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Rural Older Adults' Perspectives of Activities to Support Cognitive Health

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ABSTRACT

Existing cognitive health literature focuses predominately on understanding the pathology and clinical treatment of older adults with dementia rather than cognitive health promotion and preventative activities. In addition, most of the work in the area remains urban-centric with little focus on cognitive health in rural communities. This study examined rural seniors' perspectives of activities that they identified as supporting their cognitive health.

Using community-based research and an ethnographic methodology, participant observation and semi-structured interviews were conducted with 42 older adults in rural Saskatchewan, Canada. Participants discussed a variety of activities that they viewed as supporting their cognitive health. In particular, cognitive health promotion was identified as being strongly linked to keeping one's brain active, thinking positively, mingling with others, and managing daily affairs. This study's findings suggest that there is a need to move beyond focusing solely on clinical interventions to including older adults' perspectives of preventative activities and cognitive health promotion.

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Cognitive health; activities; prevention; health promotion; rural health; dementia; community-based research; ethnography

Background

Cognitive health is a growing concern among older adults worldwide. Globally, it is estimated that 50 million people have dementia, with almost 10 million new cases every year (World Health Organization, 2017). It is well documented that the prevalence of dementia rises substantially with age (Alzheimer's Association, 2017) and it is anticipated that dementia will increase significantly with the aging demographic in rural communities. Rural populations in developed countries are aging faster with poorer overall health outcomes including cognitive health than urban populations

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(Orpin, Sterling, Hetherington, & Robinson, 2014). Rural communities are disproportionately affected by dementia as older adults tend to live in rural areas. Subsequently, a recent study has found that dementia and cognitive impairment are more prevalent among rural seniors than urban dwelling seniors (Weden, Shih, Kabeto, & Lango, 2018). The unmet community needs of seniors affected by dementia have severe consequences including social isolation, feelings of shame, stigma, depression and suicide (Alzheimer's Disease International, 2015). In comparison to urban seniors, rural seniors often face critical challenges to accessing cognitive health service utilization related to social isolation, geographical distance, inadequate public transportation, financial challenges, and limited health and support services (Padilla, 2017). Forbes and Hawranik (2012) suggest that these challenges often lead to under-utilization of healthcare services and delayed diagnoses of dementia in rural communities. Despite these challenges, emerging literature highlights the local knowledge, strengths, and ingenuity that exist within rural communities (Padilla, 2017).

There is limited knowledge on preventative activities to support and maintain cognitive health, especially from the perspective of rural older adults. Emerging research has introduced the concepts of neuroplasticity and neurogenesis, which highlight the importance of interventions in cognitive health promotion (Smith, 2013). Neuroplasticity suggests that the brain is able to adapt and grow while neurogenesis implies that the brain has the ability to develop new neurons to support cognitive function in old age (McDougall, 2009). There has been a change in viewing cognitive decline in aging as an unavoidable process (McDougall, 2009), and a growing interest in the use of non-clinical and non-pharmaceutical interventions for cognitive health (Institute of Medicine, 2015; Rahe et al., 2015; Reichman, Fiocco, & Rose, 2010).

Given that rural residents experience more healthcare challenges and face an increased risk for dementia and cognitive impairment, research on preventative activities and cognitive health promotion are essential to supporting healthy aging in rural communities. Subsequently, there is significant value to understanding rural older adults' perspectives of activities used to support their cognitive health. Medical anthropological literature demonstrates the importance of recognizing lay perceptions and practices to inform the development of health promotion (Kleinman, 1986). A classic example includes Blumhagen (1980) who conducted research on lay beliefs of hypertension among men where family arguments were referenced as causing symptoms such as dizziness, bulging veins and blinking lights. Subsequently, there is much value to studying the perspectives of older adults to help guide and develop activities to support and maintain their cognitive health. Guided by community-based research and an ethnographic methodology, the aim of this document is to explore activities that older adults

identified as being important to supporting their cognitive health in rural Saskatchewan, Canada.

