00849.x
- Fleury, M.-J., Grenier, G., Bamvita, J.-M., Tremblay, J., Schmitz, N., and Caron, J. (2013). Predictors of quality of life in a longitudinal study of users with severe mental disorders. *Health Q. Life Outcom.* 11:92. doi: 10.1186/1477-7525-11-92
- Foxwell, R., Morley, C., and Frizelle, D. (2013). Illness perceptions, mood and quality of life: a systematic review of coronary heart disease patients. *J. Psychosom. Res.* 75, 211–222. doi: 10.1016/j.jpsychores.2013.05.003

- García, S., Martínez-Cengotitabengoa, M., López-Zurbano, S., Zorrilla, I., López, P., Vieta, E., et al. (2016). Adherence to antipsychotic medication in bipolar disorder and schizophrenic patients: a systematic review. *J. Clin. Psychopharmacol.* 36:355. doi: 10.1097/JCP.0000000000000523
- Gómez-de-Regil, L., Kwapil, T. R., and Barrantes-Vidal, N. (2014). Illness perception mediates the effect of illness course on the quality of life of Mexican patients with psychosis. *Appl. Res. Q. Life* 9, 99–112. doi: 10.1007/s11482-013-9211-4
- Hagger, M. S., Koch, S., Chatzisarantis, N. L. D., and Orbell, S. (2017). The common sense model of self-regulation: meta-analysis and test of a process model. *Psychol. Bull.* 143, 1117–1154. doi: 10.1037/bul0000118
- Hagger, M. S., and Orbell, S. (2003). A meta-analytic review of the common-sense model of illness representations. *Psychol. Health* 18, 141–184. doi: 10.1080/088704403100081321
- Ho, S. C., Chong, H. Y., Chaiyakunapruk, N., Tangiisuran, B., and Jacob, S. A. (2016). Clinical and economic impact of non-adherence to antidepressants in major depressive disorder: a systematic review. *J. Affect. Disord.* 193, 1–10. doi: 10.1016/j.jad.2015.12.029
- Hou, R., Cleak, V., and Peveler, R. (2010). Do treatment and illness beliefs influence adherence to medication in patients with bipolar affective disorder? A preliminary cross-sectional study. *Eur. Psychiatry* 25, 216–219. doi: 10.1016/j.eurpsy.2009.09.003
- Houle, J., Villaggi, B., Beaulieu, M. D., Lespérance, F., Rondeau, G., and Lambert, J. (2013). Treatment preferences in patients with first episode depression. *J. Affect. Disord.* 147, 94–100. doi: 10.1016/j.jad.2012.10.016
- Hunot, V. M., Horne, R., Leese, M. N., and Churchill, R. C. (2007). A cohort study of adherence to antidepressants in primary care: the influence of antidepressant concerns and treatment preferences. *Prim. Care Comp. J. Clin. Psychiatry* 9, 91–99. doi: 10.4088/PCC.v09n0202
- Kelly, M. A. R., Sereika, S. M., Battista, D. R., and Brown, C. (2007). The relationship between beliefs about depression and coping strategies: gender differences. *Br. J. Clin. Psychol.* 46, 315–332. doi: 10.1348/014466506X173070
- Lacro, J. P., Dunn, L. B., Dolder, C. R., Leckband, S. G., and Jeste, D. V. (2002). Prevalence of and risk factors for medication nonadherence in patients with schizophrenia: a comprehensive review of recent literature. *J. Clin. Psychiatry* 63, 892–909. doi: 10.4088/JCP.v63n1007
- Leventhal, H., Nerenz, D., and Steel, D. (1984). “Illness representations and coping with health threats,” in *Handbook of Psychology And Health*, eds A. Baum and J. Singer (Hillsdale, NJ: Erlbaum), 221–252.
