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ORIGINAL RESEARCH

Constructing General Human Agency Indicators (GHAIs) and a General Personal Agency Scale (GPAS)

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Abstract
Despite its importance for the social sciences, *human agency* remains an ambiguous and underoperationalized construct. After engaging prior research to articulate clear criteria for defining agency and synthesize a multidimensional conceptual framework for human agency, this study develops and validates preliminary General Human Agency Indicators (GHAIs) to measure subconstructs within that framework. Utilizing the Midlife in the United States (MIDUS) dataset, we aggregated a list of 30 survey items previously used in agency research and conducted an iterative process of exploratory factor analysis (EFA) and item elimination to reduce that list to a set of 9–13 items with a strong, consistent factorial structure. Using confirmatory factor analysis (CFA), we identified two bifactor models that demonstrated good fit: a nine-item General Personal Agency scale (GPAS) and a nine-item GHAIs tool combining six items from the GPAS with three measuring agency achievement. Initial evidence for the construct validity of the tools was produced through tests of internal consistency and correlational analysis, indicating that the proposed GPAS and GHAIs effectively measure personal agency, intrinsic agency, instrumental agency, and agency achievement.

Keywords Human agency · Personal agency · Capabilities approach · Self-determination Theory · MIDUS

1 Introduction

1.1 Human Agency, Underoperationalization, and Mismeasurement

Human agency (or *agency*) refers to a person's capacity to enact control over their lives and engage their physical and social environments to pursue self-determined goals (Ahearn, 2001; Kabeer, 1999; Kotan, 2010; Sen, 1985). A fundamental mechanism through which the social world is constructed and navigated; agency is a critical topic for the social

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sciences. A literature review by Cavazzoni et al. (2022) provides an overview of how agency has been explored in fields as diverse as psychology, sociology, social geography, global development, women's empowerment, childhood studies, and research on morality and sexuality.

Agency has particular importance for fields that engage human well-being. For example, Bhattacharyya (1995) defines the discipline of community development as the cultivation of social relations characterized by solidarity and agency and, in the Capabilities Approach to development, it is discussed as the enactment of human freedom, the expansion of which is the ultimate purpose of development activities (Sen, 1985, 1999). Human agency is a topic of interest to the study of subjective well-being, as well-being is produced when individuals achieve self-determined goals and functionings (Comim, 2005; Kotan, 2010). Research demonstrates a strong positive relationship between agency and life satisfaction (Graham & Nikolova, 2013; Hojman & Miranda, 2018; Wang, 2015), experienced across cultures as a consistent sequence: (1) as socioeconomic opportunities expand, people place greater value on freedom, (2) as valuation of freedom increases, so does the influence of agency on life satisfaction, (3) life satisfaction increases commensurate to the increased effect of agency (Welzel & Inglehart, 2010). Agency has also been discussed in the context of its relationships with empowerment (Chavis & Wanderman, 1990; Kieffer, 1984), prosocial behaviors (Christoph et al., 2014), community engagement (Peterson et al., 2008), volunteerism (Cicognani et al., 2015), and democratic participation (Sen, 1999).

Despite and, in some sense, because of its significance across disciplines, definitions of human agency abound, with no clear consensus regarding how the construct should be operationalized (Cavazzoni et al., 2022; Ibrahim & Alkire, 2007). Agency has been conceptualized as an internal attitude (Alsop et al., 2006 Pleeging et al., 2021), one's capacity for action (Cavazzoni et al., 2022; Giddens, 1984; Graham & Nikolova, 2013; Onyx & Bullen, 2000; Smith et al., 2000), or some combination thereof (Bryan et al., 2014; Hitlin & Elder, 2006; Kabeer, 1999; Kotan, 2010; Sen, 1985; Williams & Merten, 2014). Some extend the term to explicitly include interactions with one's environment (Bentley-Edwards, 2016; Christensen & Hooker, 2000; Horvath, 1998; Krauss et al., 2014) and relationships with others, either alongside (Alsop et al., 2006; Bandura, 2018; Bhattacharyya, 1995; Narayan et al., 2007; Yount et al., 2020) or independently from them (Lautamo et al., 2021; Salem et al., 2020; Steckermeier, 2019). Agency has also been used to describe both individual and collective capacity to participate in and transform existing sociocultural structures and norms (Bhattacharyya, 1995; Harvey, 2002; Lautamo et al., 2021; Veronese et al., 2019b; Zimmerman et al., 2019). A table expanding on Cavazzoni et al.'s (2022) original survey of previous agency definitions is included as Appendix A.

Disagreement over how agency is defined inevitably leads to challenges related to its measurement (Cavazzoni et al., 2022). A critical example of this is how agency is operationalized alongside communion as one of the "Big Two" traits in personality research (Gebauer et al., 2014). In personality research, agency refers to one's extraversion and openness to experience (DeYoung, 2006; Digman, 1997; Erdle et al., 2009; Paulhus & John, 1998) and their desire for independence, individuation, and "agentic contrast" (p. 454)—that is, how one articulates their identity by differentiating themselves from others. The agency personality construct has been useful for exploring personality (Gebauer et al., 2014) and for organizing psychological characteristics related to social behaviors (Wiggins, 1991), social values (Trapnell & Paulhus, 2012), self-enhancement strategies (Campbell et al., 2002), and developmental goals (Charles & Carstensen, 2010). However, while the agency personality construct shares some similarities with human agency as it has been engaged elsewhere in the social sciences, in that it reflects a mode of enacting control and over oneself and one's environment, none of

the characteristics attributed to the agency personality trait are necessary for the self-determination, pursuit, or achievement of goals per se, which is an essential component of human agency. Rather, the agency personality trait is better understood as something akin to individualism, complementing the collectivistic orientation of the communion trait.

Agency has also been assessed using proxy measures like income, education, employment opportunities, and access to resources (Alkire, 2008; Alsop et al., 2006; Bhattacharyya, 1995; Kabeer, 1999). However, this approach has been criticized on the grounds that proxy measures are poor indicators of what people value most (Anand et al., 2009; Helliwell & Barrington-Leigh, 2010). Socioeconomic proxies are merely means to the greater end of advancing human freedom, and one's ability to convert them into desired outcomes is influenced by personal, social, political, cultural, and environmental factors (Alkire, 2008; Sen, 1999). Proxy measures also risk creating unobserved or confounding variable bias, as multiple proxies might produce similar effects on agency; this risk is compounded in fields like poverty analysis where proxies are already in regular use and limits the capacity for research to probe interactions between agency and other topics of interest (Alkire, 2008). Similarly, tools like Vallacher and Wegner's (1989) Behavior Identification Form (BIF) and Yount et al.'s (2020) Women's Agency Scale 61 (WAS-61) use behaviors and measures for perceived influence over domains and activities to assess agency. While these measures were useful for the authors' specific purposes of assessing action identity and women's agency, respectively, they do not allow for subjective valuation of the relevant activities, which is important in agency research (Alkire, 2005). This effectively causes them to function as proxy indicators, subject to the limitations thereof.

Several attempts have been made to develop direct, subjective indicators for human agency, examples of which are shown in Table 1 alongside sample items from the BIF. Some researchers have deployed single-item indicators (e.g., Graham & Nikolova, 2013; Hojman & Miranda, 2018), eliminating opportunities to the dimensionality of the construct. Even when they consist of multiple items, direct measures of agency are often unidimensional and conflated with concepts like autonomy, freedom, internal locus of control, purposeful choice, and self-efficacy (c.f. Alsop et al., 2006; Bandura, 2018; Cavazzoni et al., 2022; Graham & Nikolova, 2013; Hojman & Miranda, 2018; Inglehart et al., 2008; Veenhoven, 2000; Verme, 2009; Welzel & Inglehart, 2010). While these concepts are likely important for informing our understanding of human agency and how it functions, they are previously defined psychosocial constructs; used in isolation as unidimensional indicators, they too function as proxy measures. Unidimensional assessment of agency also fails to address a preponderance of literature that conceptualizes it as multidimensional (c.f. Alkire, 2008; Bandura, 2001; Kotan, 2010; Sen, 1999; Smith et al., 2000; Yount et al., 2020). Scholars like Lautamo et al. (2021), Smith et al. (2000), and Yount et al. (2020) have successfully developed direct, subjective, multidimensional indicators to measure aspects of human agency, but none of these measures on their own are intended to measure general human agency but, rather, subconstructs defined by the authors that do not necessarily engage conceptualizations or latent structures proposed by others.

2 Conceptualizing Human Agency

There is presently an "urgent need" to develop a shared understanding of human agency and common tools for its measurement (Cavazzoni et al., 2022, p. 1148). Exploration of previous agency research produces several insights regarding its common themes and characteristics. In their analysis, Cavazzoni et al. (2022) define agency as "people's ability to

Table 1 Sample measures from previous agency research

Single-item measures	I feel free to decide for myself how to lead my life. (Hojman & Miranda, 2018)
	How satisfied/dissatisfied are you with "Your freedom to choose what you do with your life". (Graham & Nikolova, 2013)
	Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "none at all" and 10 means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out. (Inglehart et al., 2008; Welzel & Inglehart, 2010)
	I feel free to decide for myself how to lead my life. (Hojman & Miranda, 2018)
	How satisfied/dissatisfied are you with "Your freedom to choose what you do with your life". (Graham & Nikolova, 2013)
Behavior Identification Form (BIF) (Vallacher & Wegner, 1989)	*Your task is to choose the identification, a or b, that best describes the behavior for you. Simply place a check mark in the space beside the identification statement that you pick*
	Making a list
	*a. Geting organized**
	b. Writing things down
	Reading
	a. Following lines of print
	*b. Gaining knowledge**
	Joining the Army
	*a. Helping the Nation's defense**
	b. Signing up
	*Higher-level alternative
Personal Agency Scale Items (Smith et al., 2000)	I get what I want or need by relying on my own efforts and ability
	I control what happens to me by making choices in my best interest
	Using the right resources or tools helps me to achieve my goals
Assessment tool for perceived agency (ATPA-22) (Lautamo et al., 2021)	I feel that different areas of my daily life are balanced
	I am satisfied with the amount of daily activities I manage to do
	I feel that I have a suitable amount to do on a daily basis
Measurement model of agency (Hitlin & Elder, 2006)	
Planfulness	When you have a problem to solve, one of the first things you do is get as many facts about the problem as possible
Optimism	How likely is it that you will go to college?
Self-efficacy	When get what you want, it's usually because you worked hard for it

Table 1 (continued)

Interpersonal agency scale items (Smith et al., 2000)	I achieve my goals by knowing when to ask others for help
	I accomplish my goals by letting others know my needs and wants
	I get what I want or need by seeking the advice of others
Collective agency (Yount et al., 2020)	I feel like I have a pretty good understanding of the important issues that face my community
	I am often a leader in groups
	I can usually organize people to get thigs done

exert control over one's life and pursue goals" (p. 1126). Similarly, Kabeer (1999) defines it as "the ability to define one's goals and act upon them." (p. 438). Broadly, these definitions align with a preponderance of those used in other studies, as shown in Appendix A, and reflect two aspects of agency, control and goal pursuit, that are commonly encountered in discussions on the topic.

