

Characterizations of Resilience in Poststroke Aphasia

A Scoping Review and Considerations for Treatment and Research

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The definitions and features of *resilience*, the process and outcome of successfully responding to adversity, are variable across the disability and rehabilitation literatures, and its influence on aphasia treatment and outcomes is as of yet unknown. This scoping review identified and thematically categorized characterizations and descriptions of resilience and the similarly used terms *adaptation*, *adjustment*, and *coping* in the aphasia research literature. Frequently noted features of resilience included internal/cognitive emotional responses, such as positive self-concept, attitude/outlook, and psychological function, as well as external/behavioral responses, such as engaging in new activities and opportunities for social connection. These general features align with a definition of resilience recently developed for individuals with chronic impairment. And, although little information about the influence of resilience on treatment engagement and outcomes emerged from the reviewed literature, a number of clinical considerations and research directions are suggested. **Key words:** *adaptation, adjustment, aphasia, coping, resilience, stroke*

ABOUT 2 MILLION stroke survivors in the United States live with aphasia, a multimodal language impairment (McNeil & Pratt, 2001; National Aphasia Association, n.d.). Navigating change is inevitable for individuals with aphasia: change in language comprehension and expression abilities, activities of and

participation in daily living, relationships, and the need for specific health care and support services. Successfully navigating change is central to the definition of *resilience*, though this definition has evolved with time: the positive adaptation to or management of substantial psychological stress (Fletcher & Sarkar, 2013; Windle, 2011). Sometimes, the definition of resilience includes words such as “bounce back,” “rebound” from or “overcome” difficulties, or “persevere” through significant challenges (Epstein & Krasner, 2013; McAllister & McKinnon, 2009; Reichvich & Shatte, 2002). Formerly conceived of as a static personality trait, resilience has become more widely accepted as a dynamic state, capacity, or ability to maintain healthy functioning after experiencing loss or trauma (Bonanno, 2004; Joyce et al., 2018; Kim et al., 2019; McGrath & Kovacs, 2019; Rainey et al., 2014). It has also been conceptualized as a *process* of managing or adapting to stress or trauma (Windle, 2011) or the *process and outcome* of positive adjustment to life challenges (American Psychological Association,

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2020; Luthar & Cicchetti, 2000). Many agree that resilience may evolve over time, manifest differently depending on context and environment (Richardson, 2002; Southwick et al., 2014), and can be an acute response to an adverse event or ongoing response to chronic challenge (Zautra, 2009). Resilience has been examined as a developmental, behavioral, and neurobiological phenomenon, with research on the influences of childhood trauma, associations with stress and mood disorders, and physiological processes and related neuroendocrine substrates (Luthar & Cicchetti, 2000; Maul et al., 2020; Russo et al., 2012). Despite several decades of research, the scope and characteristics of resilience are not fully understood or agreed upon, and its influence on rehabilitation processes and outcomes is underexplored.

Beyond its varying definition, resilience and related words have been used in variable ways across the health care literature. Words such as *adjustment*, *adaptation*, and *coping* have been noted as frequent synonyms of resilience (Fletcher & Sarkar, 2013; Sarre et al., 2014). Although the American Psychological Association (2020) provides definitions for *coping* (cognitive and behavioral strategies to manage taxing or stressful situations), *adjustment* (change in attitude, behavior, or both in response to a need or desire to change), and *adaptation* (behavior that enables an individual to adjust to the environment effectively), these terms have been used in differing ways. For example, in the stroke rehabilitation literature, *adjustment* may represent a product or end point (e.g., recovery of function), or the behavioral and/or psychological process of responding to change (Sarre et al., 2014; Theadom et al., 2019), including a response to change that comes with chronic illness (Brennan, 2001). Both *adaptation* and *resilience* have been described to include optimism, cognitive flexibility, engagement in social support, and stress mitigation in response to trauma or other profoundly disruptive health-related experience(s) (Dunn et al., 2012; Rainey et al., 2014). *Coping* has been characterized similarly, for example,

as a “goal-directed coping process” (Carlsson et al., 2009, p. 780), as a primary attribute of resilience, such as “to cope effectively” (Manning et al., 2016, p. 515), or the strategies used to manage or overcome a stressor following its “resilient” appraisal (Fletcher & Sarkar, 2013).

