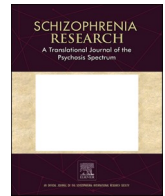




Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Metamotivation in people diagnosed with schizophrenia: A conceptual introduction and qualitative study

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ARTICLE INFO

Keywords:

Schizophrenia
Metamotivation
Motivational self-regulation
Avolition
Negative symptoms

ABSTRACT

Negative symptoms, such as avolition, are considered to be some of the most debilitating symptoms of schizophrenia, yet the mechanisms that contribute to their formation and persistence are poorly understood. In this article, we introduce a novel concept, *metamotivation*, as having potential implications for avolition, a core negative symptom. Metamotivation is defined as the ability to identify, monitor, and self-regulate motivation in service of goal attainment. In order to explore the potential applicability of metamotivation to schizophrenia spectrum populations, qualitative data from semi-structured interviews were thematically analyzed from 21 people diagnosed with schizophrenia or schizoaffective disorder. Four core themes emerged from the analysis: motivation as unmalleable, motivation as self-regulated primarily through rewards and/or a focus on task outcome, motivation as effortless actions, and motivation as a pleasurable feeling. We discuss these findings with respect to potential inadequacies/errors in motivational knowledge that may occur in people with schizophrenia, which may in turn be implicated in the development and maintenance of avolition. We conclude that metamotivation is a valuable concept for understanding schizophrenia with important research and clinical implications.

1. Introduction

Avolition, or the reduced capacity to initiate and persist in goal-directed activities, is considered one of the five core domains of negative symptoms in schizophrenia and is associated with less favorable outcomes in terms of both functional and personal recovery (Kirkpatrick et al., 2017; Færden et al., 2010; Kirkpatrick et al., 2006). However, current psychosocial and pharmacological treatments that target negative symptoms have thus far demonstrated limited effectiveness (Fusar-Poli et al., 2015). One reason for this limitation is because the factors that both cause and maintain negative symptoms remain poorly understood (Galderisi et al., 2018). Therefore, the identification of potential mechanisms of negative symptoms continues to be a high priority for the development of more effective treatment interventions. The purpose of the current paper is to further advance our understanding of the mechanisms of negative symptoms by introducing the potential applicability of a psychological construct, *metamotivation*, to the understanding of avolition in schizophrenia. This construct, derived from

the field of motivation-science research, has not yet been introduced as a potential candidate in schizophrenia and is therefore, a novel lens through which to deepen our understanding of the psychological and cognitive drivers of avolition.

1.1. Metamotivation

Metamotivation is a new framework for understanding motivation, which was developed by Miele, Scholer, and colleagues. Metamotivation is defined as the self-regulatory processes by which individuals identify, monitor, and control their motivational states in service of their goals (Scholer et al., 2018) and the term “metamotivation” refers to the awareness of one’s motivational state, and what processes influence motivation for a range of goal directed behaviors (Miele and Scholer, 2018). The framework consists of two main processes, *metamotivational monitoring*, or the ability to assess the quantity and quality of one’s motivation towards pursuing a particular goal, and *metamotivational control*, which consists of using the monitoring process to select a

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<https://doi.org/10.1016/j.schres.2021.06.003>

Received 30 October 2020; Received in revised form 22 March 2021; Accepted 14 June 2021

0920-9964/© 2021 Published by Elsevier B.V.

motivational strategy for increasing or maintaining a motivational state. Underlying these two processes is *metamotivational knowledge* or one's beliefs about how motivation functions and how it can be changed.

Metamotivation is conceptually linked to other self-regulatory constructs, such as emotion-regulation and metacognition, however is distinct from these other constructs as motivation itself is the focal target, including the quantity and the quality of motivation, in addition to the cognitive and behavioral strategies for upregulating motivation (Wolters, 2003). In order to adjust the *quantity* of motivation, one first needs have the ability to identify their level or magnitude of motivation (i.e., high or low). *Quality* refers to the ability to distinguish between different types of motivation, identify the correct type needed, and select the most appropriate strategy for increasing that type of motivation. Research has shown that there are several different forms of motivation (e.g., prevention vs. promotion, intrinsic vs. extrinsic, etc.) and that goal attainment is reliant on a capacity to match the correct motivational form to the corresponding type of task, a process referred to in the literature as 'task-motivation fit' (Fujita et al., 2019). For example, a promotion focus is concerned most with growth and accomplishment, and therefore a state of eagerness, whereas a prevention focus is concerned most with responsibility and diligence, and a state of vigilance (Crowe & Higgins, 1997). Inducing a motivational state of eagerness is much more suited to tasks which require creativity and divergent thinking, whereas this state would not be suitable for routine tasks such as household chores.