Other scholars have sought to articulate the fundamental characteristics of human agency. Alkire (2008) identifies five key features of Sen's (1999) conceptualization of human agency:

> *"(i) agency is exercised with respect to goals the person values; (ii) agency includes effective power as well as direct control; (iii) agency may advance wellbeing or may address other-regarding goals; (iv) to identify agency also entails an assessment of the value of the agent's goals; (v) the agent's responsibility for a state of affairs should be incorporated into his or her evaluation of it" (p. 6).*

Kotan (2010) describes agency as involving "(a) action, power and causality, (b) purposiveness and (c) the determination of objectives" (p. 369); these three characteristics are further reduced to two: "The ability to act to influence or affect the state of the world" and "The ability to judge and reflect upon goals and situations and to determine one's own goals and objectives as reasons for action" (Kotan, 2010, p. 370). Burger and Walk (2016) also identify three elements of agency—perceived control, commitment to self-determined goals, and self-efficacy—that parallel Kotan's. This pattern that emerges when these sets of characteristics are compared suggests that any operationalization of human agency should, at a minimum, engage one's enactment of *control* over one's life through the *self-determination* and pursuit of values, goals, and desired outcomes, their capacity to *influence* circumstances to achieve those goals and outcomes, and their *ability* to perform behaviors and leverage resources to exert the influence necessary to achieve desired ends.

Many scholars have also explored various dimensions of human agency. Sen (1999) asserts that agency necessarily involves two elements: *agency freedom*, the capacity or potential to pursue goals, and *agency achievement*, one's success in achieving desired outcomes. Agency freedom is a prerequisite for agency achievement, as it reflects the conditions under which one strives to attain their goals (Sen, 1999). In practice, research typically focuses only on agency freedom, although some scholars have utilized well-being indicators to approximate agency achievement (Hojman & Miranda, 2018; Okulicz-Kozaryn, 2015; Veenhoven, 2000). Agency freedom is itself comprised of both personal

and social competencies (Cavazzoni et al., 2022) and involves one's ability to advance personal goals either on their own or in cooperation with others (Narayan & Petesch, 2007). Smith et al. (2000) articulates these domains as *personal agency*, one's capacity to achieve goals through individual efforts, and *interpersonal* agency, the ability to engage others to cooperatively pursue desired outcomes. As with agency freedom, scholarship tends to focus on personal agency, rather than interpersonal agency.

Bandura (2001) describes personal agency as the ability to make choices, plan actions, and perform those actions effectively, which he distinguishes from what could be considered two subdimensions of interpersonal agency: *proxy agency*, one's ability to leverage social relationships to pursue personal goals, and *collective agency*, the capability of groups to produce, pursue, and attain shared goals. Similarly, Yount et al. (2020) engage the concept of collective agency and articulate alongside it two dimensions subsumable under personal agency: *intrinsic agency*, one's internal motivations, perceptions, and attitudes related to the determination and pursuit of goals, and *instrumental agency*, the array of strategies one has available to enact their freedom, achieve goals, and establish control over their life. Reciprocally, proxy and collective agency (Bandura, 2001) could be considered subdimensions of Smith et al.'s interpersonal agency. These various categorizations of agency are mutually complementary and can be organized into a cohesive conceptual framework, shown in Fig. 1. Agency achievement is produced by agency freedom, which is comprised of both personal and interpersonal dimensions. Personal agency is made up of intrinsic and instrumental subdimensions, while interpersonal agency represents one's capacity to engage others to achieve personal (proxy agency) or common goals (collective agency).

The proposed framework for agency aligns with the basic human needs defined by Self-Determination Theory (SDT) (Deci & Ryan, 1985). SDT posits that all people possess inherent psychological needs for autonomy, competence, and relatedness; pursuing fulfillment of these needs is fundamental to human experience, necessary for well-being (Ryan & Deci, 2001) and contributes to personal growth, intrinsic motivation, vitality and "aliveness" (Ryan & Frederick, 1997, p. 530), and concordance of goals with personal interests and values (Sheldon & Elliot, 1999). Autonomy is reflected in both one's intrinsic and instrumental agency, competence is represented by instrumental and proxy agency, and both proxy and collective agency engage one's relatedness to others. Alkire (2005, 2008) has previously discussed theoretical connections between human agency and SDT in her exploration of subjective quantitative agency measures, noting that indicators for both autonomy and competence are important for the study of agency and that agency necessarily interacts with one's relatedness, as one may possess motivations and goals that involve other individuals and their well-being. Alkire (2005) also makes connections between agency and well-being, specifically, Ryff's (1989) multidimensional model of Psychological Well-Being (PWB); this supports Sen's position that agency freedom and achievement precede and contribute to well-being freedom and achievement.

The present framework also conforms to the elements of control, self-determination, influence, and ability that are common across discussions of the characteristics of agency. One's capacity for self-determination is manifested through both intrinsic and collective agency, and their ability to pursue self-determined ends is exercised through both instrumental and proxy agency. Subsumed under agency freedom, the dimensions of personal and interpersonal agency represent the totality of one's capability to enact control by influencing their circumstances to achieve those ends. As it was produced by interweaving strands of previous agency

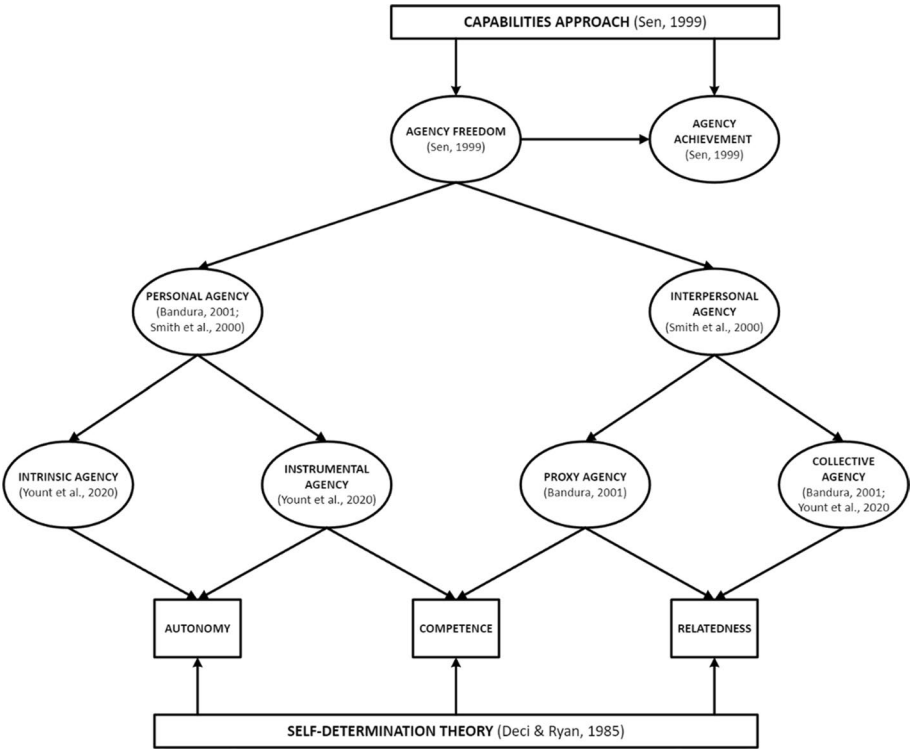


Fig. 1 Conceptual framework of human agency

research, aligns with existing theorizations of how agency functions, and engages the essential agency characteristics of control, self-determination, influence, and ability, we assert that the proposed conceptual framework for human agency is a useful starting point for developing a common operationalization of the construct.

However, without effective indicators for measurement, even the best conceptual framework remains confined to the realm of abstract theory. Now that essential characteristics of human agency have been identified and the concept has been organized into a multidimensional framework that synthesizes existing scholarship on the topic, we now turn our attention to the development of preliminary General Human Agency Indicators (GHAIs) sufficient for assessing agency and its subdimensions. Such measures may contribute to a deeper understanding of agency, its effects on human functioning, and how individuals interact with their environments, circumstances and resources to pursue well-being. This, in turn, could have significant implications for global and community development, the formulation of public policy, implementation of empowerment activities, and social science research (Cavazzoni et al., 2022; Sen, 1999).

3 Methods

3.1 Study Design, Data, and Item Selection

We utilized secondary data analysis with waves II (MIDUS II) and III (MIDUS III) of The Midlife in the United States (MIDUS) dataset, which were collected from 2004 to 2006 and 2013 to 2014, respectively (Ryff et al., 2017, 2019). MIDUS is a nationally representative dataset that includes information about a variety of psychological and socioeconomic subjects. Data was collected through an initial phone interview, with respondents selected by random digit dialing, followed by respondents' completion of a self-administered questionnaire. MIDUS II contains 4,032 observations of "non-institutionalized, English-speaking adults in the coterminous United States, aged 35 to 86" (MIDUS II documentation) who completed both the phone interview and questionnaire; MIDUS III includes 2,732 adults, now aged 40 to 94, who completed the interview and questionnaire and had participated in the MIDUS II study.

Using Cavazzoni et al.'s (2022) analysis as a starting point, we aggregated a list of survey tools and items used in previous scholarship on human agency or one of its subdimensions. We then searched the MIDUS codebook for items that were a) identical to an item used in prior research, b) similar to a previously used item, or c) the reverse of such an item. Next, we evaluated items to ensure they reflected at least one of the agency characteristics of control, self-determination, influence, or ability and conformed to the characteristics of subjectivity discussed by Alkire's (2005): subjective measures should a) represent the perceptions and valuations of the subject, b) allow for both positive and negative assessments, and c) emphasize overarching or enduring perceptions and valuations instead of "fleeting emotional states" (p. 222). We also assessed items for alignment with Alkire's (2008) categorization of agency measures, which include complementary global and multidimensional measures, measures of effective power or direct control, measures of the advancement of well-being and other valued outcomes, and measures of autonomy and ability. Items that were not reflective of agency characteristics, did not meet subjectivity criteria, or fit into at least one category of existing agency measure were removed from the study. This selection method allowed us to establish preliminary face and content validity for the selected measures as, instead of developing novel items, which inherently involves some level of subjective bias, we instead relied on those that had already been validated in peer-reviewed research and conformed to existing standards of subjectivity and established categories of agency measures. The selection process also allowed us to assess items from multiple prior agency measures simultaneously, enabling us to probe for potential relationships between items previously used to measure similar but heretofore disjoint concepts like perceived, personal, interpersonal, and intrinsic agency.