Resilience may have a role in recovery and rehabilitation of chronic impairments such as aphasia. Experiencing a major health event and ongoing impairment are significant challenges for any individual, and the ability to overcome or persevere through those challenges has both direct and indirect implications for recovery. Emotional adjustment to chronic impairment or disability has been modeled as stroke-related bereavement stages or a dynamic process of psychological adaptation (Taylor et al., 2011). In the context of disability and rehabilitation, resilience has been described as “protective” from physical and functional deficits in daily life, social isolation, depression, and other psychological disorders (Manning et al., 2016; Silverman et al., 2015). Emotional well-being is often a key attribute and outcome of resilience, sometimes also qualified as *psychological resilience*. Higher relative mood, hope, and optimism have often been associated with a greater degree of resilience in the disability, rehabilitation, and psychology literatures, as well as positive health behaviors and recovery (Cal et al., 2015; Jalilianhasanpour et al., 2018; Kim et al., 2019; Kortte et al., 2012; Sisto et al., 2019).

Some conceptualizations of resilience have featured a return to a positive outlook or meaningful participation following an acute stressor. Amtmann et al. (2020), in their development of a resilience scale for adults with chronic health conditions, reported that resilience in the face of chronic stressors may be conceptualized somewhat differently than resilience related to acute stressors. Specifically, resilience in individuals experiencing chronic health conditions may be characterized as the maintenance of a positive outlook and meaningful activities. In other words, this conceptualization emphasizes a general

persistence in both positive inward response and outward behavior instead of a “bounce back” to prior attitude/outlook or external functioning (Amtmann et al., 2020).

Resilience and Rehabilitation Outcomes

Resilience has been examined in relation to rehabilitation outcomes to a limited degree, often focused on the association between resilience and functional and/or psychosocial outcomes following a disabling event or diagnosis. For example, higher degrees of resilience have been associated with diminished postconcussive symptoms in individuals with mild traumatic brain injury, and positive appraisals of social and/or physical functioning in individuals with varying physical disabilities (Losoi et al., 2015; Manning et al., 2016; Silverman et al., 2015). Importantly, higher degrees of resilience are frequently associated with lower degrees of depression in individuals with stroke and other neurological impairments and disabilities (Gyawali et al., 2020; Rainey et al., 2014; Silverman et al., 2015). In addition to these reported associations between resilience and psychological, social, and physical functioning, there are other ways in which resilience may influence rehabilitation and its outcomes.

In the neuropsychological and neurobiological literatures, resilience has been described as the ability of neurobiological systems to adapt to psychological stress or other challenges in order to survive (Karatsoreos & McEwen, 2013). The neural systems that underlie both chronic stress and depression include regions of the brain central to attentional processes and memory encoding, that is, the prefrontal cortex and the hippocampus. These regions may degrade biophysically in the absence of psychological resilience, influencing the individual's ability to attend and remember (Levone et al., 2015; McEwen & Gianaros, 2011; Russo et al., 2012), potentially inhibiting learning through rehabilitation experiences.

Resilience may influence rehabilitation responses yet again through treatment engagement and participation. The degree to which an individual is motivated and active in rehabilitation activities is associated with functional improvements (Lequerica & Kortte, 2010; Williams et al., 2021). Although the specific mediating influence of resilience on treatment engagement has not been examined, several studies have reported an association between depressive symptoms or emotional distress and diminished treatment participation and engagement (Skidmore et al., 2010; Williams et al., 2021).

Individuals with aphasia often experience social isolation, chronic stress, and depression, which appear to diminish both functional outcomes and quality of life (Ashaie et al., 2019; Ayerbe et al., 2014; Code & Herrmann, 2003; Hilari, 2011; Laures-Gore & DeFife, 2013). Examining resilience and its role in aphasia recovery and rehabilitation may be a meaningful direction for rehabilitation research.

METHODS

The purpose of this scoping review was to clarify key concepts/definitions and identify key characteristics or factors related to resilience in poststroke aphasia using the framework provided by Munn et al. (2018). The authors conducted literature searches (July 2021) using PsycINFO, PubMed, EBSCO/CINAHL, and EBSCO/ERIC databases. To gather articles that described resilience, search terms included “resilience,” “adaptation,” “adjustment,” and “coping,” and their truncated variants (e.g., “adapt*”). These terms were selected on the basis of their close similarity to resilience and common use in the rehabilitation and psychological literatures. Boolean operators were used to connect these search terms to “aphasia” or “stroke.” Article inclusion and exclusion criteria were established prior to database search: peer-reviewed research articles published from January 2010 until July 2021, including

reviews and studies that used quantitative, qualitative, or mixed-methods designs, and included people with aphasia (etiology unspecified). Articles that used any of the search terms were included for review if resilience and/or related terms were explored as a primary or associated aim of the study, or included as a tertiary component of the study, such as in the “Discussion” section. Dissertations and gray literature (e.g., non-peer reviewed articles, textbooks, magazines) were excluded from review, as well as articles that used an alternate meaning of a key term (e.g., “adaptation” related to measure modification).