Metamotivation has been studied extensively in non-clinical and student populations, with evidence suggesting that metamotivational processes predict real-world goal attainment and completion (Miele et al., 2020). People who are aware of their motivational processes can fit their motivation to the task demand. For example, a person may adopt a 'vigilant' motivational strategy (e.g., carefully protecting against potential losses) for proofreading a paper, and alternatively, an 'eager' motivational strategy (e.g., enthusiastically seeking opportunities for gain) for a brainstorming task (Scholer and Miele, 2016). Research with nonclinical populations indicates that what people know, understand, or believe about the nature of motivation, i.e., their metamotivational processes, impacts goal attainment (Scholer et al., 2018). Students' knowledge and utilization of motivational strategies are associated with increases in their persistence, effort, performance, and academic achievement (Wolters, 2003). In student populations, accurate metamotivational beliefs facilitate the self-regulation of learning, and thus lead to better learning outcomes (Wolters and Benzon, 2013). While college student populations as a whole show awareness of the concept of motivational strategy-task fit, there is notable individual level variance in awareness and implementation (Nguyen et al., 2019), with individual's metamotivational beliefs often varying in accuracy depending on the context (Scholer et al., 2018). For example, a student may mistakenly believe the same motivational state is needed for writing term papers as studying for an exam. The understanding that no single motivational state ensures success informs interventions that teach motivational strategies to facilitate goal attainment in academic settings (Miele et al., 2020).

1.2. Metamotivation in schizophrenia

To date, research on metamotivation has focused exclusively on students/non-clinical populations and has yet to be studied in people diagnosed with schizophrenia. Given the difficulties with motivation frequently encountered in this population, we propose that metamotivational processes may be a potential contributor underlying the avolition so commonly seen. The current qualitative study was conducted to explore how people diagnosed with schizophrenia think about their own motivation, including their beliefs about the nature of motivation, ability to identify various motivational states, and strategies they use for enhancing their motivation when approaching challenging tasks. The detection of inaccuracies in metamotivational knowledge and

beliefs in schizophrenia has significant implications for future research on avolition and in turn, the potential to improve clinical practice.

2. Materials and methods

2.1. Setting and sample

Participants in this study ($N = 21$) were recruited from a community based recovery-oriented program for people with severe mental illness, as part of a larger study on motivational enhancement in schizophrenia. Inclusion criteria included being primarily English-speaking and a DSM-5 diagnosis of schizophrenia or schizoaffective disorder made by a licensed psychiatrist. Exclusion criteria included having an intellectual disability (<70 IQ on premorbid intelligence estimate) and/or a DSM-5 diagnosis of active substance dependence. Participation was completely voluntary and ethical approval was given by the Institutional Review Board. Participants were provided compensation for their time.

2.2. Instruments

A semi-structured interview guide was developed by three research team members (DL, MH & AM) and an expert consultant on qualitative research (AS). The metamotivation framework for the interview was based on prior research on college students' self-reported motivational self-regulation (Scholer et al., 2018; Wolters and Benzon, 2013). Prior research on metamotivation in non-clinical populations has shown that some aspects of metamotivation are tacit or implicit; however, when presented with different scenarios, individuals with accurate metamotivational knowledge are able to offer the most appropriate response, even if they are not aware of this knowledge when directly asked (Scholer et al., 2018). Therefore, the interview guide consisted of general questions on motivation as well inquiring about specific scenarios where motivation needed to be self-regulated. The full interview consisted of thirteen open-ended questions probing for: 1) participant's personal understanding and beliefs about motivation and how it functions, 2) their self-reported capacity to monitor their motivation, 3) factors that increase/decrease motivation, and 4) their motivational approach to projected context specific tasks (i.e., how they would increase their motivation in service of motivational challenges at school, work, or a self-identified upcoming task). See Table 1 for the interview

Table 1

Metamotivation interview.