3.2 Data Analysis

Multiple steps were taken to ensure the appropriateness of selected items for factor analysis. We calculated Variance Inflation Factor scores and item tolerance to test for multicollinearity, and employed tests for univariate and bivariate normality with Mardia's (1970) tests for multivariate skewness and kurtosis, Henze and Zirkler's (1990) consistent test, and the Doornik and Hansen (2008) omnibus test to assess distribution of data. We also examined Pearson's r and Spearman rank correlations between items, calculated

the Kaiser–Meyer–Olkin Measure of Sampling Adequacy (KMO) (Kaiser, 1970), and conducted Bartlett's (1950) Test of Sphericity. As a final preparation for factor analysis, data was then subdivided into two samples for use exploratory (EFA) and confirmatory factor analysis (CFA).

As data was non-normal, we were unable to utilize maximum likelihood (ML) modeling, the typical precursor to CFA (Costello & Osborne, 2005), as it relies on assumptions of normality (Fabrigar et al., 1999). Instead, iterated principal axis factoring (IPF) was used. IPF is a robust estimation method that produces more accurate estimates than principal axis factoring (StataCorp, 2021a, 2021b) and is not affected by non-normal data (Costello & Osborne, 2005; Fabrigar et al., 1999). IPF requires that the number of factors to extract is specified in advance (StataCorp, 2021a, 2021b); therefore, Horn's (1965) Parallel Analysis (PA) and Velicer's (1976) minimum average partial method (MAP) were used to determine the appropriate number of factors to extract and retain. PA has consistently been shown to be one of the most accurate methods for determining latent structure (Hayton et al., 2004); however, a combination of decision-making rules produces more reliable interpretations than relying on a single method (Slocum-Gori & Zumbo, 2011) and, because PA sometimes recommends retaining too many factors, MAP is particularly complementary due to its tendency to underreport the number of factors to retain (Hayton et al., 2004).

In the social sciences, it is generally assumed that factors are correlated (Costello & Osborne, 2005). Therefore, after evaluating the dimensionality of data, we rotated factors using direct oblimin, which allows for both orthogonal and oblique solutions to be produced. Rotated solutions were examined for latent factorial structure. Following criteria asserted by Comrey and Lee (2013) and Tabachnick and Fidell (2013), we considered items with "fair" or better loadings ($\lambda \geq 0.45$) to be salient on a given factor and those with "poor" or better loadings ($\lambda \geq 0.32$) to be cross-loaded. We removed items from the dataset that were not consistently salient or cross-loaded, then re-estimated the dimensionality of remaining items with PA and MAP. This process of extraction, rotation, and data reduction was repeated until all remaining items demonstrated a consistent, interpretable latent factorial structure. To identify potential alternative models, we then reviewed the solutions generated using relaxed thresholds of $\lambda \geq 0.4$ for salience (Gorsuch, 1983; Hinkin, 1995, 1998; Stevens, 1992) and a difference between loadings of < 0.2 (Hinkin, 1998) to indicate cross-loading.

We assessed the fit of selected EFA models through CFA using asymptotic distribution free (ADF) estimation, which does not require normal data (StataCorp, 2021a, 2021b). We examined model fit by calculating two absolute fit indices, the root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR), alongside the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI), which evaluate relative fit. Results of model chi-square tests were ignored because both non-normality of data (McIntosh, 2007) and large sample size made it likely that the test would reject the model (Bentler & Bonnet, 1980). We interpreted absolute fit indices using cutoffs of ≤ 0.05 for good fit (Byrne, 2013; Fabrigar et al., 1999) and ≤ 0.08 to indicate acceptable fit (Fabrigar et al., 1999; Hu & Bentler, 1999), and relative fit indices using cutoffs of ≥ 0.95 for good fit and Byrne's (1994) less conservative threshold of ≥ 0.9 for acceptable fit. Because agency freedom and, therefore, personal agency is a precondition of agency achievement, a final model using the best-fitting GHAIs was estimated to test the predictive effects of personal agency on agency achievement.

As the final step in our analysis, we performed several tests of preliminary construct validity on the best-fitting models. We assessed internal consistency and content,

substantive, and structural validity by calculating Cronbach's α, average interitem correlations using both unstandardized and standardized items for the GPAS and all proposed GHAI scales and subscales, and analysis of pairwise Pearson's *r* correlations between individual scale items. Next, we tested convergent and concurrent validity by calculating pairwise Pearson's *r* correlations between GPAS and GHAIs scales, correlates of agency, and other associated concepts: life satisfaction (Comim, 2005; Hojman & Miranda, 2018; Wang, 2015), self-acceptance and self-esteem (Azizli et al., 2015; Serdiuk et al., 2018; Skinner et al., 1996), purpose in life and autonomy (Alkire, 2005; Serdiuk et al., 2018), and positive relations with others and social integration (Christoph et al., 2014; Veenhoven, 2004). As agency is central to the human experience and can arguably be influenced by a diverse variety of factors, it was challenging to identify variables to test for discriminant validity; therefore, we compared coefficients between the GHAIs and agency correlates with those between GHAIs scales and the "Big Two" agency trait (Gebauer et al., 2014), given the demonstrable theoretical distinctions between the two constructs described above. Finally, to evaluate the predictive validity of the proposed tools, we calculated pairwise Pearson's *r* correlations between GPAS and GHAIs scores in MIDUS II with those of agency correlates and associated concepts in MIDUS III.

4 Results

4.1 Item Selection

30 items were selected that matched or closely resembled those previously deployed in tools measuring human agency. 25 items were worded differently than, but conceptually aligned with, previous items; seven of these similar items were reverse measures of items used by Black (2016), Lautamo et al. (2021), and in the Basic Psychological Need Satisfaction Scale (Deci & Ryan, 2000; Gagné, 2003). The other five items selected were exact matches for items deployed by Nestadt, et al. (2022). No items were identified that were representative of those used previously to assess interpersonal, proxy, or collective agency (Smith et al., 2000; Yount et al., 2020); therefore, the remainder of the study focused predominantly on identifying measures for personal agency, its subdimensions, and agency achievement.

All selected items met Alkire's (2005) criteria for subjectivity and conformed to at least one established category of agency measures (2008). Most items were global, rather than pertaining to a specific life domain; however, indicators for direct control, effective power, autonomy, ability, and the advancement of well-being or other goals were identified, indicating that the initial list of selected measures engaged the agency construct in ways reflective of the breadth of prior research. All items also reflected at least one of the agency characteristics of control, self-determination, influence, or ability. Relationships between previously used agency items and those selected for the current study are summarized in Table 2.

Most items selected were included in the MIDUS dataset as scale items measuring other constructs. Twelve items were selected from three scales representing Ryff's (1989) PWB constructs of autonomy (5 of 7), environmental mastery (6 of 7, with the final item relating to fitting in with one's community), and purpose in life (1), although the single item selected from this latter construct was included in data collection but excluded from the final scale. All 12 items from Lachman and Weaver's (1998) perceived control scale were

Table 2 Selected agency items and associated MIDUS constructs (bold items included in final GPAS and GHAIs)

PSYCHOLOGICAL WELL-BEING (RYFF, 1989)			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
I generally feel free to express my ideas and opinions	Gagné, (2003)	I AM NOT AFRAID TO VOICE MY OPINIONS, EVEN WHEN THEY ARE IN OPPOSITION TO THE OPINIONS OF MOST PEOPLE	Autonomy
I can easily express my thoughts and opinions to other people	Lautamo et al., (2021)		
When I disagree with others, I tell them	Beyers et al., (2003)		
When I act against the will of others, I usually get nervous	Beyers et al., (2003)	MY DECISIONS ARE NOT USUALLY INFLUENCED BY WHAT EVERYONE ELSE IS DOING	
I have a strong tendency to comply with the wishes of others			
I make up my own mind about doing good or bad things	Black, (2016)		
No one can make me do something I know to be wrong			
My actions in most situations are based on what other people tell me is the right thing to do			
In most cases, I can make my own decisions about what is right or wrong in a situation			
How true would it be to say that your actions with respect to [the domain] are motivated by and reflect your own values and/or interests?	Ibrahim and Alkire, (2007)	I JUDGE MYSELF BY WHAT I THINK IS IMPORTANT, NOT BY THE VALUES OF WHAT OTHERS THINK IS IMPORTANT	
I often change my mind after listening to others	Beyers et al., (2003)	I TEND TO BE INFLUENCED BY PEOPLE WITH STRONG OPINIONS	
I often agree with others, even if I'm not sure			
I generally feel free to express my ideas and opinions	Gagné, (2003)	IT'S DIFFICULT FOR ME TO VOICE MY OWN OPINIONS ON CONTROVERSIAL MATTERS	
I can easily express my thoughts and opinions to other people	Lautamo et al., (2021)		

Table 2 (continued)

PSYCHOLOGICAL WELL-BEING (RYFF, 1989)			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
I feel like I am free to decide for myself how to live my life	Gagné, (2003)	IN GENERAL, I FEEL I AM IN CHARGE OF THE SITUATION IN WHICH I LIVE	Environmental Mastery
How true is the following statement for you?: I feel free to decide for myself how to lead my life	Hojman and Miranda, (2018)		
I make active choices about what to do daily	Lautamo et al., (2021)		
I can influence my living situation in satisfying ways	Lautamo et al., (2021)	**I HAVE DIFFICULTY ARRANGING MY LIFE IN A WAY THAT IS SATISFYING TO ME**	
I do tasks that give me a feeling of competence or satisfaction			
I can take care of my everyday tasks independently	Lautamo et al., (2021)	**THE DEMANDS OF EVERYDAY LIFE OFTEN GET ME DOWN**	
I can influence my living situation in satisfying ways	Lautamo et al., (2021)	**I HAVE BEEN ABLE TO BUILD A LIVING ENVIRONMENT AND A LIFESTYLE FOR MYSELF THAT IS MUCH TO MY LIKING**	
I manage to perform in my environment	Lautamo et al., (2021)	I AM QUITE GOOD AT MANAGING THE MANY RESPONSIBILITIES OF MY DAILY LIFE	
I am satisfied with the amount of daily activities I manage to do			
I feel that I have a suitable amount to do on a daily basis			
I control things by managing my affairs properly	Smith et al., (2000)		
I do tasks that I feel challenge me appropriately	Lautamo et al., (2021)	**I OFTEN FEEL OVERWHELMED BY MY RESPONSIBILITIES**	
I energetically pursue my goals	Snyder (1991)	**I AM AN ACTIVE PERSON IN CARRYING OUT THE PLANS I SET FOR MYSELF**	Purpose in Life (removed from final scale)
I meet the goals that I set for myself			