Procedures

Both authors extracted data from the included articles on article type, research design, patient population, specific terms of interest used, and any definitions, characterizations, and/or descriptions of resilience, adaptation, adjustment, or coping. The authors also extracted any information on the association between the terms of interest and treatment or outcomes. The extracted definitions, characterizations, and features of resilience and related terms were individually categorized as related to “internal/cognitive emotional,” “external/behavioral,” “environmental,” or “body function or structure.” These categories were identified on the basis of the definition and description of resilience provided by Amtmann et al. (2020) as well as the general themes that emerged from the reviewed rehabilitation and psychological literatures. The authors conducted an additional thematic analysis based on themes arising from the extracted data. Data regarding treatment or outcomes were categorized respectively.

Reliability

Before analyzing the data, the authors conducted reliability checks on approximately 40% of the articles to verify appropriate inclusion and exclusion. Other reliability checks continued throughout the process of analysis for all included articles. Extracted data

were checked by both authors to confirm relevance to the aims of the review. Approximately three inconsistencies were discussed until the authors agreed on the extraction and categorization of the reviewed data.

RESULTS

An initial literature search yielded a total of 1,744 articles. After reviewing titles and abstracts to determine initial eligibility for inclusion, 85 articles met criteria for further review. Among these 85 articles, duplicates were removed, and a full review was conducted on the body of each article. Thirty-one articles met all inclusion criteria.

Of the 31 final articles reviewed, four articles were found using the search term “resilience” (Dietz et al., 2020; Hunting Pompon et al., 2018; Moss et al., 2021; Panda et al., 2021). Thirteen articles were found using “adaptation” (Brown et al., 2010, 2011a, 2011b; Donnellan et al., 2012; Grohn et al., 2012; Hinckley, 2015; Laures-Gore et al., 2020; Moss et al., 2021; Northcott et al., 2021; Pringle et al., 2010; Wray et al., 2019, 2020; Wray & Clarke, 2017), 14 articles were found using “adjustment” (Bronken et al., 2012; Grohn et al., 2012, 2014; Laures-Gore et al., 2020; Moss et al., 2021; Mumby & Roddam, 2021; Mumby & Whitworth, 2013; Musser et al., 2015; Nätterlund, 2010; Sherratt & Simmons-Mackie, 2016; Tregea & Brown, 2013; Wray et al., 2019, 2020; Wray & Clarke, 2017), and 11 articles were found using “coping” (Armstrong et al., 2015; Bragstad et al., 2020; Dietz et al., 2020; DuBay et al., 2011; Harmon, 2020; Hjelle et al., 2019; Kirkevold et al., 2018; Lanyon et al., 2018; Nätterlund, 2010; Sherratt & Simmons-Mackie, 2016; Wray & Clarke, 2017). Ten articles were found using more than one search term of interest (Dietz et al., 2020; Grohn et al., 2014; Lanyon et al., 2018; Laures-Gore et al., 2020; Moss et al., 2021; Nätterlund, 2010; Sherratt & Simmons-Mackie, 2016; Wray et al., 2019, 2020; Wray & Clarke, 2017).

Eight articles focused on resilience and/or related terms as a primary aim of the study

(Bronken et al., 2012; Dietz et al., 2020; Donnellan et al., 2012; DuBay et al., 2011; Kirkevold et al., 2018; Moss et al., 2021; Mumby & Whitworth, 2013; Wray et al., 2019). For 13 articles, resilience and/or similar terms were part of an associated aim (Bragstad et al., 2020; Brown et al., 2010, 2011a, 2011b; Grohn et al., 2012, 2014; Harmon, 2020; Hjelle et al., 2019; Hunting Pompon et al., 2018; Laures-Gore et al., 2020; Musser et al., 2015; Nätterlund, 2010; Wray et al., 2020), and 10 articles included these terms in tertiary findings or discussion (Armstrong et al., 2015; Hinckley, 2015; Lanyon et al., 2018; Mumby & Roddam, 2021; Northcott et al., 2021; Panda et al., 2021; Pringle et al., 2010; Sherratt & Simmons-Mackie, 2016; Tregæa & Brown, 2013; Wray & Clarke, 2017).