Methods

This study received ethical approval from the Behavioral Ethics Board at the University of Saskatchewan (Beh14-19). Data collection was conducted through multiple visits by the same researcher to two rural communities in Saskatchewan, Canada. In this study, rural is conceptualized as communities with sparse populations across large distances with populations of less than 10,000 people (Rothwell, Bollman, Tremblay, & Marshall, 2002). Guided by community-based research (Israel, Schulz, Parker, & Becker, 1998) and an ethnographic methodology (Quinn, 2005), data collection included participant observation and two waves of semi-structured interviews with the same group of 42 rural older adults. The participants (age 60+) were recruited by word-of-mouth with the help of community partners (e.g., former town mayor and seniors' centre board members) who provided local insight and guidance throughout the study (Bacsu et al., 2017). In order to strengthen community relationships and develop trust over time, the same researcher conducted both the participant observation and the interviews with the rural older adults.

Participant observation was used to obtain an in-depth understanding of the activities used by rural seniors to support their cognitive health (Moser & Korstjens, 2018). DeWalt and DeWalt (1998) suggest that participant observation is characterized by the researcher having an open mind, learning from others, and strong listening skills. Participant observation of rural seniors was conducted over an extended period of time, which allowed for unique access to their everyday lives and culture (DeMunck & Sobo, 1998). For example, participant observation was conducted by spending time in the rural older adults' homes, participating in their daily activities, and attending local events to observe daily happenings, conversations and activities related to their cognitive health. Through participant observation, several activities and functions were attended such as birthday parties and bowling events.

A total of 42 independently-dwelling, older adults (age 60+) participated in two waves of interviews. Participants included 42 seniors (28 women and 14 men) ranging in age from 60 to 87 years. Five participants were unable to participate in a second interview due to illness or unavailability. The interviews focused on open dialogue allowing participants to share ideas and viewpoints throughout the discussions. The interviews took place in the participants' homes and lasted approximately 40–60 minutes. The interviews used semi-structured interview guides that consisted of questions related to: cognitive health definitions; beliefs, knowledge and awareness toward cognitive health; activities used to support and maintain cognitive health; perceptions of cognitive health challenges, concerns and barriers; and recommendations and ideas on how to address or improve the

identified challenges. This paper focuses on the data related to rural seniors' cognitive health activities; information related to the cognitive health perceptions is published elsewhere (Bacsu et al., 2017).

Data analysis

Following informed written consent, the interviews were audio-recorded and transcribed verbatim. Interview transcripts were returned to participants who reviewed their transcripts to confirm accuracy of the information provided. The participant observation notes and interview transcripts were uploaded into the qualitative software Atlas.ti 7 (Atlas.ti 7, 2013) to help organize the data for thematic analysis (Morgan, 2018). Once the coding was completed, data were reviewed to identify themes, patterns, and relationships. Community workshops were held in each of the two rural communities to share results and verify whether the study findings accurately reflected the respondents' perspectives.

Findings

Rural seniors identified a range of activities that impacted their cognitive health. Based on the rural older adults' perspectives, the Rural Aging Cognitive Health Model emerged (Figure 1) with four theme areas including: "keeping your brain active"; "thinking positively"; "mingling with others"; and "managing your daily affairs." The following section describes the four theme areas with sub-themes for added clarity to the discussion.

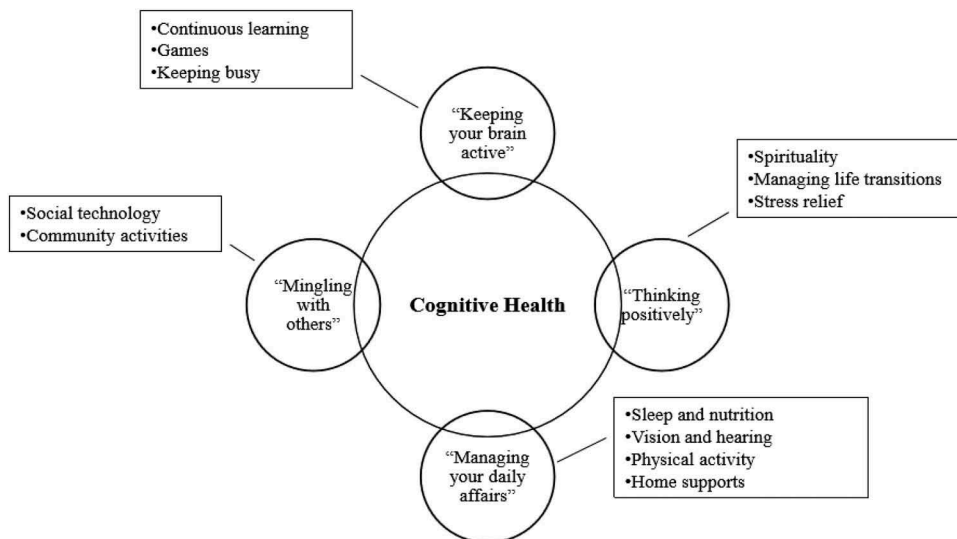


Figure 1. Cognitive health and rural aging framework.