Table 2 (continued)

Perceived control (Lachman & Weaver, 1998)			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
There is little I can do to change many of the important things in my life	Nestadt et al. (2022)	**THERE IS LITTLE I CAN DO TO CHANGE THE IMPORTANT**	Perceived Constraints
I often feel helpless in dealing with the problems of life	Nestadt et al. (2022)	**I OFTEN FEEL HELPLESS IN DEALING WITH THE PROBLEMS OF LIFE**	
In my daily life, I frequently have to do what I am told	Gagné (2003)	**OTHER PEOPLE DETERMINE MOST OF WHAT I CAN AND CANNOT DO**	
Luck, more than what you do, is responsible for whether things turn out for the best	Black (2016)	**WHAT HAPPENS IN MY LIFE IS OFTEN BEYOND MY CONTROL**	
I am the one responsible for my own behavior, good or bad			
I feel responsible for the consequences of my actions			
There is not much opportunity for me to decide for myself how to do things in my daily life	Gagné (2003)	THERE ARE MANY THINGS THAT INTERFERE WITH WHAT I WANT TO DO	
I do tasks that I feel are important to me	Lautamo et al., (2021)		
I have little control over the things that happen to me	Nestadt et al. (2022)	**I HAVE LITTLE CONTROL OVER THE THINGS THAT HAPPEN TO ME**	
When things don't turn out as I expected, it seems like someone else took control of things	Black (2016)		

Table 2 (continued)

Perceived control (Lachman & Weaver, 1998)			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
There is really no way I can solve some of the problems I have	Nestadt et al. (2022)	**THERE IS REALLY NO WAY I CAN SOLVE THE PROBLEMS I HAVE**	
I can handle problems and pressure (by discussing them or taking actions)	Lautamo et al., (2021)		
I can solve daily challenges in a reasonable way			
I can think of many ways to get out of a jam	Snyder (1991)		
There are lots of ways around any problem			
Even when others get discouraged, I know I can find a way to solve the problem			
Even when others want to quit, I know that I can find ways to solve the problem	Poteat et al. (2018); Veronese et al. (2019a), (b), (2020a), (b)		
When I have a problem, I can come up with lots of ways to solve it			
Sometimes I feel that I am being pushed around in life	Nestadt et al. (2022)	I SOMETIMES FEEL I AM BEING PUSHED AROUND IN MY LIFE	
I feel pressured in my life	Gagné, (2003)		

Table 2 (continued)

Perceived control (Lachman & Weaver, 1998)			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
Once I decide on a goal, I do whatever I can to achieve it	Smith et al., (2000)	**I CAN DO JUST ABOUT ANYTHING I REALLY SET MY MIND TO**	Personal Mastery
I can think of many ways to get the things in life that are important to me	Poteat et al. (2018); Snyder (1991); Veronese et al. (2019a), (b), (2020a), (b)	**WHEN I REALLY WANT TO DO SOMETHING, I USUALLY FIND A WAY TO SUCCEED AT IT**	
When you get what you want, it's usually because you worked hard for it	Hitlin & Elder (2006); Williams and Merton (2014)	WHETHER OR NOT I AM ABLE TO GET WHAT I WANT IS IN MY OWN HANDS	
I get what I want or need by relying on my own efforts and ability	Smith et al., (2000)		
I control what happens to me by making choices in my best interest			
Some people believe they can decide their own destiny, while others think they do not have control over their destiny. Please, to what extent do you believe you can decide your own destiny?	Victor et al. (2013)	WHAT HAPPENS TO ME IN THE FUTURE MOSTLY DEPENDS ON ME	
Otheritems			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
Once I decide on a goal, I do whatever I can to achieve it	Smith et al., (2000)	WHEN THINGS DON'T GO ACCORDING TO MY PLANS, MY MOTTO IS, "WHERE THERE'S A WILL, THERE'S A WAY."	Selective Primary Control (Heckhausen & Schulz, 1993; Wrosch, Heckhausen, & Lachman, 2000)
When I have a problem, I can come up with lots of ways to solve it	Poteat et al. (2018); Veronese et al. (2019a), (b), (2020a), (b)	WHEN FACED WITH A BAD SITUATION, I DO WHAT I CAN TO CHANGE IT FOR THE BETTER	
There are lots of ways around any problem	Snyder (1991)		

Table 2 (continued)

Otheritems			
Previously used agency item	Used in	MIDUS item	MIDUS Construct
I can solve daily challenges in a reasonable way	Lautamo et al., (2021)	EVEN WHEN I FEEL I HAVE TOO MUCH TO DO, I FIND A WAY TO GET IT ALL DONE	
I find it difficult to decide what I want When people ask me what I want, I immediately know the answer	Beyers et al. (2003)	I KNOW WHAT I WANT OUT OF LIFE	Self-Directedness and Planning (Prenda & Lachman, 2001)
How much control do you feel you have in making personal decisions that affect your everyday activities?	Ibrahim and Alkire, (2007)	At present, how much control do you have over your LIFE IN GENERAL? A lot, some, a little, or none at all?	None
"Please use this scale where '1' means "none at all" and '10' means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out."	Inglehart et al., (2008); Veenhoven, (2000); Verme, (2009)	Using a 0 to 10 scale where 0 means "no control at all" and 10 means "very much control," how would you rate the amount of control you have over your life overall these days?	

selected, reflecting the subscales of perceived constraints and personal mastery. Three of five items were selected from a scale representing selective primary control (Heckhausen & Schulz, 1993; Wrosch, Heckhausen, & Lachman, 2000) and one of three items was selected from Prenda and Lachman's (2001) self-directedness and planning scale. Only two selected items, both related to one's level of control over their life, were not part of an existing scale.

Altogether, findings from the item selection process produced initial evidence of the content validity of selected items. All items met multiple established criteria for agency measures and were selected from scales measuring constructs that align conceptually with agency (Alkire, 2005, 2008; Burger & Walk, 2016; Kotan, 2010). However, some items demonstrated questionable content validity; specifically, items from the PWB autonomy scale appeared to emphasize assertiveness, individuation, and agentic contrast. As previously discussed, these characteristics are typically unique to discussions of agency as a personality trait (Gebauer et al., 2014) and are not requisite characteristics for the self-determination and pursuit of goals.

4.2 Data Management and Descriptive Statistics

Descriptive statistics for the full sample and subsamples for MIDUS II and MIDUS III datasets are summarized in Appendix B alongside findings from tests for multivariate normality described below. Values for seven items were reversed so that larger values consistently reflected stronger agentic perceptions. VIF scores were less than 2.5 and tolerance values were greater than 0.4 for all items in both the full sample and subsamples, indicating a low risk of multicollinearity among items.

Data in all samples violated assumptions of normality. Mean scores and standard deviations indicated that, on average, respondents reported moderate to high levels scores for each item, and cursory examination of item skewness and kurtosis suggested that all items demonstrated a left-tailed distribution. Tests of univariate and bivariate normality for all items were significant at the level of $p < 0.0001$, confirming that items were non-normally distributed. Similarly, Mardia's tests for multivariate skewness and kurtosis, Henze-Zirkler's consistent test, and the Doornik-Hansen omnibus test were all significant at the level of $p < 0.0001$, leading to a rejection of the null hypothesis that items possess multivariate normality.

4.3 Suitability of Data for Factor Analysis and Determination of Factors to Retain

The average interitem correlation was $r = 0.26$ in both MIDUS II and III. Item-rest Pearson's correlations ranged from $r = 0.31$-0.69 and $r = 0.3$-0.67 for unstandardized and standardized items, respectively, in MIDUS II, and from $r = 0.26$-0.7 and $r = 0.27$-0.68 in MIDUS III, indicating positive relationships between individual items and remaining items in the series. All pairwise Spearman rank correlations between items were significant ($p < 0.05$) and positive, although relationships varied in strength from negligible to strong in both MIDUS II ($\rho = 0.08$-0.64) and MIDUS III ($\rho = 0.09$-0.63). Overall, correlational analyses demonstrated relationships between selected items, providing preliminary evidence of their suitability for factor analysis.

Five items were frequently associated with coefficients less than 0.2 in both datasets, although they also demonstrated moderate to strong relationships with some items. Two were related to selective primary control ("When things don't go according to plan, my

motto is 'Where there's a will there's a way'", "Even when feel I have too much to do, I find a way to get it all done"), two were from the PWB autonomy scale ("I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people", "I tend to be influenced by people with strong opinions"), and the final item, "At present, how much control do you feel you have over your life in general?", was independent from any scale.

The KMO index was 0.944 for both waves of data, exceeding the suggested cutoff of 0.6 (Kaiser, 1970). Bartlett's Test of Sphericity (Bartlett, 1954) was significant in both MIDUS II (χ^2=38,616.06, $p < 0.001$) and III (χ^2=27,390.5, $p < 0.001$). These findings corroborated those from correlational analyses, indicating study data was suitable for factor analysis.

4.4 Exploratory Factor Analysis

For both MIDUS II and III, PA indicated that five components be retained while MAP recommended that two factors be extracted from the data; to fully explore the factorial structure of the selected items, initial extractions included solutions within this range. Five-factor rotations produced four factors with at least two salient loadings ($\lambda \geq 0.45$) in both waves, which were interpretable as the constructs from which several items were derived: perceived constraints and personal mastery (Lachman & Weaver, 1998), selective primary control (Heckhausen & Schulz, 1993; Wrosch, Heckhausen, & Lachman, 2000), and the PWB autonomy construct (Ryff, 1989). However, seven items cross-loaded on factors in at least one wave of data, and seven were never salient on any factor in either sample, indicating a possible overextraction of factors. Four-factor solutions resulted in three salient factors consistent across waves that could be understood to represent perceived constraints, the PWB autonomy construct, and a combination of selective primary control and personal mastery, with five items cross-loading and six never being salient on a factor.