I would like to ask you some questions about motivation- so I can understand how you think about it. People use the word motivation and it can mean different things to different people, so I'd like to understand what it means to you.

1. For a start- what would you say the word "motivation" means? If you had to define "motivation," what would you say?
2. Do you think some people are by nature more or less motivated than others? How so?
3. How do you know when you are motivated to do something?
4. Do you think you can increase your level of motivation when you want to? If so, how do you do it?

Think about something specific you need to do in the near future - maybe after this meeting or later in the week.

1. What task do you need to accomplish? What do you need to do?
2. What is motivating you to complete this task?
3. What may get in the way of you completing this task?
4. What might you try to keep doing this task, even if you want to stop?

For the last part of our discussion, I am going to ask you more general questions about your motivation.

1. Say you were working. What would motivate you to do a difficult task at a job?
2. How about if you were taking a class? What would motivate you to do a difficult task in a class?
3. Tell me about a time you stuck with a task until you finished it, even though you wanted to stop. What made you continue?
4. How do you know when your motivation is changing?
5. How do people in your life influence your motivation? What do people in your life do to make you feel more/less motivated?

questions.

2.3. Analysis

Semi-structured interviews were conducted in-person as part of baseline assessments and transcribed by hand. The examiner (MH) has extensive training and experience in transcribing clinical interviews using this method. Interview responses were captured word for word and paraphrasing was avoided. When needed, the examiner read back parts of the notes to confirm accurate capture of the participant's words. Each interview was approximately 15 min in duration. A thematic analysis approach was used and coding was completed by two researchers (MH & DL) (Boyatzis, 1998). An initial codebook was developed based on concepts from the interview guide, metamotivation framework, and those that emerged directly from the data. Therefore, it consisted of concepts identified both a priori (i.e., from existing literature, such as various motivational strategies, "reward-based", "planning/problem-solving") and from two researchers' readings (MH & DL) of twenty-one transcripts (e.g., "pleasurable feelings/emotions", "actions", "persistence"). Some final themes emerged fairly directly from a single code, such as the code and theme "reward-based strategies" while others were constructed by finding connections within and across codes such as analyzing connections between the codes "unmalleable" and "environmental factors/learned." The two researchers discussed coding choices until agreement or a new code was developed. The codebook was subsequently finalized and all transcripts were coded. A case summary matrix, consisting of brief phases from coded excerpts, was also developed to further synthesize coded data from each participant, allowing for systematic quantification. Utilizing the data matrix, participants were categorized as having specific motivational beliefs along multiple dimensions (e.g., motivation malleable/not malleable). The case summary matrix was used to conduct participant counts of the endorsement of particular themes. Strategies for enhancing rigor included the use of multiple coders to minimize individual bias, frequent debrief and coding meetings that included an expert qualitative researcher, and discussion of cases that did not fit emerging patterns (i.e., negative case analysis).

3. Results

3.1. Description of the sample

The sample consisted of 21 individuals diagnosed with DSM-5 schizophrenia spectrum disorders currently enrolled in a community-based mental health program. Age ranged from 22 to 62 ($M = 41.43$, $SD = 13.04$). The majority (73.7%) of the sample identified as male, with 26.3% female. 61.8% identified as Black/African American/Afro-Caribbean, 14.3% as Hispanic/Latinx, 9.5% as Asian, 4.8% White/Western or Eastern European, 4.8% were more than one race/ethnicity, and 4.8% did not know their racial or ethnic background. Participants completed between 7 and 16 years of school, 71% completed at least a high school education ($M = 12.29$, $SD = 2.43$). The majority of the sample were not currently participating in any form of education (81%) and were unemployed (80%).