Theme 1. Mental stimulation: ‘Keeping your brain active’

One of the most common themes discussed by rural older adults was the importance of mental stimulation and “keeping your brain active.” In discussing mental stimulation, rural older adults identified three sub-themes: continuous learning, games, and keeping active.

Continuous learning

Rural older adults identified continuous learning as an important activity to build and sustain cognitive capacity. Continuous learning was generally described as the on-going expansion of new information, knowledge and skills through lifelong learning. Specific examples of educational activities included learning new bird species, recipes, star constellations and jokes. One participant would find new jokes from the internet for her spouse and she commented, “He reads the jokes that I print off from online, there are some pretty good ones.”

Trying new things outside of one’s comfort zone was identified by participants such as joining singing groups and jam sessions at the Seniors’ Centre. Trying new activities encouraged participants not only to learn different skills, but to intermingle with different groups of people. Older adults appreciated travel nights at the library where local residents who visited a destination would share information, videos, and photos of the location. Respondents also felt that reading contributed to their intellectual capacity by providing new knowledge. Many participants enjoyed reading newspapers, magazines and books on biographies, farming, nature, and history. A senior stated, “I read ... You can read and you can keep your brain healthy ... It depends on what you’re reading, I read biographies.” Participants would order new books and reading materials from the libraries. Some seniors liked writing as they found that it supported their cognitive health. For example, seniors discussed sending letters to friends and writing essays on different topics such as history to share information with younger generations. However, a few seniors described difficulties with reading due to poor vision, limited education, and challenges with writing from hand tremors.

Keeping informed of current events such as the news and weather were identified as an important intervention to support continuous learning. Older adults would often watch the local, national and global news and discuss it with their family members and friends. A senior stated, “I watch the news a lot ... I try to keep up with what’s happening.” Keeping up-to-date on sports and events such as the Olympics were recognized as important to sustaining conversation and intellectual abilities. An older woman commented, “Taking interest in what’s going on in the town or wherever you live and try to stay focused on things that are happening.” Participants described

the church, hair dresser, and coffee groups as locations helpful to keeping informed of current events.

Games

Many rural older adults indicated that card games were vital to supporting their cognitive health such as Kaiser, cribbage, rummy, bridge, and canasta. A senior noted, “I play cards which is good, it makes me think because you have to figure out where the cards go.” Some participants played poker with their children and grandchildren as a way to connect with younger generations. Puzzles were identified as helping to stimulate the mind in searching for the pieces. A participant commented, “We all know the ways we should keep our brain healthy by using it, by doing puzzles, by thinking and I think that’s the only way to keep your brain active, play cards, visit friends.”

Crosswords, word searches, board games, and the puzzle game called “Sudoku” (Sudoku, 2015) were common day-to-day activities for many of the participants. However, many seniors would not engage in games that they found overly challenging. Some seniors would do crosswords but not word searches or Sudoku. For example, one older adult stated, “I do crosswords every day but not Sudoku, I can never get my mind around numbers.”

Keeping active

Participants identified mental stimulation and keeping mentally active as key to supporting their cognitive health. Rural seniors enjoyed doing hobbies and crafts to stay active including gardening, painting, sculpting, wood work, needlework, and photography. A senior commented, “I do scrapbooks, not the fancy ones ... I just cut things out of the papers.” Seniors highlighted the importance of music such as singing and playing instruments. Many participants enjoyed going on drives in the countryside to look at crops, weather conditions and wildlife. A senior stated, “We go for drives ... we look at the scenery, we visit our neighbours, we’ve got family that live out here on a big farm ... We go out every week.”

