

Neuroscience Can Contribute to Pastoral Care and Counseling

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Abstract The neuroscience literature supports the idea that spiritual transformation is a powerful behavioral and cognitive change process involving fundamental alterations in the sense of self. Brain regions that are known to mediate the sense of self are activated during religious experiences that in turn underwrite spiritual transformation. Because religious experiences are fundamental to spiritual transformation, pastoral care workers can facilitate spiritual transformation by encouraging their clients to discuss and reflect on their religious experiences. The decentering perspective discussed in McNamara 2009 provides details on the phenomenological experiences people undergo when they have a religious experience. The pastoral care worker can use this decentering model to identify the key transformative processes within religious experiences.

Keywords religious experience, spiritual transformation, decentering, pastoral care, neuroscience, sense of Self

Introduction

People in religious communities who work in pastoral care settings see a similar range of human dilemmas, sufferings, dysfunctions and problems as do therapists or physicians in traditional

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biomedical settings. The pastoral care worker can be seen at the bedside of the hospital patient, with the mourners after the death of a loved one; sitting with the family on the verge of a divorce and grappling with the cravings of the addict. In addition to all of this the pastoral care worker is also in a position to facilitate or support the religious growth or sanctification of the persons he or she works with. The two areas of effort may be connected. It may be that to assist the addict in abstaining from his drug and to comfort the afflicted the best thing pastoral care workers can do is to facilitate a spiritual transformation of the individual. To assist the mourners at a funeral the pastoral care worker may need to help mourners pray through the event in order to discover acceptance and meaning. It may be that the pastoral minister introduces religious coping strategies if the patient in the hospital bed is to make a more speedy recovery and so on. As these examples illustrate I define pastoral care as that ministry within a religious community that focuses on spiritual counseling and care delivered to people in crisis or to people seeking spiritual growth and spiritual transformation.

If and only if the individual requests such assistance the pastoral minister could and should help the individual use resources from his or her religious tradition to grow in that tradition and perhaps even undergo a spiritual transformation. By spiritual transformation I mean a change in behavior and spiritual outlook such that the individual involved reports that he or she has turned away from a previous behavior and spiritual orientation in order to move toward a deeper relationship with God or with whatever that person considers ultimate in value. The transformation is typically slow and laborious but for some it is dramatic and swift. In both cases the transformation is fruitful in that the individual reports increased well-being due to the transformation. That transformation may help the individual live through the crisis they are facing in such a way to come out the other side enriched rather than exhausted and depleted.

Can neuroscience help the pastoral care worker understand spiritual transformation? If so how might pastoral care interventions use this knowledge to facilitate spiritual transformations? The answer to these questions are currently unknown but understanding neural correlates of spiritual transformation and related processes involved in religious cognition and religious experiences may at least help the pastoral care worker understand the processes more deeply and thereby identify ways in which it could be helped or hindered, undermined or diverted into less healthy channels. In what follows I present a neurocognitive model of religious cognition insofar as it is implicated in spiritual transformation. I then attempt to draw a few lessons from the model relevant to pastoral care.

Religious experiences and spiritual transformation

Religions promote the continuous transformation of the self by encouraging the use of religious practices and by encouraging participation in the central rituals of the religious tradition. What are religious practices? Examples include but are not limited to prayer, meditations, participation in religious rituals like the sacraments in the Christian tradition, reading and studying scriptural texts, individual devotional practices, praying with beads, adopting ritual gestures and postures such as kneeling and ‘making the sign of the cross’ and many others besides. All of the above examples of religious practices produce transient religious experiences. It is the religious experiences themselves that produce the spiritual transformation of the individual. If you want to facilitate spiritual transformation then facilitate religious experiences. Part of the power that religious experiences carry comes from their functional characteristics and phenomenology and it is to those topics I now turn.