Three-factor models were the first to demonstrate a clear structure of two consistent factors, the first of which reflected a combination of perceived constraints and environmental mastery (Ryff, 1989) and the second a combination of selective primary control and personal mastery. While only one item from the PWB autonomy construct cross-loaded in MIDUS II, it was not salient on any factor in MIDUS III; in total, ten items were never salient on any factor in either sample. This latent structure was maintained in two-factor models, with single items selected from the constructs of self-directedness and planning (Prenda & Lachman, 2001), purpose in life (Ryff, 1989), and environmental mastery loading onto the second factor, one item cross-loading in MIDUS III only, and nine items never demonstrating salience. However, in the two-factor solution, factors also appeared to be interpretable as personal agency, one's attitudes and perceptions regarding their ability to enact control over their life and pursue self-determined goals, and agency achievement, one's ability to succeed in these capacities.

Multifactor solutions consistently produced a ratio of first-to-second eigenvalues greater than five, the only exception being the MIDUS III five-factor extraction (1:2 $\lambda = 4.92$). This suggested the presence of a general dominant factor which explained between 69 and 85 percent of variance in MIDUS II solutions and 67 to 84 percent of variance in MIDUS III (in five- and two-factor rotations, respectively). Therefore, a one-factor solution was also extracted despite not being recommended by PA or MAP. 20 items were consistently salient on this general factor, with items from Lachman and Weaver's (1998) perceived constraints scale and Ryff's (1989) environmental mastery scale typically loadings that were good ($\lambda \geq 0.55$) or better (Tabachnick & Fidell, 2013). No items from the selective primary

control or PWB autonomy scales were consistently salient, neither was one item from the personal mastery scale ("What happens in the future mostly depends on me") and the non-scale item "At present, how much control do you have over your life in general?". Factor loadings and other information for initial extractions with one through three factors are provided in Appendix C.

Because of the quantity of non-salient and cross-loaded items, extracted latent factors were difficult to explain beyond the scales that items represented; however, two- and three-factor models indicated the presence of an alternative factorial structure. To improve interpretability of these factors, items were eliminated if they were not consistently salient ($\lambda \geq 0.45$) or cross-loaded on the two factors that emerged from two- and three-factor solutions, as were those that were not salient on the single-factor model in both waves. A total of 10 items were removed, which included all items from the selective primary control and PWB autonomy scales. We then conducted IPF extractions on the remaining items; this process of reduction and re-estimation was repeated until all remaining items were consistently salient or cross-loaded in both multifactor and single-factor solutions. Six iterations of extraction, rotation, and reduction were conducted in total; findings from the process are summarized in Table 3.

In the third and fourth iterations of extractions, clear latent structures began to emerge. Two-factor solutions produced factors interpretable as personal agency and agency achievement. Agency achievement persisted as a latent variable in three-factor extractions, while items reflecting personal agency subdivided into factors interpreted as intrinsic and instrumental agency. However, strict application of reduction criteria eliminated the agency achievement factor at the conclusion of the fourth round of extractions. The nine items that remained at the end of the data reduction process comprised a General Personal Agency Scale (GPAS) explainable as a single latent variable, personal agency, or as a combination of intrinsic and instrumental agency subfactors. Factor loadings for this final round of extractions are found in Table 4.

While the purpose of data reduction was to simplify the latent structure of the selected items to produce a measure for personal agency, the loss of agency achievement indicators resulted in a substantive reduction of the potential explanatory power of the emerging GHAIs. Further, the agency achievement factor demonstrated moderate to strong correlations with personal, intrinsic, and instrumental agency in the third and fourth iterations of extraction, suggesting the presence of positive relationships between the latent variables. Therefore, solutions from the fourth round of extractions, the last that included at least three items consistently salient on agency achievement, were reexamined using relaxed factor loading cutoffs of $\lambda \geq 0.4$ for salience and $\lambda \geq 0.2$ for cross-loading items, which are commonly encountered in EFA (Gorsuch, 1983; Hinkin, 1995, 1998; Stevens, 2002). Based on these less conservative cutoffs, all items were consistently salient on a single factor in one- and two-factor models. In the three-factor solutions, the item "I often feel helpless in dealing with the problems of life" cross-loaded onto intrinsic and instrumental agency, and "I have been able to build a living environment and a lifestyle for myself that is much to my liking" cross-loaded onto instrumental agency and agency achievement in MIDUS II and III. Therefore, both the nine-item GPAS and the 13-item GHAIs measuring personal agency and agency achievement scale from the fourth iteration of extractions were retained for CFA. Two alternative models based on the 13-item GHAIs were also developed: an 11-item version that included cross-loaded items and only the three highest loading items for intrinsic agency, and a nine-item tool that eliminated cross-loaded items, leaving only the three highest loading items for intrinsic agency, instrumental agency, and agency achievement.

Table 3 Summary of data reduction process

Iteration	1	2	3	4*	5	6*
# of items	30	20	17	13	11	9
PA factors	5	3	3	3	2	2
MAP factors	2	2	2	1	1	1
Items removed	Control over life in general at present	Know what I want out of life	In charge of situation in which I live	Actively carry out plans I set for self	Able to build lifestyle to my liking	
	Where there's a will there's a way	Whether I get what want is in own hands	Good managing daily responsibilities	When really want something, find way	Do just about anything I set my mind to	
	Do what can to change for better	Rate control over life	Many things interfere with what I want do			
	Even when feel too much, get it all done		Feel pushed around in life			
	Not afraid to voice opinions in opposition					
	Decisions not influenced by others doing					
	Judge self by what I think is important					
	Influenced by people with strong opinions					
	Difficult voice opinion on controversial					
	Happens to me in future depends on me					

*Solutions were retained for CFA

Table 4 Factor loadings for 9-item personal agency scale (GPAS)

	Single factor				2-Factor						Loadings on individual factors					
	Personal agency		Uniqueness		Intrinsic agency		Instrumental agency		Uniqueness		Intrinsic agency		Instrumental agency		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Little can do to change important things	**.634**	**.671**	.599	.549	**.604**	**.694**			.577	.509	**.659**	**.710**			.566	.496
Others determine what I can and cannot do	**.631**	**.637**	.602	.594	**.555**	**.623**			.594	.570	**.634**	**.660**			.598	.564
What happens in life is beyond my control	**.636**	**.680**	.596	.538	**.715**	**.768**			.528	.467	**.683**	**.719**			.533	.483
Little control over things happen to me	**.676**	**.708**	.543	.499	**.747**	**.785**			.471	.428	**.718**	**.744**			.485	.446
Really no way I can solve problems I have	**.698**	**.748**	.513	.441	**.760**	**.689**			.442	.420	**.743**	**.766**			.447	.413
Helpless dealing with problems of life	**.756**	**.801**	.429	.359	.430	.421	.392	.444	.438	.361	**.694**	**.742**	**.686**	**.744**	.519	.446
Difficult arranging life in satisfying way	**.643**	**.668**	.586	.553			**.595**	**.639**	.514	.471			**.707**	**.735**	.500	.461
Demands of everyday life often get me down	**.599**	**.629**	.641	.604			**.761**	**.780**	.459	.434			**.722**	**.744**	.479	.447
Overwhelmed by my responsibilities	**.594**	**.585**	.647	.658			**.738**	**.721**	.480	.517			**.709**	**.687**	.497	.528
Eigenvalue	3.845	4.206			3.913	4.268	.585	.555			2.852	3.148	1.995	2.118		
Proportion of variance	1.000	1.000			.870	.885	.130	.115			1.000	1.000	1.000	1.000		

Additional extractions and rotations were conducted for each alternative model and for each subscale in all models. The factorial structure and loadings for the 11- and 9-item GHAIs corresponded with the 13-item model; the only difference being that the item "I have been able to build a living environment and a lifestyle for myself that is much to my liking" cross-loaded on personal agency and agency achievement in two-factor rotations of the 11-item agency models. Rotations of individual factors conformed to findings produced by full-model rotations, with cross-loaded variables from full models consistently salient on each of the latent factors they had previously cross-loaded onto, indicating that these items might influence the relationships between factors. Factor loadings for the GPAS and 9-item GHAIs, which demonstrated the best model fit during CFA, are found in Table 5 alongside loadings for their individual scales; loadings for 13- and 11-item agency models and individual scales are included in Appendix D.

Of the 13 items included in final models, five were similar to items used by Lautamo et al. (2021), four were exact matches to those employed by Nestadt et al. (2022), and three were like items included in the agentic pathways section of Snyder's (1991) Hope Scale. Other items were like those deployed by Black (2016), Gagné (2003), Poteat et al. (2018), and Veronese, et al. (2019a, b), 2020a, b). Final items included four from Ryff's (1989) environmental mastery scale and the single item excluded from her purpose in life scale; the remaining items were from Lachman and Weaver's (1998) perceived constraints and personal mastery scales. The intrinsic agency factor was comprised entirely of perceived constraints items and instrumental agency of environmental mastery items; agency achievement included a combination of items reflecting environmental mastery, personal mastery, and purpose in life. This distribution of items supports the face, content, and structural validity of the selected models, as agency represents the interaction of one's capacities to enact control over life through the pursuit and achievement of self-determined goals—that is, to overcome perceived constraints through mastery of one's environment to shape one's circumstances according to one's purpose and desired ends.

4.5 Confirmatory Factor Analysis

Based on findings from EFA, a total of sixteen path models were specified and estimated. Five models failed to converge without modification due to issues related to sample size and the number of fitted parameters in the model. When this occurred, it was resolved by removing paths for items that cross-loaded during EFA; covariance between intrinsic and instrumental agency was also eliminated from models when it was found to be insignificant. Relationships between all remaining variables and constructs were statistically significant with practically significant effect sizes. Fit index values for all final, converged CFA models are shown in Table 6.