Among the 31 included articles, three were review-type articles and the remaining 28 were reports of quantitative, qualitative, or mixed-methods research. Among the three review articles, one was a systematic review of qualitative studies (Wray & Clarke, 2017), one was a “tutorial” (Laures-Gore et al., 2020), and another was a “viewpoint” article (Dietz et al., 2020). The research report articles included six describing quantitative methods (Bragstad et al., 2020; Donnellan et al., 2012; DuBay et al., 2011; Hjelle et al., 2019; Hunting Pompon et al., 2018; Kirkevold et al., 2018), three of which used a randomized controlled trial (Bragstad et al., 2020; Hjelle et al., 2019; Kirkevold et al., 2018). Twenty research reports described qualitative research, eight of which used a phenomenological approach (Brown et al., 2010, 2011a, 2011b; Grohn et al., 2012, 2014; Lanyon et al., 2018; Panda et al., 2021; Pringle et al., 2010). Two articles reported on mixed-methods research (Bronken et al., 2012; Mumby & Roddam, 2021).

To facilitate the examination of resilience and related terms, the authors sorted the extracted definitions, descriptions, and features into (a) internal/cognitive emotional, (b) external/behavioral, and/or (c) environmental factors. The limited body function and

structure data extracted from the included articles were noted separately. Some descriptions or features of resilience and related terms were included in more than one category (e.g., “willingness to try new things” includes both cognitive and behavioral responses). For a table of included articles and relevant extracted information, see Supplemental Digital Content, available at: <http://links.lww.com/TLD/A84>.

Further examination of the included literature led to two categorizations of the articles: (1) articles that included limited, often neutral descriptions of responses to change or challenge and (2) articles that included extended, often positive descriptions of responses to change or challenge. Specifically, several of the included articles used resilience-related terminology to indicate a basic response to challenge or stress (e.g., “coping with change” is not further described by Armstrong et al., 2015), whereas the majority of articles included and emphasized successful processes and/or responses to challenge or stress. Some limited definitions and descriptions were expected, given that the review included articles that did not focus specifically on resilience-related topics. Of the eight articles that included limited descriptions of responses to change, two articles primarily used the word “coping,” two used “adapting,” one primarily used “adjusting,” and two used a combination of these terms and “resilience.” The limited characterizations of the terms of interest included neutral cognitive, emotional, or behavioral responses: responding to change or new limitations (Armstrong et al., 2015; Donnellan et al., 2012; Harmon, 2020; Nätterlund, 2010), discovering and adapting to new situations and abilities (Pringle et al., 2010), adjusting to self-concept or identity re-formation (Musser et al., 2015), lifestyle (Nätterlund, 2010), and self-management as a factor of adjustment (Wray et al., 2019, 2020).

The other 23 articles described resilience as a positive process and/or successful outcome in response to substantive change. Three of these articles discussed variables

reportedly associated with resilience but did not further characterize resilience or like terms. These associated variables included humor, related to positive cognitive and emotional adjustment (Sherratt & Simmons-Mackie, 2016), and support groups, described as a means to improve adjustment or coping abilities (Lanyon et al., 2018; Tregua & Brown, 2013). The remaining 20 articles characterized resilience and like terms with more detail and frequently included characterizations associated with internal/cognitive emotional and/or the external/behavioral responses. Two of these articles included body functions and structures as part of their characterizations of resilience—recovery of function (Moss et al., 2021) and good physical health in general (Brown et al., 2010)—but did not further detail these factors.

Thematic analysis

A review of the extracted characterizations of resilience and similar terms revealed several themes within the previously mentioned categories (internal/cognitive emotional, external/behavioral, and environmental factors); in other words, the extracted data were grouped by content similarities. All internal/cognitive emotional response characterizations or features fit into one of three emerging themes: self-concept, attitudes/outlook, or emotional/psychological function. The external/behavioral response characterizations or features fit into one of two emerging themes: engagement in activities or participation in life. See Table 1.

Internal/cognitive emotional responses

Eleven articles described resilience or similar terms to include self-concept and related perceptions. Specifically, these articles described the importance of positive self-concept in general (Bronken et al., 2012; Hinckley, 2015), self-acceptance (Bragstad et al., 2020; Dietz et al., 2020; Wray & Clarke, 2017), confidence (DuBay et al., 2011), self-worth (Mumby & Whitworth, 2013), self-efficacy (Wray & Clarke, 2017), or a focus on strengths/belief in abilities

(Bragstad et al., 2020; Brown et al., 2010, 2011b). A few other articles specified self-determination (Kirkevold et al., 2018), sense of independence (Brown et al., 2010, 2011b), or agency (Hinckley, 2015) as key characteristics of resilience. Identity and its reformation following stroke and aphasia diagnosis were also highlighted as key self-concept beliefs integral to resilience (Brown et al., 2010; Wray & Clarke, 2017).