Theme 2. Social engagement: ‘Mingling with others’

Rural older adults identified social engagement as being vital to supporting cognitive health. For instance an older adult stated, “I feel a lot of brain health is due to mingling with others ... ” In particular, rural seniors described activities related to two subthemes: technology and social media; and community activities.

Technology and social media

Many rural seniors identified technology and social media tools as supporting their cognitive health. Several participants used smart phones and tablets to communicate with their family and friends through different social media platforms. Rural older adults discussed an online social networking service, “Facebook” (Facebook, 2015) as providing an integral medium in keeping connected with distant family members, and especially their grandchildren through photos and message updates. Participants stated, “I use Facebook to see what the grand kids are doing ... ” and “I go on Facebook to see what the family are doing ... What pictures they have on there.” In addition, an online video and audio-call service, “Skype” (Skype, 2015) was viewed as a relatively inexpensive way to provide direct communication with family members and friends living out-of-province and abroad. One rural senior noted, “I’m on [Skype] because of my grandchildren, they are in other provinces, that’s how you get to have a life with some of them ... ”

Technology also played a vital role in sustaining social engagement for older adults with limited mobility during the cold winter months. Many participants enjoyed using the online photo sharing website, “Pinterest” (Pinterest, 2015) to share and learn about new ideas such as crafts, hobbies, and arts. A rural senior woman stated, “I’m on a site, Pinterest which I find very interesting ... There are lots of good things that interest me.” Respondents enjoyed receiving emails with jokes and video links from their friends and neighbours. Additional forms of social technology used included blogs, seniors’ chat groups and social networking games. Some seniors indicated that they would like educational courses to support their usage of technology such as the internet, tablets and computers.

Community activities

Rural older adults identified participation in community activities as an effective way to supporting cognitive health. Many participants discussed “coffee row” which refers to going for coffee with friends as an important activity that fostered companionship and social connections. Rural seniors enjoyed attending events such as potlucks, dances, hockey games, art shows and musical entertainment. However, rural older adults noted that a challenge was that the volunteer base was aging and in need of younger participants.

Participants expressed concerns that caregivers or disabled seniors living in their own homes may not receive adequate opportunities to participate in community activities and social engagement. Participants felt that more seniors’ housing and condominiums with social gathering spaces were needed to promote engagement, especially during the winter months.

Theme 3. Emotional wellbeing: 'Thinking positively'

Rural older adults discussed cognitive health promotion related to emotional wellbeing in terms of having a positive outlook on life. A participant stated "I think thinking positively helps a lot to support your brain health." Rural seniors described interventions in relation to three subthemes: spirituality, life transitions, and stress relief.

Spirituality

Spirituality was identified as being an integral practice to supporting cognitive health. In discussing spirituality, several rural older adults highlighted the importance of religion, reading scripture and attending church. One respondent stated, "I do meditation every morning and Bible reading for about an hour, and I memorize a lot of the Psalms ... It certainly gives me a good start to the day." While many participants noted the importance of religion, spirituality was generally expressed in broader forms. Spirituality was practiced in many ways including tai chi, yoga, gardening, meditation, prayer, devotional rituals, cemetery visits and events such as funerals.

Spirituality was often identified in dealing with personal or family illness, grief and death. Many respondents discussed communicating with their deceased spouses and family members. Some participants described feeling a connection or presence of family members or loved ones who had passed on. Participants described reading books on spirituality and religion in discussing concerns of illness and loss of loved ones.

Gardening and spending time in nature was highlighted by participants as a spiritual activity. A senior woman noted, "My garden is my church, I have my conferences with God when I'm with my plants, it's relaxing ... You start pulling weeds and you don't have to think about things ... a lot of stress relief I get from it." Many participants expressed that gardening and nature were good for the body, soul and mind.

Life transitions

Participants identified difficult life transitions and stressful events as barriers to emotional health. Difficult life transitions addressed by rural older adults included retirement, loss of mobility, health issues, care giving, death of a spouse or friend, downsizing, moving homes, relocation of communities, and loss of independence. Participants described emotional challenges of losing their physical independence with age and feeling a loss of purpose. A rural senior man stated, "I wanted to dig a couple of drainage trenches away from the house but I can't do that anymore ... It ticks me off to have to be so dependent on

somebody.” Additionally, respondents found moving and downsizing into smaller housing units to be emotionally difficult.