Religious experiences as transformative processes

In an effort to identify the special impact religious experiences have upon people I and my colleagues (see Wildman & McNamara, 2010) investigated the phenomenology of religious experiences. We had volunteers recount for us a recent religious experience (if they had one), a recent happy experience, and a recent emotionally neutral experience. We then had the volunteers rate their experiences along 21 dimensions of cognitive and phenomenologic characteristics such as the extent to which the experience was meaningful, intense, filled with positive or negative emotion, whether it involved an alteration in the time sense or in memory or in attentional control and so forth. These particular phenomenologic properties were not chosen by us to study religious experiences. They were put together by Pekala (1991) in the 'Phenomenology of Consciousness Inventory (PCI)' in order to study ordinary and non-ordinary states of consciousness. Therefore the set of phenomenological properties that we scored in the religious experiences obtained from our participants were not biased by our own conceptions concerning spiritual transformation. Instead they were chosen by Pekala and validated by him as cognitive and affective constructs that reliably appear in everyday experiences.

The PCI is a self-report 53 item questionnaire on phenomenological aspects of a selected state of consciousness. The subject is asked to complete the inventory while recalling a previous state of consciousness. The PCI yields a quantitative profile of the contents and quality of personal consciousness along 21 measures, grouped into 12 major dimensions (positive affect, negative affect, altered experience, imagery, attention, self-awareness, altered state of awareness, internal dialogue, rationality, volitional control, memory, and arousal). The PCI has been repeatedly tested and its domain of validity extended in numerous studies since it was first introduced. Pekala provides detailed validity and reliability data on the instrument.

After our participants filled out the PCI, their experiences were transcribed and then subjected to further narrative analyses. We had experts in religious studies, post-doctoral and doctoral students in religious studies, rate these same experiences along the same dimensions. The raters were blind to the category (religious, happy, neutral) of experiences they were rating. We wanted to see if religious experiences were rated any differently from happy or neutral experiences by both the experts and the experiencers themselves. Thus we had ratings from participants themselves about their own experiences as well as expert analyses of those same experiences as narrated by the subjects themselves. After controlling for the time it took to recall an experience and self-assessed intensity of the experience, we found that, relative to both happy and ordinary experiences, participants rated their religious experiences as significantly more meaningful, with stronger altered states of awareness, increased inwardness of attention, higher amounts of imagery, more internal dialogue, lower volitional control, and more negative affect. Levels of positive affect in religious experiences fell between levels for ordinary and happy experiences.

In order to assess the extent to which these results contributed to potential spiritual transformation in our participants, we next had independent raters who were blind to the purposes of our studies identify the order in which each of these elements (altered awareness, internal dialogue, high imagery, etc.) occurred in narratives of religious experiences and in narratives of happy experiences. Independent ratings of both religious and happy narratives revealed that the distinctive features associated with religious experiences did indeed occur in a particular sequence in the religious narratives. Religious experiences begin with specific cognitive content in the form of enhanced levels of imagery and also with Negative Affect. Next, internal dialogue ensues and attention is directed inwardly. Volitional control is then relaxed, and

Positive Affect rises. Finally, a significant alteration in Awareness and Perception occurs. Subjects later refer to the effects of this religious experiences as filled with significance and meaning.

How does this phenomenology help us to understand spiritual transformation? In McNamara (2009) I argued that the way that religious experiences transform individuals was via a process I called decentering. In this cognitive process the ‘self’ (i.e. the self-construct or the self-concept) is temporarily taken ‘off-line’ or decoupled from its control over attentional and behavioral goals of the individual while a search is conducted in semantic memory o s (or in a ‘possible worlds’ space) for a more ideal or complex self-concept that can better match the needs and behavioral goals of the individual. The old self is replaced and integrated into a more ideal self. Story or narrative grammars help to integrate the old into the new self. New meaning is created and the individual is enriched by the experience. In short the process involves 4 steps: 1) there is a reduction in agency when the current elf transiently gives up overall control; 2) this self structure is then transferrred to a “possible worlds” box in the cognitive system –metaphorically a place where it is held in temporary abeyance while a new higher self is found to replace this old self; 3) to find the higher self a search ensues for possible selves in semantic memory and then once found 4) the old self is integrated into a new higher self. Decentering is a process that temporarily takes the aware, executive self off-line. The “one in charge” takes a temporary break. When the central executive relaxes inhibitory control over other cognitive processes the brain/mind then processes all kinds of emotional material. As this emotional wave begins to wane, the executive self eventually comes back online and orchestrates integration of this emotional material into a new enriched self. One can observe similar emotional and cognitive

integrative memory reconsolidation processes occurring in individuals healing from trauma (Yehuda & LeDoux, 2007).