Twelve articles included attitude and outlook as key components of resilience or like terms. First, acknowledgement and acceptance of the change experienced by the individual (Brown et al., 2011b; DuBay et al., 2011; Moss et al., 2021; Panda et al., 2021), including grieving-related losses (Mumby & Roddam, 2021), were highlighted in several articles. Other articles featured a mindset of growth and learning, described as accommodating and managing changes and limitations (Grohn et al., 2012; Moss et al., 2021; Panda et al., 2021), and/or a willingness to adapt and learn new things and a positive way of life (Brown et al., 2011a; Grohn et al., 2014; Hinckley, 2015; Moss et al., 2021). These elements of the individual's outlook were described in association with a general sense of well-being (Bragstad et al., 2020; Grohn et al., 2012), humor (Sherratt & Simmons-Mackie, 2016), and/or hope or optimism (Grohn et al., 2012; Hinckley, 2015). A positive outlook was further characterized as finding purpose or meaning in life for individuals whose adjustment could be characterized as "living successfully" with aphasia (Mumby & Roddam, 2021). Two articles included spirituality as a feature of resilience or similar terms (Moss et al., 2021; Mumby & Whitworth, 2013).

Psychological adjustment, featured prominently in nine articles, was described generally as emotional adjustment or contented mood (Bragstad et al., 2020; Bronken et al., 2012; Brown et al., 2010; Mumby & Roddam, 2021), or as monitoring, managing, or mitigating stress (DuBay et al., 2011; Hjelle et al., 2019; Hunting Pompon et al., 2018). Several articles included the relative absence of

Table 1. Internal/cognitive emotional and external/behavioral characterizations of resilience by search term of interest

	Adaption	Adjustment	Coping	Resilience
INTERNAL/COGNITIVE EMOTIONAL				
<i>Self-concept</i> Self-acceptance, confidence, self-worth, self-determination, agency, identity reformation	Brown et al. (2010, 2011a) Hinckley (2015) Wray and Clark (2017) ^a	Bronken et al. (2012) Mumby and Whitworth (2013) Wray and Clark (2017) ^a	Bragstad et al. (2020) Dietz et al. (2020) ^b DuBay et al. (2011) Wray and Clark (2017) ^a	Dietz et al. (2020) ^a
<i>Attitude or outlook</i> Acceptance, managing changes, willingness to adapt, optimism, humor, sense of purpose, spirituality	Brown et al. (2011a, 2011b) Grohn et al. (2014) ^a Hinckley (2015) Moss et al. (2021) ^a	Grohn et al. (2012, 2014) ^a Moss et al. (2021) ^a Mumby and Roddam (2021) Mumby and Whitworth (2013) Sherratt and Simmons-Mackie (2016) ^a	Bragstad et al. (2020) DuBay et al. (2011) Sherratt and Simmons-Mackie (2016) ^a	Panda et al. (2021) Moss et al. (2021) ^a
<i>Psychological status</i> Emotional adjustment, stress management, absence of psychological disorder	Brown (2010) Laures-Gore et al. (2020) ^a Northcott et al. (2021)	Bronken et al. (2012) Laures-Gore et al. (2020) ^a Mumby and Roddam (2021)	Bragstad et al. (2020) DuBay et al. (2011) Hjelle et al. (2019)	Hunting Pompon et al. (2018)
EXTERNAL/BEHAVIORAL				
<i>Activities</i> Strategies to deal with impairment, initiating meaningful activities and new goals	Brown et al. (2010, 2011a, 2011b) Grohn et al. (2014) ^a Moss et al. (2021) ^a	Grohn et al. (2014) ^a Moss et al. (2021) ^a		Moss et al. (2021) ^a
<i>Participation</i> In social relationships, support activities, meaningful activities, treatment	Brown et al. (2011a, 2011b) Grohn et al. (2014) ^a Lanyon et al. (2018) ^a Moss et al. (2021) ^a Wray and Clark (2017) ^a	Bronken et al. (2012) Grohn et al. (2012, 2014) ^a Moss et al. (2021) ^a Tregua and Brown (2013) Wray and Clark (2017) ^a	Bragstad et al. (2020) DuBay et al. (2011) Lanyon et al. (2018) ^a Wray and Clark (2017) ^a	Moss et al. (2021) ^a

^aArticles found using multiple terms of interest (e.g., resilience and coping).

psychological disorders such as depression, anxiety, or general distress in their descriptions of resilience (Bragstad et al., 2020; Laures-Gore et al., 2020; Northcott et al., 2021).