3.2. Metamotivational beliefs

Four main themes emerged from the qualitative analysis: 1) motivation as unchangeable; 2) motivation as self-regulated primarily by rewards and/or a focus on outcome; 3) motivation as effortless actions; and 4) motivation as a pleasurable feeling.

3.2.1. Motivation as unchangeable

When directly asked if they viewed motivation as changeable, the majority of participants (17/21, 81%) viewed motivation as a stable trait rather than dynamic process. For example, many participants

described motivation as a fixed trait, acquired during school or childhood development: *I guess some can be motivated more than others... I guess some must be more motivated than others because they do better.* Another stated: *[Motivation] has to do with the way [you] grow up and what [you've] been inspired by and what motivation has been injected into [you] and willpower. Willpower is key. If you don't have that, it's done and you lose everything.* Another similarly described: *I think it's learned. I do think it's instilled in somebody. You get it from your mother and father. They teach you how to walk, how to feed yourself, they teach you, they instill it in someone.* Other participants believed that motivation was something entirely contingent on how one feels about a particular task: *No, no [motivation cannot be changed], you've got to like what you're doing.*

3.2.2. Motivation as self-regulated primarily by rewards and/or a focus on outcome

When asked to describe their approach to motivationally challenging situations (e.g., a self-identified upcoming task, a hypothetical school/work situation), approximately half the sample (10/21, 48%) described regulating their motivation externally through rewards or focusing on the outcome of the task: *the prize, the end goal.* For example, one participant stated they would increase their motivation: *By incentives, like giving myself a treat; I would give myself a treat; I would do something to make myself happy; I would find myself a reward.* Another, when asked how they would increase their motivation for a task they were feeling unmotivated towards stated: *I really don't know, I will tell myself if it needs to get done, self-talk, will give myself rewards.* Others described completing goals due to having no other option. For example, one participant stated, *you get paid, you have to do it whether you like it or not.* In contrast, four participants discussed problem-solving strategies, such as chunking tasks down into manageable steps in order to increase motivation. One participant described this process of increasing their motivation:

...By breaking things down into steps – into simple steps – like washing dishes. First put on gloves, then put soap on sponge, then I'm going to take a plate. Wash the front then turn it around and wash the back. Then I'll put it in the drying area. Instead of just saying "I'll wash the dishes."; breaking it down into steps.

Seven (7/21, 33%) participants were unable to provide a response on how they would motivate themselves to do a motivationally challenging task: *I don't know – that's the honest answer – I really don't.* For these participants, potentially overcoming lack of motivation was not rooted in a sense of personal agency, but described as something that *just takes time* and that *you just have to pass through it.*

3.2.3. Motivation as effortless actions

A majority of participants (15/21 or 71%) described motivation in terms of actions without self-directed effort or control. Often, these actions were primarily related to daily obligations, such as hygiene, self-care, medication management, and attending medical appointments:

[Motivation] means I can wake up, take my meds, take a shower, get dressed, fixed breakfast, brush my teeth, make up my bed, put my keys, watch and shoes on, go to work or school; when I can do all those things early in the morning every morning, having good habits, making sure I'm clean, washing my hair, taking a shower, putting on deodorant, getting dressed.

Participants described finding themselves completing activities without having to prompt themselves: *I don't have to use superhuman strength to get something done. No extra effort to get myself to do something. I only have to tell myself to do something once.* Therefore, motivation was described primarily as unmodulated (i.e., either present or absent) and evidenced by engaging in certain behaviors with minimal effort or finding themselves accomplishing a series of tasks with ease.

In contrast, six people (6/21, 28%) identified motivation as a result of control, persistence, or determination. For these individuals, motivation

was seen as something that needed to be titrated and controlled through self-directed effort, something that did not necessarily come easily but instead, required concentrated effort. Many participants described this as “working hard”. One participant described:

You know when you don't quit [...] So if you are lazy and you don't do it you are just lazy. But it's the other way around, your mind is telling you your lazy and not to do it. It's just a lot weighing down on you. [...] Can you handle the pressure and try to get motivated?