In religious experiences the initiating event, the event associated with enhanced imagery, negative affect and inwardly directed attention in our above described phenomenological studies, appears to be a reduction in intentionality or volitional control. This is the beginning of the decentering process. This latter effect is typically an unpleasant experience (thus, the negative affect associated with it). It was consciously registered by participants in our studies as a reduction in volitional control, but is noticed only after imagery levels are enhanced and attention is directed inward. This reduction in intentionality/volitional control can be either voluntary or drug induced or perhaps facilitated by religious practices, nevertheless it appears to be the event that triggers the decentering process in consciousness. The enhancement of internal attention and dialogue, as well as the alteration in awareness and perception, are correlated with search of semantic memory for the ideal self. The final sense of positive affect, insight and meaningfulness, presumably, reflects successful integration of the old into the new self. All of these phenomenologic properties of typical religious experiences support the notion that religious experiences are about transforming the self. After all what else can it mean to say that attention is directed inwardly or that volitional control is reduced or that positive and negative affect levels change or that perception and awareness is altered—unless we mean that all these experiences involve the self. The self undergoes a reduction in volitional control, increases in positive affect and alterations in awareness and perception.

To deepen our understanding of spiritual transformation and religious experiences we can ask: How is the transformation accomplished neurologically? One simple answer to this question is that religious practices enhance the acquisition of the so called executive cognitive functions

mediated by the prefrontal lobes. These are the functions that support self-regulation and autonomy-among many other qualities in an individual. Religious practices often operate to support transformation of the self such that the self becomes more like an 'ideal self' or the ideal selves the individual hopes to become. Religious practices also help one to avoid becoming a 'feared self'. This combination of a positive 'approach' motivational element towards hoped-for selves and a negative 'avoidance' motivational element away from a feared self makes religion a powerful tool for processes of self-regulation more generally.

In addition, the decentering process that I described above that occurs in religious experiences may be mediated by neural systems associated with both religiosity and the sense of self. There is considerable anatomical overlap between the brain sites implicated in religious experience and the brain sites implicated in the sense of self and self-consciousness. The close neural connections between regions that support religious experiences and regions that support the sense of self make it more likely that the sense of self can be both enhanced by religious experiences and deranged by them. The decentering process, for example, can go terribly wrong. One of the steps in the process, (e.g., taking the current self "offline", or the search in semantic memory for a more complex ideal self or integration into the ideal self) can be blocked, damaged or skipped thus producing aberrant religious phenomena. Fanaticism or dedication to cult leaders, to take just one example, may result from failure to posit an ideal self, from premature termination of the search process, or fusion and integration into a cult leader's personality rather than an ideal self and so on. Another example may be negative spirit possession which involves fusion with a 'feared self' or identity and a failure to find, move towards or integrate into an ideal identity and so on.