CD values indicated that models accounted for between 86 and 98 percent of variance in MIDUS II models and between 88 and 99 percent of variance in MIDUS III models. Among single factor models, only the GPAS consistently demonstrated acceptable absolute fit (RMSEA and SRMR ≤ 0.08), suggesting that personal agency and agency achievement are distinct yet interrelated constructs. All two-factor models were shown to have acceptable absolute fit or better, and absolute indices for all three-factor and bifactor models indicated good fit. Findings from relative fit indices were less consistent. Only the bifactor 9-item personal agency and three-factor and bifactor 9-item agency models consistently demonstrated acceptable fit (≥ 0.9) or better, although 13- and 11-item bifactor agency models produced some evidence of acceptable relative fit in MIDUS II. CFI

Table 5 Factor loadings for 9-item personal agency and agency achievement scales (GHAIs)

Full scale factor loadings

	Single factor				2-Factor						3-Factor							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
What happens in life is beyond my control	**.588**	**.641**	.654	.589	**.569**	**.621**			.645	.584	**.658**	**.763**					.549	.447
Little control over things happen to me	**.657**	**.675**	.569	.545	**.641**	**.669**			.554	.533	**.847**	**.802**					.340	.381
Really no way I can solve problems I have	**.660**	**.710**	.565	.495	**.584**	**.668**			.570	.497	**.602**	**.586**					.510	.466
Difficult arranging life in satisfying way	**.651**	**.692**	.576	.521	**.604**	**.668**			.571	.515			**.569**	**.660**			.526	.452
Demands of everyday life often get me down	**.594**	**.629**	.647	.605	**.685**	**.703**			.580	.548			**.751**	**.756**			.458	.442
Overwhelmed by my responsibilities	**.589**	**.587**	.653	.655	**.695**	**.677**			.577	.593			**.753**	**.699**			.458	.515
Actively carry out plans I set for self	.479	.442	.771	.804			.403	.399	.724	.734					.421	.444	.721	.703
Do just about anything I set my mind to	.488	.476	.762	.774			**.665**	.544	.546	.612					**.667**	**.554**	.547	.609
When really want something, find way	.536	.453	.712	.795			**.794**	**.848**	.378	.309					**.800**	**.829**	.375	.336
Eigenvalue	3.092	3.217			3.166	3.286	.690	.790			3.248	3.359	.727	.802	.541	.489		
Proportion of variance	1.000	1.000			.821	.806	.179	.194			.719	.722	.161	.172	.120	.105		

Loadings on individual factors

	Personalagency		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
What happens in life is beyond my control	**.609**	**.657**	.630	.568	**.673**	**.743**					.547	.449
Little control over things happen to me	**.682**	**.695**	.535	.517	**.814**	**.789**					.338	.378
Really no way I can solve problems I have	**.657**	**.714**	.569	.490	**.684**	**.716**					.532	.488
Difficult arranging life in satisfying way	**.637**	**.682**	.594	.535			**.655**	**.702**			.571	.507

Table 5 (continued)

Loadings on individual factors												
	Personalagency		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Demands of everyday life often get me down	**.630**	**.655**	.603	.572			**.741**	**.754**			.451	.432
Overwhelmed by my responsibilities	**.629**	**.624**	.604	.611			**.742**	**.710**			.450	.496
Actively carry out plans I set for self									.490	.503	.760	.747
Do just about anything I set my mind to									**.670**	**.642**	.551	.589
When really want something, find way									**.797**	**.785**	.366	.384
Eigenvalue	2.46556	2.70721			1.58276	1.68515	1.52809	1.56467	1.3236	1.28093		

Bold numbersindicate a loading of good or better ($\lambda \geq .55$); table does not include loadings $< .32$

Table 6 Fit indices for CFA models

9-Item personal agency models (GPAS)

	Single factor		2-Factor		Bifactor	
	M2	M3	M2	M3	M2*	M3*
RMSEA	***.073***	***.072***	**.043**	**.047**	**.041**	**.036**
PCLOSE	.000	.000	.934	.675	**.949**	**.977**
CFI	.779	.784	***.930***	***.915***	**.951**	**.962**
TLI	.705	.713	***.899***	.878	***.907***	***.928***
SRMR	***.072***	***.063***	**.030**	**.033**	**.025**	**.024**
CD	.893	.904	.950	.954	.974	.974

9-Item personal agency and agency achievement models (GHAIs)

	Single Factor		2-Factor		3-Factor		Bifactor (covariance)		Bifactor (directional)	
	M2	M3	M2	M3	M2	M3	M2	M3*	M2	M3
RMSEA	.088	.084	***.069***	***.070***	**.040**	**.041**	**.030**	**.035**	**.030**	**.035**
PCLOSE	.000	.000	.000	.000	**.971**	.936	**1.000**	**.988**	**1.000**	**.988**
CFI	.679	.732	.821	.828	***.943***	**.946**	**.973**	**.966**	**.973**	**.966**
TLI	.572	.643	.743	.752	***.911***	***.916***	**.949**	***.938***	**.949**	***.938***
SRMR	.110	.108	***.060***	***.060***	**.030**	**.035**	**.025**	**.038**	**.025**	**.038**
CD	.858	.875	.948	.956	.975	.979	.975	.982	.974	.964

13-Item personal agency and agency achievement models (GHAIs)

	Single Factor		2-Factor		3-Factor		Bifactor	
	M2	M3	M2	M3	M2	M3	M2	M3*
RMSEA	***.067***	***.064***	**.058**	**.058**	**.042**	**.043**	**.036**	**.042**
PCLOSE	.000	.000	.002	.012	**.996**	**.960**	**1.000**	**.974**
CFI	.624	.669	.718	.733	.866	.859	***.911***	.874
TLI	.549	.602	.657	.674	.826	.817	.867	.825
SRMR	.106	.100	***.076***	***.077***	**.047**	***.055***	**.035**	***.055***
CD	.909	.915	.963	.961	.983	.984	.985	.989

11-Item personal agency and agency achievement models (GHAIs)

	Single Factor		2-Factor		3-Factor		Bifactor	
	M2	M3	M2	M3	M2	M3	M2*	M3
RMSEA	***.075***	***.073***	***.063***	***.065***	**.045**	**.048**	**.036**	**.047**
PCLOSE	.000	.000	.000	.000	.885	.630	**.999**	.717
CFI	.654	.690	.760	.766	.888	.881	***.942***	.893
TLI	.568	.612	.693	.694	.842	.832	***.900***	.840
SRMR	.105	.106	**.050**	***.075***	**.046**	***.055***	**.032**	***.058***
CD	.893	.900	.955	.958	.978	.981	.983	.988

*Reduced from full EFA model

Bold statistics indicate good fit; italics indicate acceptable fit

and TLI values are influenced by correlations between items and the number of estimated parameters, which may explain why relative fit of models are not significantly different from independent ones. Further, non-normal data can inflate absolute fit index values and underestimate relative fit index values (Finney & DiStefano, 2006), so models may fit better than values indicate.

Overall, the bifactor models for the GPAS and 9-item GHAIs fit best, consistently demonstrating RMSEA and SRMR values below ≤ 0.05, CFI and TLI indices above 0.9, and explaining between 96 and 98 percent of variance in the data. As agency achievement is theorized to be produced from agency freedom (Sen, 1999), of which personal agency is a component, a final 9-item GHAIs model was fitted that included a direct regression path from personal agency to agency achievement; this model consistently indicated that the predictive effect of personal agency on agency achievement was statistically and practically significant. Path diagrams for 9-item personal agency and 9-item agency models are displayed in Fig. 2, and diagrams for 13- and 11-item agency models are found in Appendix D.

4.6 Internal Consistency and Construct Validity

Unstandardized and standardized Cronbach's alpha coefficients for most modeled scales and subscales were greater than 0.7; only the three-item agency achievement scale included in the 9-item GHAIs showed questionable consistency in MIDUS II ($\alpha = 0.672$) and III ($\alpha = 0.666$). All final scales were comprised of items with more than five ordered categories and were therefore treated as ordinal approximations of continuous variables; pairwise Pearson's r correlations were calculated to test strength and directionality of relationships, rather than Spearman rank coefficients. Average interitem correlations for all scales were of moderate or greater effect size ($r \geq 0.3$), and all pairwise Pearson's r correlations among the 13 items included across measures were positive and significant at the level of $p \leq 0.05$, ranging from $r = 0.2$ to 0.55 in MIDUS II and $r = 0.2$-0.58 in MIDUS III. Correlations between personal agency and agency achievement items were typically weaker than those between items within individual factors. Correlations between factors in each identified model consistently demonstrated significant, positive relationships of moderate to strong effect ($r = 0.44$-0.67 in MIDUS II and $r = 0.38$-0.71 in MIDUS III); in the GHAIs, the relationship between intrinsic and instrumental agency factors was consistently stronger than that of either factor with agency achievement, mirroring the latent structure identified during factor analysis. Together, these findings provide evidence for the content, substantive, and structural validity of the proposed scales. Internal consistency statistics and correlations between agency items and factors are summarized in Appendix E.

Pairwise correlations between the GPAS and GHAIs and correlates of agency showed weak to strong positive relationships between all measures in MIDUS II and III. Again, relationships between personal, intrinsic, and instrumental agency were consistently stronger than those between agency achievement and personal agency, further supporting the structural validity of the proposed indicators. Correlations among the GPAS and GHAIs scales were typically larger than those between agency measures and agency correlates. Of agency correlates, the GPAS and GHAIs consistently demonstrated the most substantive relationships with self-acceptance, self-esteem, and purpose in life. Overall, agency measures showed mostly moderate to strong significant positive relationships with agency correlates, supporting both the convergent and concurrent validity of the GHAIs.