External/behavioral responses

Thirteen articles did not limit their characterizations of resilience to internal responses and also included a number of external/behavioral responses. These external/behavioral responses could be categorized using the World Health Organization International Classification of Functioning (WHO-ICF, 2001) components of activities and participation. Some articles specified that these responses must be motivated by an individual's internal willingness or motivation to engage (addressed previously) in these external behaviors, such as a return to prior participation (Grohn et al., 2014), engagement in practical and positive strategies to deal with impairment (Grohn et al., 2014; Moss et al., 2021), new goal setting (Brown et al., 2010), social relationships and roles (Bragstad et al., 2020; Bronken et al., 2012; Brown et al., 2011a, 2011b; Moss et al., 2021), meaningful or purposeful activities (Bragstad et al., 2020; Bronken et al., 2012; Brown et al., 2011a, 2011b; Wray & Clarke, 2017), treatment (Brown et al., 2011a), and/or support activities or services (Bragstad et al., 2020; Brown et al., 2010, 2011a; DuBay et al., 2011; Grohn et al., 2012, 2014; Lanyon et al., 2018; Tregua & Brown, 2013). Importantly, many of these external responses are dependent on the corresponding availability of and accessibility to related opportunities in the individual's environment. Finally, two articles specified some degree of functional and communicative independence (Brown et al., 2011a, 2011b) as facets of resilience.

A number of included articles also discussed variables and opportunities associated with resilience, such as environmental factors that allow for the external/behavioral response on the part of the individual. For example, 13 articles described the availability of social support/services (Armstrong

et al., 2015; Bragstad et al., 2020; Bronken et al., 2012; Brown et al., 2010, 2011a, 2011b; DuBay et al., 2011; Grohn et al., 2014; Lanyon et al., 2018; Moss et al., 2021; Tregua & Brown, 2013) and/or supportive personal relationships (Bragstad et al., 2020; Grohn et al., 2014; Harmon, 2020; Moss et al., 2021; Nätterlund, 2010; Tregua & Brown, 2013) as important associated factors of resilience and related terms. Five articles mentioned the association between resilience and/or similar terms and access to treatment (Bronken et al., 2012; Brown et al., 2011a; Wray et al., 2019, 2020) and/or education and information (Bronken et al., 2012; Grohn et al., 2014). Finally, three articles noted that other resources or factors, such as assistive technology, financial security, and communicative participation in non-distracting environments, may also associate with resilience (Brown et al., 2010; DuBay et al., 2011; Harmon, 2020).

Resilience related to treatment and outcomes

Of the articles included in this review, seven mentioned the relevance of resilience-related constructs to treatment. Several articles reported that clinician acknowledgment of mental health, well-being, and coping processes experienced by clients with aphasia appears to support the interdisciplinary continuum of care (Moss et al., 2021) and, more specifically, may help improve the suitability of treatment provided by clinicians (Armstrong et al., 2015). Several articles proposed that a greater understanding of resilience and how it may be fostered and integrated into treatment would be a beneficial direction for intervention development (Harmon, 2020; Mumby & Whitworth, 2013; Wray et al., 2019; Wray & Clarke, 2017). Finally, a sense of coherence, or an optimistic outlook coupled with a perception of manageability of challenge, was noted as a predictor of heightened engagement in treatment (Donnellan et al., 2012).

Twelve of the included articles touched on the hypothesized association between resilience-related constructs and

rehabilitation response and/or outcomes (Donnellan et al., 2012; Hjelle et al., 2019) and the influence of adjustment-related variables on rehabilitation and recovery over time (Grohn et al., 2014). More specifically, some articles reported that positive self-concept (Musser et al., 2015), self-management of impairment (Wray et al., 2020), acceptance, and “insistence on recovery” (DuBay et al., 2011, p. 1025) appear associated with positive outcomes following onset of impairment. The associations between psychological function, rehabilitation response, and functional outcomes were underscored as important but not well understood in five articles (Bragstad et al., 2020; Dietz et al., 2020; Hunting Pompon et al., 2018; Kirkevold et al., 2018; Pringle et al., 2010) and linked with the availability and/or engagement in social support in two articles (Brown et al., 2011b; Musser et al., 2015).