Neurology of religious experiences

My (McNamara, 2009) review of the literature on religion and the brain in 2009 suggested that the most important regions of the brain for studies of religious expression appear to be a circuit known to support the sense of self and that links up the orbito and dorsomedial prefrontal cortex, the right dorsolateral prefrontal cortex, the ascending serotonergic systems, the mesocortical dopaminergic system, the amygdala/hippocampus and the right anterior temporal lobes. There is a huge literature which documents the connectivity patterns of each of these anatomical sites (reviewed in Ghashghaei, Hilgetag & Barbas, 2007). They are all interconnected one with another but they all operate in an inhibitory or regulative mode relative to other parts of the brain. The posterior orbitofrontal cortex appears to regulate the limbic system (the emotional brain) and is densely interconnected with the insular, temporal polar, and parahippocampal cortices as well as with basal forebrain structures like the ventral striatum, nucleus basalis of Meynert, and amygdala (Nauta, 1962; Van Hoesen et al, 1981). The medial orbitofrontal cortex is reciprocally connected to the rostral portion of the insula, the medial basal amygdala, ventromedial temporal pole area 38 and medial subcallosal cingulate areas 24, 25 and 32. The anterior entorhinal area 36 is interconnected with the hippocampal formation. The lateral orbitofrontal region is interconnected to dorsal and caudal portions of the basal amygdala which is a source of projections of emotional information to the visual processing centers in inferior temporal cortex; supracallosal areas 24 and 32, the auditory association cortex area 38 in the temporal lobe, inferior temporal cortex area 20 and prefrontal dorsal area 6. The amygdala, anterior temporal and orbital frontal regions play a key role in the modulation of emotion, with the amygdala being especially important for the comprehension of negative emotions, particularly fear (Adolphs, Tranel, Damasio, & Damasio, 1994; Adolphs, Russell, & Tranel,

1999). In summary, the circuit which mediates religiousness involves primarily limbic, temporal and frontal cortices on the right. This proposal is congruent with those of other authors who have studied potential brain correlates of religiosity (e.g., Bear & Fedio, 1977; d'Aquili & Newberg, 1993; Devinsky & Lai, 2008; Persinger, 1987; Ramachandran, Hirstein, Armel, Tecoma, & Iragui, 1997; Trimble, 2007). The important point to note with respect to this neural circuit that is reliably associated with religious experiences is that the circuit appears to regulate or control many other areas of the brain. Therefore when we undergo religious experiences and engage this circuit the circuit in turn is sending messages to these other widespread areas of the brain thus making substantial behavioral and cognitive changes more likely.

Implications for pastoral care and counseling

All of these neuroscience data support the idea that religious cognition and experiences can facilitate spiritual transformation and that spiritual transformation is very likely associated with pervasive brain changes that in turn support a change in the sense of self. Recall that the religion circuit we identified above operated as a regulator of several other key brain systems including those that support emotional change, executive centers and regions associated with the sense of self. When people undergo a religious experience several cognitive and affective processes ensue that I summarize as a decentering process wherein the old self is put off and an attempt is made to move toward more complex ideal selves. In short, the spiritual transformation process appears to involve a series of decentering events that occur over long periods of time and that are triggered or facilitated by religious experiences. Once religious experiences occur they engage the “religion circuit” I outlined above and this circuit ensures that widespread areas of the brain

are recruited to mediate behavioral and cognitive change with regard to one's fundamental sense of self.

This neuroscience perspective can assist pastoral care workers' understanding of spiritual transformation. The neuroscience perspective supports the idea that spiritual transformation is a powerful behavioral and cognitive change process involving fundamental alterations in the sense of self. Brain regions that are known to mediate the sense of self are activated during religious experiences that in turn underwrite spiritual transformation. Because religious experiences are fundamental to spiritual transformation, pastoral care workers can facilitate spiritual transformation by encouraging their clients to discuss and reflect on their religious experiences. The decentering perspective discussed above provides details on the phenomenological experiences people undergo when they have a religious experience. The pastoral care worker can use this decentering model to identify the key transformative processes within religious experiences. When speaking with a client the pastoral care worker might attempt to help the client identify the initial decentering event wherein the current self is acknowledged as no longer working effectively and then help the client engage in a search for more complex ideal selves that are informed by the client's religious tradition.

In conclusion, the neuroscience perspective deepens our understanding of spiritual transformation as a powerful process that can fundamentally alter the sense of self. Pastoral care workers can benefit from this deeper understanding of spiritual transformation and therefore more confidently assist clients engaged in such transformations.

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