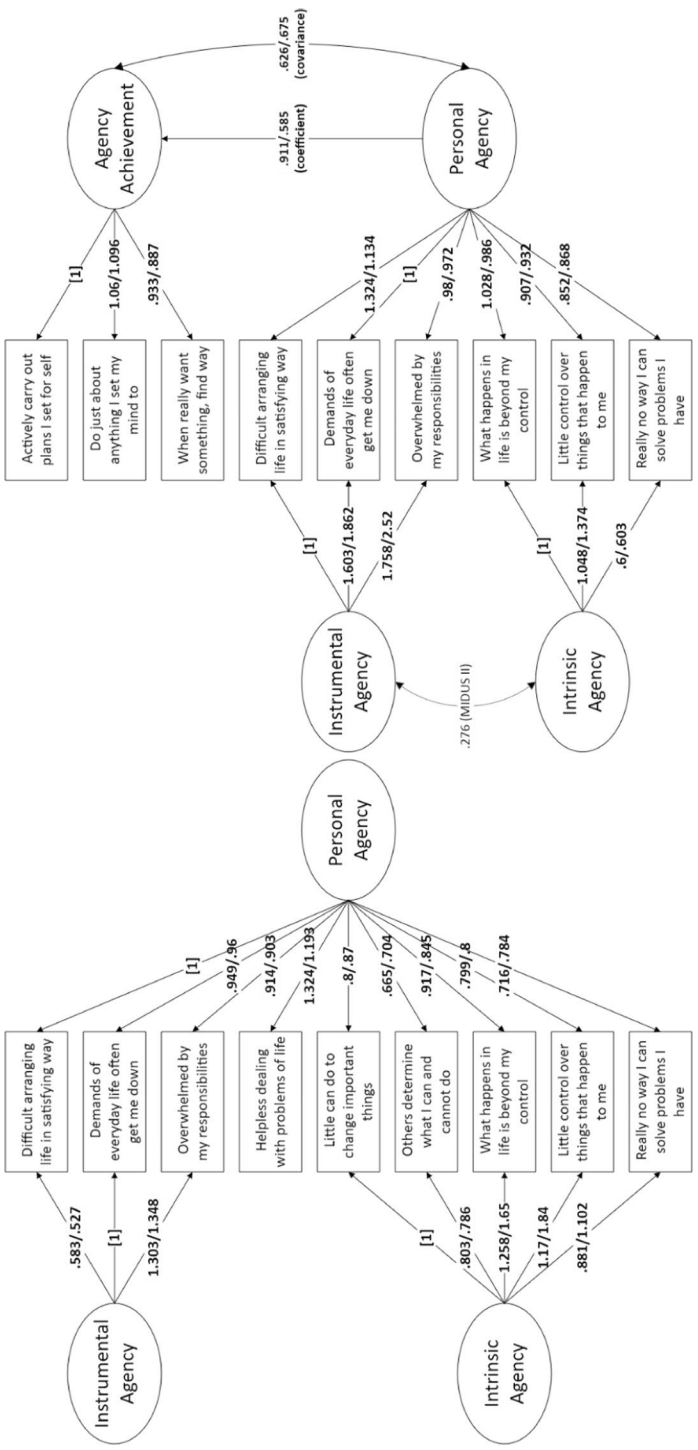


Fig. 2 Path diagrams for GPAS and 9-item GHAIs

The weakest correlations were frequently encountered between agency measures and the "Big Five" agency trait, buttressing the argument that the personality construct is distinct from human agency as it is defined in other areas of social science research and offering some indication that the GPAS and GHAIs possess discriminant validity. Correlations between MIDUS II GHAI scores and MIDUS III agency correlates were consistent with those in individual waves, albeit with reduced coefficients. The stability of the relationships between measures over time provides preliminary evidence of the GPAS an GHAIs' predictive validity and further supports the criterion validity of the proposed tools. Correlations between the GPAS and 9-item GHAIs and agency correlates are found in Tables 7 and 8, respectively, and those between the 13- and 11-item GHAIs and agency correlates are included in Appendix E.

5 Discussion

Through a rigorous process of item selection and data analysis, this study produced robust initial evidence of construct validity for both a nine-item General Personal Agency Scale (GPAS) and a nine-item General Human Agency Indicators (GHAIs) tool measuring personal agency and its subdimensions alongside agency achievement. Face and content validity for the tools were established through a multi-stage item selection process, aggregating items that matched or were similar to those previously used in agency research and ensuring they were representative of agency characteristics, met subjectivity criteria, and fit within existing categories of agency measures. Factor loadings from EFA and fit indices from CFA indicate the content, substantive, and structural validity of the GPAS and 9-item GHAIs, demonstrating good-fitting bifactorial structures that align with our proposed conceptual framework for human agency. Although less consistent across MIDUS II and III, some evidence was also produced indicating the factorial and construct validity of expanded 13- and 11-item GHAIs, potentially enabling exploration of how one's ability to solve problems and build a lifestyle to one's liking may influence relationships between agency subdimensions. Only single-factor GHAIs models did not consistently

Table 7 Pairwise correlations between 9-item personal agency (GPAS) factors and agency correlates

	MIDUS II			MIDUS III			TWO-WAVE		
Construct	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
(1) Personal Agency	1.00			1.00			1.00		
(2) Intrinsic Agency	.98*	1.00		.98*	1.00		.98*	1.00	
(3) Instrumental Agency	.90*	.79*	1.00	.92*	.81*	1.00	.90*	.79*	1.00
(4) Life Satisfaction	.49*	.44*	.50*	.50*	.46*	.49*	.37*	.34*	.37*
(5) Self-Acceptance (PWB)	.68*	.63*	.68*	.69*	.63*	.70*	.53*	.49*	.52*
(6) Self-Esteem	.68*	.63*	.68*	.67*	.62*	.66*	.51*	.47*	.50*
(7) Purpose in Life (PWB)	.65*	.62*	.60*	.66*	.63*	.63*	.49*	.48*	.44*
(8) Positive Relations w/Others (PWB)	.53*	.50*	.51*	.52*	.48*	.51*	.41*	.39*	.40*
(9) Social Integration	.35*	.33*	.33*	.36*	.34*	.34*	.31*	.30*	.28*
(10) Agency (Big 5)	.30*	.29*	.28*	.28*	.26*	.26*	.24*	.23*	.23*
(11) Autonomy (PWB)	.47*	.43*	.48*	.47*	.43*	.47*	.38*	.35*	.36*

*$p < 0.05$

Table 8 Pairwise correlations between 9-item personal agency and agency achievement (GHAIs) factors and agency correlates

	MIDUS II						MIDUS III						TWO-WAVE					
Construct	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
(1) Agency	1.00						1.00						1.00					
(2) Personal Agency	.98*	1.00					.99*	1.00					.98*	1.00				
(3) Agency Achievement (2-factor)	.79*	.67*	1.00				.71*	.60*	1.00				.79*	.67*	1.00			
(4) Intrinsic Agency	.90*	.91*	.61*	1.00			.93*	.94*	.57*	1.00			.90*	.91*	.61*	1.00		
(5) Instrumental Agency	.90*	.94*	.57*	.73*	1.00		.92*	.95*	.51*	.78*	1.00		.90*	.94*	.57*	.73*	1.00	
(6) Agency Achievement (3-factor)	.80*	.67*	1.00*	.61*	.58*	1.00	.72*	.61*	1.00*	.57*	.53*	1.00	.80*	.67*	1.00*	.61*	.58*	1.00
(7) Life Satisfaction	.52*	.50*	.43*	.41*	.50*	.43*	.51*	.51*	.35*	.44*	.49*	.36*	.38*	.38*	.29*	.31*	.36*	.30*
(8) Self-Acceptance (PWB)	.72*	.69*	.61*	.58*	.68*	.62*	.72*	.70*	.55*	.60*	.70*	.56*	.56*	.53*	.47*	.44*	.51*	.48*
(9) Self-Esteem	.71*	.69*	.58*	.58*	.66*	.58*	.69*	.67*	.53*	.59*	.65*	.54*	.53*	.51*	.43*	.43*	.49*	.44*
(10) Purpose in Life (PWB)	.66*	.63*	.53*	.57*	.59*	.54*	.67*	.65*	.49*	.59*	.62*	.50*	.50*	.48*	.41*	.43*	.43*	.41*
(11) Positive Relations (PWB)	.55*	.52*	.46*	.45*	.51*	.46*	.54*	.52*	.40*	.45*	.51*	.41*	.42*	.40*	.35*	.34*	.38*	.35*
(12) Social Integration	.36*	.34*	.29*	.30*	.32*	.29*	.37*	.36*	.27*	.32*	.34*	.27*	.31*	.30*	.25*	.27*	.27*	.25*
(13) Agency (Big 5)	.36*	.32*	.40*	.28*	.29*	.40*	.33*	.29*	.36*	.26*	.27*	.36*	.30*	.26*	.35*	.23*	.24*	.35*
(14) Autonomy (PWB)	.50*	.48*	.44*	.40*	.47*	.44*	.49*	.47*	.39*	.41*	.47*	.40*	.39*	.38*	.34*	.32*	.36*	.34*

*$p < 0.05$

meet standards for acceptable absolute fit, further supporting conceptualizations of agency as multidimensional. While not all models consistently demonstrated good relative fit, this can be at least partially explained by a combination of convergence issues and challenges related to both intercorrelations among agency items and non-normality of data.

Calculation of Cronbach's alpha coefficients and pairwise Pearson's *r* correlations between both individual scale items and latent factors indicated that both the GPAS and GHAIs were internally consistent, providing further evidence of their content, substantive, and structural validity, and the significance, direction, and effect sizes of relationships between agency indicators and correlates of agency present preliminary proof that both the GPAS and GHAIs possess convergent, discriminant, and criterion validity. Conducting correlational analyses across two waves of data demonstrated the stability of results over time, and correlations between MIDUS II agency measures and MIDUS III agency correlates indicated the predictive validity of the GPAS and GHAIs. Altogether, our findings make a strong case for the construct validity of the GPAS and 9-item GPAIs and provide moderate evidence for the expanded 13- and 11-item GHAIs.

5.1 Contribution

Because human agency is so frequently a misunderstood or misoperationalized construct, the first substantive contributions of this study were to identify common themes and characteristics of agency and organize prior conceptualizations of the construct into a cohesive framework that been implied, but never specified, in previous research. This framework builds on Sen's (1999) dichotomy of agency freedom and agency achievement, and further reifies agency's multidimensionality by clarifying its personal and interpersonal components, under which are situated the subconstructs of intrinsic, instrumental, proxy, and collective agency. The proposed human agency framework also identifies how these components of personal agency align with the essential human needs for autonomy, competence, and relatedness described by Deci and Ryan (1985) and other proponents of SDT, positioning agency as both a critical expression of and mechanism for human thriving and navigation of the social world.

Our item selection process also makes a novel methodological contribution to agency research and scale design. Constructing a composite tool from items identical to or like those used in previous research and validating them through rigorous examination using characteristics and other criteria related to the construct in question reduces the inherent bias of subjective item selection and establishes initial face and content validity for the tool produced. It also for synthesis of new measures from existing tools which, in the present context, was helpful given the lack of consensus regarding the agency construct. This approach should be considered in similar situations where there is disagreement over how a concept should be defined and operationalized.

This study successfully produced global, multidimensional indicators for personal agency and agency achievement that conform to Sen's (1985, 2006) definitions of agency freedom and achievement and align with characteristics of agency established by Alkire (2005, 2008), Burger and Walk (2016), and Kotan (2010). Previous research has explored the effects of agency using proxy measures (Alkire, 2008; Bhattacharyya, 1995), single-item measures (e.g., Graham & Nikolova, 2013; Hojman & Miranda, 2018; Okulicz-Kozaryn, 2015) and unidimensional scales (Kesavayuth et al., 2022; Pleeging et al., 2021; Serdiuk et al., 2018). Rather than relying on purportedly objective proxies or unidimensional indicators, the GPAS and GHAIs utilize items that capture respondents' subjective

experience of perceptions and outcomes and capture multiple interrelated dimensions of agency. Although research on SDT (Reis et al., 2018) and psychological well-being (Margolis et al., 2021) has explored agency by combining measures approximating autonomy and competence, it has not integrated these concepts into a broader conceptual framework for human agency like the one articulated in the present study.