Respondents commented that their spouses’ health and care giving impacted their own well-being. Many participants shared personal stories of their close friends and family experiencing severe dementia following the stress of a death of a spouse. Some rural seniors expressed anxiety and challenges in relation to spouses being separated from each other into care homes outside of the community. For example, having a loved one sent away to a long-term care home outside of the community was described as being emotionally challenging and stressful.

Stress relief

Respondents identified stress as a negative factor for cognitive health and discussed important stress management activities. Specific examples of activities used to support stress management included listening to music, walking, reading, meditation, journaling, support groups, and art. For example, artistic outlets such as painting, music, woodwork, soapstone carving and writing were identified as activities to support relaxation, pleasure, and enjoyment. A rural older adult noted, “I think the arts are something that can really keep a person alive.”

Spending time in nature was highlighted as an important way to reduce stress. Rural older adults identified star gazing, bonfires, and watching wildlife as relaxing activities. A participant noted, “At night you don’t have far to go to see the stars, you can see them in the back yard, it’s not that many lights.” A senior man stated, “It’s a slower pace of life, it’s cleaner air ... You can sit out at night around the fire and just think.”

Theme 4. Functional health: ‘Managing your daily affairs’

Rural older adults discussed a range of activities related to functional health from the importance of independence to managing one’s day-to-day activities. A participant stated, “I guess just being able to manage your daily affairs and with all the things you have to remember.” Rural seniors described functional health in relation to four subthemes: sleep and nutrition, vision and hearing, physical activity, and home supports.

Sleep and nutrition

In discussing activities that supported cognitive health, many rural seniors identified the significance of sleep and nutrition. For instance, one senior stated, “I think rest is a good thing, healthy food and mental stimulation, that’s the important things.” Another participant noted, “I think you should eat healthy, certainly and rest.” Some respondents discussed taking dietary

supplements but were not sure which one's supported cognitive health and indicated that they would like more information.

Vision and hearing

Respondents indicated that vision and hearing were central to supporting older adults' cognitive health in their ability to comprehend and communicate. A participant stated, "My mom had a hearing problem that was a barrier, because she wasn't communicating ... didn't have that social interaction." Activities to support vision included regular eye check-ups, prescription updates, wearing sunglasses and eye surgery. Actions to improve hearing included hearing aids and asking people to speak up and speak slowly.

Physical activity

Rural older adults identified physical activity as critical to supporting their cognitive health. Rural seniors participated in walking, golf, bowling, curling, swimming, and dancing. Activities such as sticks with handles were used in curling and bowling for seniors who had limited mobility, back pain and difficulty bending down. Some participants had treadmills, exercise bicycles or elliptical machines for exercise within their homes. Rural seniors described walking with their peers for safety and social engagement. However, losing exercise companions such as friends or dogs were identified as barriers to physical activity. During the winter, some participated in indoor walking programs offered at the town halls and school gyms.

Home supports

Rural older adults often relied on supports within their homes to help them in their day-to-day activities and provide reminders of appointments and events. For example, household supports included calendars, note pads, eraser boards, tack boards, sticky notes, shopping lists, address books, watches, and phone lists. Home reminders such as calendars or lists were often displayed in the kitchen on fridges, near telephones, and on kitchen tables. Many participants used bubble packs or pill organizers to manage their medication. In addition, some participants used smart phone calendars to keep track of appointments and medication.

Discussion

This study provides insight into older adults' perspectives of activities used to support and maintain their cognitive health. Rural seniors described cognitive health promotion within a holistic context ranging from social engagement to

physical health. In particular, cognitive health promotion was identified as being strongly linked to keeping your brain active, mingling with others, thinking positively, and managing your daily affairs. Interestingly, rural seniors did not discuss cognitive health promotion in terms of medical or clinical treatments.

To date, the majority of cognitive health studies have focused on understanding the clinical treatment of Alzheimer's disease and other types of dementias (Kumar & Ekavali, 2015), rather than prevention. In a literature review, Petersen and colleagues (2009) assert that cognitive health research focusing on early clinical characteristics of dementia has become the primary focus of epidemiological, neuropathological, biomarker, disease mechanism, and clinical trial research. Currently, there is a paucity of research on older adults' perspectives of cognitive health promotion and activities (Rahe et al., 2015), especially within a rural context. However, the findings from our study suggest that there is a strong need to move beyond focusing solely on clinical interventions to including older adults' perspectives of cognitive health promotion.