DISCUSSION

The purpose of this review was to explore how *resilience* has been defined and characterized in the aphasia literature as well as described in relation to aphasia treatment and outcomes. Notably, only four of the included articles used the term “resilience.” We extracted features of resilience and the similar terms *adaptation*, *adjustment*, and *coping* from articles identified in the research literature that featured or included people with aphasia. The reviewed articles described varying features of resilience and like terms and in some instances included factors that are hypothesized to foster or are otherwise associated with the construct of interest. The characterizations of resilience and similar terms were primarily internal/cognitive emotional or external/behavioral in nature; some articles also referenced associated environmental factors. Separately, we extracted information on how resilience-related constructs have been considered in relation to treatment and its outcomes.

Characterizations of resilience and similar terms

Although we expected to identify some differences between how the terms of interest were used in the included literature, it was difficult to identify clear differences. Resilience, adaptation, adjustment, and coping were often described using similar features and ideas, though as expected, descriptions varied in their breadth and specificity. The majority of articles included in this review described resilience and/or like terms with characterizations of internal/cognitive emotional responses and, in some cases, external/behavioral responses as well. When examined more closely, the internal responses included self-concept, attitudes or outlook, and psychological function, and generally mirrored resilience-related literature in other stroke and disability literature. There was broad variability with whether each article included one, two, or all three subcategories of internal/cognitive emotional responses. For example, Panda et al. (2021) described “the process of adjustment . . . as an individual’s response to and journey of acceptance, accommodation, and management of changes affecting various domains of life” (p. 1545); in other words, these resilience-related features pertained to attitude/outlook but not necessarily self-concept or psychological function. Hinckley (2015) described resilience and related terms as associated with acceptance, optimism, agency, and positive self-characterizations but not psychological function specifically. Bragstad et al. (2020) described coping as contented mood, self-acceptance, usefulness, and belief in abilities, capturing all three subcategories of internal/cognitive emotional responses described here. These three articles are also representative of the range of resilience-related terminology used within the reviewed articles. Panda et al. (2021) used primarily resilience but also mentioned adjustment; Hinckley (2015) used primarily adaptation but also mentioned adjustment and resilience; and Bragstad et al.

(2020) used primarily coping but also mentioned adaptation and adjustment.

Overall, the characterizations of resilience in the reviewed articles appear to be generally consistent with the varying characterization of resilience in the stroke, disability, and psychological literatures (Sarre et al., 2014; Silverman et al., 2015). And, although consistency in construct characterization across disciplines is generally good, variability does not support reliable measurement or related research. Furthermore, we encountered other concepts and terminology during the review process that appears related to resilient outcomes. For example, *posttraumatic growth* has been described in the aphasia literature as a significant personal growth stemming from challenge or crisis (Sherratt & Worrall, 2021). Among other features, this multidimensional outcome reportedly results from trauma and existential struggle, neither of which is required feature of resilience (Westphal & Bonanno, 2007; see also Amtmann et al., 2020), though they may be experienced by some individuals with aphasia. “Living successfully with aphasia” is another topic that appears to share some features with resilience (Brown et al., 2010, 2011a, 2011b; Grohn et al., 2012, 2014). For example, Grohn et al. (2012) described “living successfully with aphasia” as a satisfying quality of life with aphasia fostered by the availability of services, treatment, familial support, and the emergence of adaptation skills and a positive attitude. The descriptions of “living successfully with aphasia” appeared to include both internal/cognitive emotional and external/behavioral responses along with a significant emphasis on the availability of and access to environmental supports and resources. These articles met the present review’s inclusion criteria if they included at least one term of interest in the description of “living successfully,” yet they were less explicit about the process of navigating change compared with its result. Separately, one article (Hjelle et al., 2019) featured the concept “sense of coherence,” generally described as a positive outlook combined with a sense of

control (Eriksson & Mittelmark, 2017), similar to some characterizations of resilience.

Resilience, aphasia treatment, and outcomes

Few articles included in this review discussed how resilience relates to treatment response other than indicating that resilience may be an important facet of individualized client care, such as in assessing mental health and integrating client perspectives into treatment planning. Several articles briefly mentioned that methods of supporting and encouraging resilient responses to challenge and stress may be a valuable addition to aphasia interventions. A few articles discussed a connection between resilience and functional outcomes, but these associations appear to be rarely examined in the aphasia literature.