3.2.4. Motivation as pleasurable feelings

Participants (15/21) generally thought of motivation as a pleasurable, positive feeling. For example, one participant described: *you feel happy, proud... you feel great, you feel confident, you feel peaceful*. Another stated: *It's a feeling, I get extra energy, I start shadow-boxing and stuff*. Another described: *I feel like I get a natural high, my mind starts tingling*. Often this pleasurable feeling was described as uncontrollable: *It's like my level of motivation is a rollercoaster ride... you know my level is changing if I'm in a good mood. If I'm in a bad mood, I ain't got no motivation*. In contrast, negative mood states such as feeling *lazy, tired, anxious, or down* were perceived as reflecting a lack of motivation. Several participants also described motivation in terms of a feeling state or emotion, but were unable to describe their subjective experience: *It's a feeling, you can't explain it, it's a feeling*.

4. Discussion

The purpose of this study was to understand the ways in which people with schizophrenia understand, identify, and regulate their motivation, as well as their beliefs about motivation more broadly. Our intention was to gain preliminary information about the potential relevance of a new construct, *metamotivation*, to the field of schizophrenia research, in order to increase our understanding of the psychological/cognitive factors that may underly avolition. Results found four main themes related to motivational beliefs/knowledge that were common in our sample: 1) motivation as unmalleable; 2) motivation as self-regulated primarily through rewards and/or focusing on the outcome of a task; 3) motivation as effortless actions and 4) motivation as a pleasurable feeling. In keeping with our hypothesis, these findings demonstrate evidence of inaccuracies in metamotivational knowledge in people diagnosed with schizophrenia, and reported difficulties in their ability to self-regulate motivation.

Within our sample, the majority of participants (81%) inaccurately saw motivation as unmalleable – as a trait formed in childhood that is “injected” into you. Further, when asked to describe their approach to motivationally challenging situations, they did not demonstrate flexible regulation of motivational strategies to ensure task-motivation fit. Instead, there was overreliance on rewards or a focus on outcome to motivate themselves to do difficult or challenging tasks. While rewards are potential motivators, especially when self-administered so autonomy is maintained (Miele et al., 2020), the participants in our sample showed little awareness that other motivational strategies could be applied. They tended to focus on task outcome without the concomitant problem-solving of motivational obstacles, an approach that can deleteriously impact the ability to successfully complete a goal (Kappes and Oettingen, 2014; Oettingen, 2012).

These findings raise concerns that people with schizophrenia may be impacted by both inaccurate beliefs about motivation and poor or limited knowledge of motivational strategies, which may then leave them unable to flexibly respond to differing motivational demands. When people believe that motivation is unmalleable, they do not see themselves as having agency or the ability to autonomously regulate the quantity and quality of their motivation (Miele et al., 2020). In turn, approaches to goal directed behavior will be more passive. Further contributing to passivity would be a lack of skill in applying a range of

motivational strategies. Scholer et al. (2018) highlight the importance of *flexibility* in the self-regulation of motivation. They suggest that even for people with accurate metamotivational knowledge (e.g., the belief that motivation is malleable and may require persistence and effort), flexibility is still needed in approaching tasks successfully. That is, individuals must be adaptable in their motivational approach to varying tasks in order to have a task-motivation fit that will lead to goal initiation and attainment. Of course, an important prerequisite to flexibility is having substantial knowledge of potential motivational strategies. In our sample, 33% stated that they did not know any strategies for self-motivation; an indication that interventions may be needed to increase an individual's repertoire of motivational strategies.