Griner and Smith (2006) assert that health promotion activities are more likely to be effective when they are compatible with the local context and culture. In this study, rural older adults contributed experiential knowledge, cultural understandings, and local insight in relation to identifying activities to support their cognitive health. Based on the rural older adults' perspectives, the Rural Aging Cognitive Health Model was developed. In the model, it is important to note that the four theme areas are strongly interrelated. Some of the activities overlap and are interconnected as they are closely related. In addition, the model emphasizes the diversity and holistic nature of older adults' perceptions in describing cognitive health and their related activities.

Understanding older adults' perspectives provides pertinent insight into the development of innovative strategies for supporting cognitive health. For example in this study, rural seniors highlighted the importance of thinking positively and activities based in nature such as gardening outdoors. Interestingly, recent scientific studies emphasize the cognitive health benefits of horticultural therapy and therapeutic gardens for older adults with dementia (McClellan, 2018). Rural seniors also described the importance of interventions that supported intellectual stimulation and "keeping your brain active" through activities such as playing games and learning new things. Emerging research based in Cognitive Stimulation Therapy supports this finding and suggests that intellectual engagement can augment cognition, memory, and strengthen connections between different parts of the brain (Park et al., 2014). Our findings suggest that older adults can offer valuable insight and ingenuity based on lived experiences and local knowledge for informing the development of cognitive health promotion.

This study identified a range of activities that rural older adults described as supporting their cognitive health. In moving forward, more studies need to measure and assess the impact of specific activities on supporting rural

older adults' cognitive health. For example, little is known about what specific activities are beneficial, or how different activities work to support and maintain cognitive health (Institute of Medicine, 2015). Reiginders and colleagues (2013) note that "the issue of whether the effects of cognitive interventions generalize to improvement in everyday life activities is still unresolved and needs to be addressed more explicitly ... " (p. 263). Longitudinal studies may be especially useful for evaluating the impact of different activities on seniors' cognitive health over time. In moving forward, more research is needed to measure and evaluate the impact of different forms of cognitive health promotion.

Limitations

Although this study provides useful information on older adults' perspectives of activities to support cognitive health, it is not without limitations. For example, a limitation with our study is the heterogeneity among the sample of rural older adults. For example, this research was based in two rural communities in Saskatchewan and the findings may not be representative of other rural communities. Rural older adults and their communities are diverse in relation to socio-economics, geography, culture, demographics, resources and social support (Lavergne & Kephart, 2012). While our study makes an important contribution to the limited literature on rural seniors' cognitive health, without additional research it is difficult to speculate on the generalizability of our findings to other rural communities. Subsequently, additional research is necessary to examine the relevancy of these findings on cognitive health promotion in other rural communities.

Conclusion

This study identified a range of activities that rural older adults described as supporting their cognitive health. In particular, cognitive health promotion was identified as being strongly linked to one's ability to keep your brain active, think positively, mingle with others, and manage your daily affairs. Understanding seniors' perspectives provides pertinent insight into the development of innovative strategies for supporting cognitive health.

It is well known that health promotion strategies are more likely to be effective when they are compatible with the local context and culture (Griner & Smith, 2006). However, the lack of knowledge on specific activities to help delay or mitigate cognitive impairment among rural older adults challenges health practitioners, policy-makers, and community leaders to develop relevant and effective strategies to support cognitive health in rural communities. In this study, rural older adults contributed experiential knowledge, cultural understandings, and local insight in relation to describing activities that they identified as

supporting their cognitive health. Findings from our study offer policy-makers, community leaders, and health practitioners unique knowledge and insight to support the development of cognitive health promotion initiatives within a rural context. Compared to existing studies, rural seniors discussed cognitive health promotion within a more holistic context. Our findings suggest that there is a need to move beyond focusing solely on pathology and pharmaceutical-based strategies, to cognitive health promotion based on the perspectives of older adults.

Conflict of interest

The authors declare that they have no conflict of interest.

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