Several articles reported on the inverse association between resilience and chronic stress and/or depression (Bragstad et al., 2020; DuBay et al., 2011; Hjelle et al., 2019; Hunting Pompon et al., 2018; Laures-Gore et al., 2020; Northcott et al., 2021). These reports are similar to others in both the disability and neuropsychological literatures (e.g., Cal et al., 2015; Jeste et al., 2013; Russo et al., 2012). The influence of chronic stress and associated mood disorders on treatment processes and outcomes is an area of research that is as of yet underexplored but merits consideration, given the neurobiological substrates of these psychological reactions. As mentioned previously, persisting chronic stress and depression may influence regions of the brain important for attention, memory, and therefore learning (Levone et al., 2015; McEwen & Gianaros, 2011; Russo et al., 2012). A number of studies have reported diminished memory and other cognitive functions in individuals who report higher relative levels of chronic stress (Neupert et al., 2006; VonDras et al., 2005) and depression (Snyder, 2013; Williams & Demeyere, 2021). Furthermore, diminished motivation is among the diagnostic criteria of depression (American Psychiatric Association, 2013) and may

negatively impact treatment engagement and response for individuals with low relative resilience and higher relative depression. In other words, without the hypothesized protective influence of psychological resilience, an individual may not be able to fully engage in or benefit from treatment.

Although research is necessary to understand the relationships between chronic stress, depression, and treatment response, the study of resilience could be a complementary addition, especially given its reported “protective capacity” against detrimental psychological reactions and potential facilitatory role in positive clinical outcomes (Manning et al., 2016; Silverman et al., 2015).

Defining resilience for treatment and research

Resilience could be an important clinical and research consideration in several ways. First, clinicians and researchers alike can use a common definition to acknowledge resilience in individuals with aphasia. The definition provided by Amtmann et al. (2020)—“the capacity to bounce back from and/or maintain function in the face of adversity” (p. 150)—was methodically developed for individuals with chronic conditions and accompanied by the acknowledgment that resilient responses to acute or chronic challenges may include internal/cognitive emotional responses and/or external/behavioral responses. Second, valid measurement of resilience related to chronic health condition is important. Using the definition mentioned previously, Amtmann et al. developed a psychometrically rigorous measure of resilience for people with a range of chronic impairments (University of Washington Resilience Scale, 2020; <http://uwcorr.washington.edu>). Although this measure was not developed for individuals with communication limitations, it may be appropriate for individuals with relatively mild language impairments. A modified form of this scale is being validated for aphasia (Hunting Pompon et al., 2022). Valid

measurement of resilience will help clinicians understand their clients’ views about living with aphasia, the recovery process, and engagement in treatment. A psychometrically sound measure of resilience will be essential for clinical researchers who seek to examine the link between resilience and psychosocial function as well as treatment engagement and responsivity. Future research may also include an examination of resilience and specific features of language impairment, the neurobiological networks that subservise the mood disorders frequently experienced by individuals with aphasia (Ashaie et al., 2019; Hunting Pompon et al., under review), and potential associations between resilience and the outcomes of rehabilitation.

Limitations

Resilience is a complex and subjective concept. What constitutes a resilient response to any chronic condition is ultimately the opinion of the individual, and therefore research of this construct and others like it do not generalize to all individuals (Sarre et al., 2014). This review attempted to characterize resilience and like terms within the aphasia research literature, and these characterizations should be interpreted with caution. As mentioned previously, the articles selected for review included resilience-related concepts as a primary or secondary research aim, or merely within tertiary discussion, and the information extracted from these articles reflects both substantive descriptions and minor and peripheral allusions to the construct of interest. We limited our literature search to the previous 10 years, subsequently omitting older literature that may have been informative if included. In addition, other less commonly used resilience-related topics and terminology (e.g., grit, perseverance) are sometimes mentioned in the aphasia literature that were not captured in this review’s search, data extraction, and thematic analysis unless they accompanied at least one of the terms of interest.

CONCLUSION

Resilience is a broadly described construct that has a number of synonyms in the aphasia literature and is widely characterized as having cognitive, emotional, and/or behavioral features. Evaluating resilience in the context of chronic impairments such as aphasia requires special consideration, and when defined and characterized consistently and measured validly, it could yield

important information about psychosocial perspectives and needs of individual clients and their ability to engage in and respond to treatment. Future research could build upon a more specified characterization of resilience to examine the relationships between this construct and specific aspects of impairment or functioning, neurobiological networks and processes, psychological symptoms, psychosocial participation, and rehabilitation outcomes overall.

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