- Lobban, F., Barrowclough, C., and Jones, S. (2003). A review of the role of illness models in severe mental illness. *Clin. Psychol. Rev.* 23, 171–196. doi: 10.1016/S0272-7358(02)00230-1
- Lobban, F., Barrowclough, C., and Jones, S. (2004). The impact of beliefs about mental health problems and coping on outcome in schizophrenia. *Psychol. Med.* 34, 1165–1176. doi: 10.1017/S003329170400203X
- Lobban, F., Barrowclough, C., and Jones, S. (2005). Assessing cognitive representations of mental health problems. I. The illness perception questionnaire for schizophrenia. *Br. J. Clin. Psychol.* 44, 147–162. doi: 10.1348/014466504X19497
- Lobban, F., Barrowclough, C., and Jones, S. (2006). Does expressed emotion need to be understood within a more systemic framework? An examination of discrepancies in appraisals between patients diagnosed with schizophrenia and their relatives. *Soc. Psychiatry Psychiatr. Epidemiol.* 41, 50–55. doi: 10.1007/s00127-005-0993-z
- Lobban, F., Solis-Trapala, I., Tyler, E., Chandler, C., and Morriss, R. K. (2013). The role of beliefs about mood swings in determining outcome in bipolar disorder. *Cogn. Ther.* 37, 51–60. doi: 10.1007/s10608-012-9452-9
- Lu, Y., Tang, C., Liow, C. S., Ng, W. W. N., Ho, C. S. H., and Ho, R. C. M. (2014). A regression analysis of maladaptive rumination, illness perception and negative emotional outcomes in Asian patients suffering from depressive disorder. *Asian J. Psychiatry* 12, 69–76. doi: 10.1016/j.ajp.2014.06.014
- Maguire, P. A., Reay, R. E., and Raphael, B. (2016). Correlates of a single-item self-rated mental health question in people with schizophrenia. *Austr. Psychiatry* 24, 473–477. doi: 10.1177/1039856216638789
- Marcus, E., Garety, P., Weinman, J., Emsley, R., Dunn, G., Bebbington, P., et al. (2014). A pilot validation of a modified illness perceptions questionnaire designed to predict response to cognitive therapy for psychosis. *J. Behav. Ther. Exper. Psychiatry* 45, 459–466. doi: 10.1016/j.jbtep.2014.06.003
- M’Bailara, K., Minois, I., Zanouy, L., Josse, F., Rouan, E., Maitrot, A., et al. (2019). L’éducation thérapeutique: un levier pour modifier les perceptions du trouble bipolaire chez les aidants familiaux. *L’Encéphale* 45, 239–244. doi: 10.1016/j.encep.2018.11.004
- Moriarty, A., Jolley, S., Callanan, M. M., and Garety, P. (2012). Understanding reduced activity in psychosis: the roles of stigma and illness appraisals. *Soc. Psychiatr. Psychiatr. Epidemiol.* 47, 1685–1693. doi: 10.1007/s00127-012-0475-z
- Moses, T. (2010). Being treated differently: stigma experiences with family, peers, and school staff among adolescents with mental health disorders. *Soc. Sci. Med.* 70, 985–993. doi: 10.1016/j.socscimed.2009.12.022
- Moses, T. (2015). What helps or undermines adolescents’ anticipated capacity to cope with mental illness stigma following psychiatric hospitalization. *Intern. J. Soc. Psychiatry* 61, 215–224. doi: 10.1177/0020764014540147
- Munson, M. R., Floersch, J. E., and Townsend, L. (2009). Attitudes toward mental health services and illness perceptions among adolescents with mood disorders. *Child Adolesc. Soc. Work J.* 26, 447–466. doi: 10.1007/s10560-009-0174-0
- Munson, M. R., Floersch, J. E., and Townsend, L. (2010). Are health beliefs related to adherence among adolescents with mood disorders? *Admin. Policy Ment. Health* 37, 408–416. doi: 10.1007/s10488-009-0255-6
- Norman, R., Lecomte, T., Addington, D., and Anderson, E. (2017). Canadian treatment guidelines on psychosocial treatment of schizophrenia in adults. *Can. J. Psychiatry* 62, 617–623. doi: 10.1177/0706743717719894
- Novick, D., Montgomery, W., Treuer, T., Aguado, J., Kraemer, S., and Haro, J. M. (2015). Relationship of insight with medication adherence and the impact on outcomes in patients with schizophrenia and bipolar disorder: results from a 1-year European outpatient observational study. *BMC Psychiatry* 15:189. doi: 10.1186/s12888-015-0560-4
- Oflaz, S., Guveli, H., Kalelioglu, T., Akyazi, S., Yildizhan, E., Kilic, K. C., et al. (2015). Illness perception of dropout patients followed up at bipolar outpatient clinic, Turkey. *Asian J. Psychiatry* 15, 68–72. doi: 10.1016/j.ajp.2015.04.006
- Ogden, J. (2012). *Health Psychology: A Textbook: A Textbook*. New York, NY: McGraw-Hill Education.