Participants in our sample also had a tendency to view motivation as “effortless action” and pleasurable feeling, rather than something that at times may require effort and persistence. These perceptions most closely match descriptions of what the motivational literature terms “being in the zone” or “flow” (Kennedy et al., 2014). However, this is only one type of motivational state – metamotivation comprises knowledge of multiple motivational states. Yet these participants were generally unable to describe the thoughts, feelings, and behaviors that accompany changes in motivation. These findings raise concerns that people with schizophrenia may have difficulty discriminating between differing motivational states in terms of both quality and quantity. Effective self-regulation of motivation involves the ability to assess if one is adequately motivated to complete a task, as well as the ability to adjust one's motivation through strategic actions (Scholer and Miele, 2016); therefore, inadequacies within these domains have potential implications for avolition in schizophrenia. This finding is additionally important for schizophrenia populations, which have been shown to have difficulties with anticipatory pleasure, i.e., the ability to foresee the potential pleasure of engaging in a future activity (Hallford and Sharma, 2019; Strauss et al., 2011). For example, the (inaccurate) metamotivational belief that one must feel ‘pleasure’ or ‘good’ to initiate or complete a task may interact with the underlying inability to anticipate the pleasure of engaging in a future activity, resulting in a failure to initiate goal-directed behaviors. Therefore, metamotivation may be an important additional factor to consider in pre-existing models of avolition in schizophrenia.

While this study did not consider the impact of metamotivation on affect or defeatist beliefs, the cognitive behavioral therapy (CBT) model, which highlights reciprocal interactions between emotions, beliefs and behavior (Grant and Beck, 2009), suggests this would be a worthy area of study. Potentially, metamotivational knowledge may have a reciprocal relationship with defeatist beliefs, such that a lack of adequate knowledge about motivation may in turn lead to pessimistic beliefs about one's capabilities, negative expectations towards the task, and/or a fear of failure. In terms of potential interventions, teaching metamotivational skills as part of CBT may synergistically work to challenge the dysfunctional attitudes towards goal-directed behaviors commonly seen in schizophrenia populations (Campellone et al., 2016). Indeed, within the motivational science literature, motivation has been construed as a dynamic interplay between affect, explicit motives (i.e., goals, values, preferences), and one's skills/action-related knowledge (Kehr, 2004). Even if people have an explicit and emotionally-charged goal, their motivation can still suffer without the appropriate skills. Potentially, these skills may be inclusive of the ability to self-regulate motivation in the face of demotivating obstacles. This would argue for psychosocial interventions that specifically target metamotivation.

4.1. Limitations

The study has several limitations that are important to note. Interviews were not audio-recorded and were transcribed by hand which may have led to some error. While interviews were more brief, the aim was to solicit preliminary information on knowledge and beliefs regarding motivation that could highlight areas for further in-depth

inquiry. The sample was primarily male without large variability in levels of education/employment, limiting the generalizability of our findings. However, a strength of the study is the high representation of racial/ethnic minorities and, while more limited in terms of education and employment profiles, we found it important to focus on those individuals who face significant economic and social disadvantage, concurrently with a serious mental illness. Additionally, as this is a preliminary study, conclusions cannot be drawn comparing metamotivation in schizophrenia to non-clinical populations, nor to outcomes in social/occupational functioning and negative symptoms. Therefore, more research is needed to fully understand the potential implications of metamotivation on avolition in schizophrenia. We propose that future research focus on three broad areas: 1) examining potential causal relationships between metamotivation, negative symptoms, and functional outcomes; 2) developing measurement tools focused on metamotivation for use with clinical populations; and 3) designing and assessing the efficacy of metamotivation-focused interventions.

5. Conclusions

This study demonstrates the potential importance of a novel construct, *metamotivation*, to schizophrenia spectrum populations. Further study is needed to understand the relationship between metamotivation, avolition, and functional outcomes in schizophrenia, as well as how best to assess metamotivation in clinical populations. More clarity on how metamotivational processes operate in people diagnosed with schizophrenia, may bring to light a potential treatment target.

Declaration of competing interest

All authors report no conflicts of interest.

Acknowledgements

Funding for this paper was provided by a pilot grant from OPAL - an NIMH Center; Grant # P50 MH 115843 – 01. The authors would like to thank Scott Stroup, Xiaoyan Xu, and the OPAL team for all their assistance with this study. We would also like to thank Kristi Hart, Rhianne Larson, Arielle Taitz-Paine for their enthusiasm and dedication to this project.

Role of the funding source

Financial support was provided to Marie Hansen through a pilot grant from OPAL - an NIMH Center; Grant # P50 MH 115843 – 01. The sponsors did not have a role in the study design, collection, analysis or interpretation of data, in the writing of the report, or in the decision to submit the article for publication.

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