- O’Mahen, H. A., Flynn, H. A., Chermack, S., and Marcus, S. (2009). Illness perceptions associated with perinatal depression treatment use. *Archiv. Women Ment. Health* 12, 447–450. doi: 10.1007/s00737-009-0078-1
- Peay, H. L., Rosenstein, D. L., and Biesecker, B. B. (2013). Adaptation to bipolar disorder and perceived risk to children: a survey of parents with bipolar disorder. *BMC Psychiatry* 13:327. doi: 10.1186/1471-244X-13-327
- Peay, H. L., Rosenstein, D. L., and Biesecker, B. B. (2014). Parenting with bipolar disorder: coping with risk of mood disorders to children. *Soc. Sci. Med.* 104, 194–200. doi: 10.1016/j.socscimed.2013.10.022
- Quiles Marcos, Y., Weinman, J., Terol Cantero, M. C., and Beléndez Vázquez, M. (2009). The dissimilarity between patients’ and relatives’ perception of eating disorders and its relation to patient adjustment. *J. Health Psychol.* 14, 306–312. doi: 10.1177/1359105308100215
- Reich, H., Bockel, L., and Mewes, R. (2015). Motivation for psychotherapy and illness beliefs in Turkish immigrant inpatients in Germany: results of a cultural comparison study. *J. Rac. Ethnic Health Dispar.* 2, 112–123. doi: 10.1007/s40615-014-0054-y
- Rungruangsiripan, M., Sitthimongkol, Y., Maneesriwongul, W., Talley, S., and Vorapongsathorn, T. (2011). Mediating role of illness representation among social support, therapeutic alliance, experience of medication side effects, and medication adherence in persons with schizophrenia. *Archiv. Psychiatr. Nurs.* 25, 269–283. doi: 10.1016/j.apnu.2010.09.002
- Spoont, M., Sayer, N., and Nelson, D. B. (2005). PTSD and treatment adherence. *J. Nerv. Ment. Dis.* 193, 515–522. doi: 10.1097/01.nmd.0000172474.86877.2b
- Stainsby, M., Sapochnik, M., Bledin, K., and Mason, O. J. (2010). Are attitudes and beliefs about symptoms more important than symptom severity in recovery from psychosis? *Psychosis* 2, 41–49. doi: 10.1080/17522430903144386
- Theodore, K., Johnson, S., Chalmers-Brown, A., Doherty, R., Harrop, C., and Ellett, L. (2012). Quality of life and illness beliefs in individuals with early psychosis. *Soc. Psychiatr. Psychiatr. Epidemiol.* 47, 545–551. doi: 10.1007/s00127-011-0360-1

- Vanheusden, K., van der Ende, J., Mulder, C. L., Lenthe, F. J., Verhulst, F. C., and Mackenbach, J. P. (2009). Beliefs about mental health problems and help-seeking behavior in Dutch young adults. *Soc. Psychiatr. Psychiatr. Epidemiol.* 44, 239–246. doi: 10.1007/s00127-008-0428-8
- Varga, M., Magnusson, A., Flekkøy, K., Rønneberg, U., and Opjordsmoen, S. (2006). Insight, symptoms and neurocognition in bipolar I patients. *J. Affect. Disord.* 91, 1–9. doi: 10.1016/j.jad.2005.09.002
- Walker, E. R., McGee, R. E., and Druss, B. G. (2015). Mortality in mental disorders and global disease burden implications. *JAMA Psychiatry* 72:334. doi: 10.1001/jamapsychiatry.2014.2502
- Ward, E. C., and Heidrich, S. M. (2009). African American women's beliefs about mental illness, stigma, and preferred coping behaviors. *Res. Nurs. Health* 32, 480–492. doi: 10.1002/nur.20344
- Watson, P. W. B., Garety, P. A., Weinman, J., Dunn, G., Bebbington, P. E., Fowler, D., et al. (2006). Emotional dysfunction in schizophrenia spectrum psychosis: the role of illness perceptions. *Psychol. Med.* 36, 761–770. doi: 10.1017/S0033291706007458
- Williams, K., and Steer, H. (2011). Illness perceptions: are beliefs about mental health problems associated with self-perceptions of engagement in people with psychosis? *Behav. Cogn. Psychother.* 39, 151–163. doi: 10.1017/S1352465810000627
- Wong, I. Y., Hawes, D. J., and Dar-Nimrod, I. (2019). Illness representations among adolescents with attention deficit hyperactivity disorder: associations with quality of life, coping, and treatment adherence. *Heliyon* 5:e02705. doi: 10.1016/j.heliyon.2019.e02705
- World Health Organization (2003). *Adherence to Long-Term Therapies: Evidence For Action*. Geneva: WHO.

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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