To our knowledge, the GPAS an GHAIs are the first tools synthesized from existing conceptualizations and measures of human agency. The development of and validation of these multidimensional agency measures has critical implications for the social sciences. It addresses a critical gap in the literature, as there is presently no established measure for operationalizing personal agency (Cavazzoni et al., 2022; Ibrahim & Alkire, 2007). The GPAS and GHAIs have utility and value for a variety of disciplines, as personal agency is a fundamental mechanism through which the social world is engaged. They can be used to explore how agency may influence diverse outcomes like prosocial behaviors (Christoph et al., 2014), group membership and volunteerism (Cicognani et al., 2015), community and civic engagement, democratic governance, and the development of other resources and capabilities that support well-being (Alkire, 2005; Ibrahim & Alkire, 2007; Peterson et al., 2008). The GPAS and GHAIs may also contribute to the advancement of empowerment theory and the processes by which individuals leverage assets and capabilities to assert control over their lives and participate in change processes (Chan & Mak, 2020; Kieffer, 1984; Rappaport, 1987; Zimmerman, 2000).

The GPAS and GHAIs have particular value for the study of community development (Bhattacharyya, 1995), the Capabilities Approach to global development (Sen, 1985, 1999), and subjective well-being (Comim, 2005; Kotan, 2010), as each field understands agency to be essential for human well-being and thriving. If the expansion of freedom, the primary end of development activities, is enacted through agency (Sen, 1999) and the "development" in community development refers to the production of agency among group members (Bhattacharyya, 1995) then, up to this point, these fields have lacked robust indicators for one of their most critical outcomes. This has severely inhibited our ability to probe, among other things, how personal agency might predict desired outcomes like well-being, solidarity, and community and civic engagement, as well as how personal agency might be predicted by environmental factors, policies, and interventions intended to contribute to development initiatives. Now that such indicators have been created and validated, the GPAS and GHAIs allow us to assess what is most essential to development—that is, whether the work of the field is advancing freedom by empowering individuals and communities to enact control over their lives and pursue self-determined goals that contribute to outcomes that they value (Alkire, 2008; Bhattacharyya, 1995; Burger & Walk, 2016; Cavazzoni et al., 2022; Kabeer, 1999; Kotan, 2010; Sen, 1999).

The GPAS and GHAIs also offer several practical benefits. Because they rely on subjectively determined, global indicators, the GPAS and GHAIs are useful for analysis of a general population and can be complemented by supplementary measures or adapted for subpopulations of interest like women (Yount et al., 2020) and children (Poteat et al., 2018; Veronese et al. 2019a, b, 2020a, b). As recommended by Alkire (2008), the tools include items that measure autonomy, ability, direct control, and effective power, and address outcomes phrased so that they can refer to both well-being and other-regarding goals. The latent structures of the GPAS and GHAIs also allow for researchers to select from a variety of scales to study agency subconstructs of interest. The GPAS and best-fitting GHAIs are only nine items in length, making them easier to deploy alongside other measures without contributing to response attrition, which may be more likely to be experienced when using longer tools like the BIF (Vallacher & Wegner, 1989), ATPA-22 (Lautamo, et al., 2021),

or WAS-61 (Yount et al., 2020). While tools like Hitlin and Elder's (2006) agency model, Snyder's (1991) Agentic Pathways subscale, and Smith and et al.'s (2000) Personal Agency Scale are comparably brief, they conceptualize agency in ways that deviate from how it is commonly discussed in literature, either conflating it with or subsuming it under other constructs like hope, optimism, or planfulness. The GPAS and GHAIs do not incorporate proxy measures for agency or indicators for resources that may contribute to agency; however, the brevity of the proposed tools allows them to be deployed alongside measures, potentially enabling analysis of how those resources influence personal agency and agency achievement.

Different versions of the tools also provide distinct benefits: the GPAS provides the most nuanced representation of personal agency and its subfactors, which is typically the construct engaged in agency research. nine-item GHAIs provides the best-fitting and most elegant measures of personal agency, its subfactors, and agency achievement, and the 13- and 11-item GHAIs enable exploration of the possible influence of one's ability to solve problems and achieve a lifestyle they value on the relationships between intrinsic and instrumental agency and between both personal and instrumental agency and agency achievement, respectively. Finally, because of the nature of their construction and validation we assert that, with further testing, the GPAS and GHAIs may emerge as exemplar tools against which other agency indicators might be compared to assess their construct validity. This would be a substantive contribution to the field, as it could serve as a starting point for the development and validation of more bespoke and effective agency indicators.

5.2 Limitations

Despite their potential for informing social science research, the GPAS and GHAIs have several limitations related to the use of the MIDUS dataset. Our study was not able to identify items previously used to assess interpersonal, proxy, or collective agency. This contributed to a significant gap in our findings as, based on our conceptual framework for human agency, these constructs comprise one half of agency freedom and represent the relatedness component of self-determination theory. While the GHAIs are a promising start, without appropriate measures for interpersonal, proxy, and collective agency, our proposed measures are a conspicuously incomplete attempt at developing a full general human agency index.

Due to issues related to sample size and the number of fitted parameters, it was not possible to converge several of the full models recommended by EFA. To test the fit of these models, a larger sample size is required. As this study used a national dataset, the GPAS and GHAIs have not been tested for generalizability beyond the United States population, nor have they been shown to be generalizable to subgroups within that population; this is particularly true of children and youth, who were not included in sampling. Because MIDUS does not include established human agency indicators it was not possible to test criterion validity for the proposed tools through direct comparison with exemplars, and further testing of concurrent and predictive validity using regression analysis is needed before the criterion validity of the GPAS and GHAIs can be confirmed.

Finally, the GPAS and GHAIs are only useful for interpreting agency through a quantitative lens. While helpful for identify general patterns among a given population, such analyses should be complemented by qualitative research to develop a richer and more nuanced understanding of how personal agency is experienced phenomenologically across socioeconomic and cultural contexts. This need for accompanying qualitative research is

compounded by the subjectively determined nature of human agency—as only respondents can discern whether and how they are experiencing agency, qualitative input is necessary to ensure that research on human agency accurately reflects their articulated lived experience.

5.3 Future Directions

These limitations offer several directions for future research on human agency. An immediate next step would be to leverage correlational and regression analyses to continue to probe relationships between the GPAS and GHAI and concepts previously associated with personal agency like well-being indicators and participatory behaviors. Here, the identification of significant relationships would reinforce the convergent, discriminant, and predictive validity of the tools and help us understand the effects of agency on outcomes of interest. To test their generalizability, fixed-effects models should be employed to assess whether there are differences in how agency is experienced across subpopulations categorized by socioeconomic indicators like age, race, biological sex, income, and education, and time series models would allow further testing of scales' predictive validity.

Analyses could be performed using the MIDUS dataset; however, collection of primary data may offer additional benefits. International data could be collected to examine agency in a global context, compare how it is experienced across cultures, and better assess the generalizability of the GPAS and GHAIs. Primary data incorporating other validated agency measures like the BIF (Vallacher & Wegner, 1989), ATPA-22 (Lautamo, et al. 2020), or Hitlin and Elder's (2006) agency model would enable confirmatory analysis of the GPAS' and GHAIs' criterion validity. Further, data collection with a tool comprised of multiple agency measures could expand on the present study by generating GHAIs selected from a wider variety of items representing all agency dimensions articulated in our conceptual framework. A larger sample would likely resolve the convergence issues encountered during CFA, potentially clarifying the roles of cross-loaded variables in the 13- and 11-item GHAIs. CFA could also test for predictive relationships between agency dimensions and exogenous variables, contributing to our understanding of how agency is experienced, nurtured, and enacted.

Future research should also address the opportunity to use aspects of our item selection process to create measures for interpersonal, proxy, and collective agency to complement and complete the GHAIs, either by selecting from existing or developing novel indicators based on established criteria for and characteristics of agency. The GPAS and GHAIs are important steps forward; however, on their own they are insufficient for fully operationalizing human agency because they do not capture its social dimensions. Finally, findings that emerge from quantitative analyses utilizing the GPAS and GPAIs must be informed by a rich, phenomenological understanding of agency that can only be gained through qualitative research. Should suitable interpersonal agency measures prove difficult to identify, qualitative methods may also be useful for developing novel indicators.

5.4 Conclusion

Human agency is an essential mechanism through which the social world is constructed and navigated, but underoperationalization has limited our ability to assess agency and its relationships with social interaction, well-being, and the thriving of individuals and communities. This study advances agency research by engaging past scholarship to identify critical characteristics of agency and constructing a cogent conceptual framework

representing its latent structure. Components of that framework were reified and through the creation and initial validation of the GPAS and GPAIs, contributing a set of tools that assess subjectively determined, multidimensional aspects of personal agency and agency achievement. At a minimum, we hope that these tools will generate further discussion on how to best measure human agency and expand ongoing efforts to come to a unified operationalization of the construct.

Appendix A: Definitions of agency (adapted from Cavazzoni et al., 2022)

Article	Agency definition
Ahearn (2001), p. 112	''Agency refers to the socioculturally mediated capacity to act."
Alkire (2008), p. 6	"i) Agency is exercised with respect to goals the person values; ii) agency includes effective power as well as direct control; iii) agency may advance wellbeing or may address other-regarding goals; iv) to identify agency also entails an assessment of the value of the agent's goals."
Alsop et al., (2006), p. 11	"Agency is defined as an actor's or group's ability to make purposeful choices—that is, the actor is able to envisage and purposively choose options."
Bandura (2001), p. 8	"Agency thus involves not only the deliberative ability to make choices and action plans, but the ability to give shape to appropriate courses of action and to motivate and regulate their execution."
Barandiaran et al. (2009), p. 369	"A system doing something by itself according to certain goals or norms within a specific environment."
Barker (2005), p. 632	"The socially determined capability to act and make a difference."
Beer (1995), p. 173	"Any embodied system [that pursues] internal or external goals by its own actions while incontinuous long-term interaction with the environment in which it is situated."
Bentley-Edwards (2016), p. 78	"The perception of what one is able to do to control their environment or circumstance."
Berhane et al. (2019), p. S53	The "ability to define goals, and act on them"
Beyers et al. (2003), P. 360	"AGENCY reflects the possibility of self-directed behavior."
Bhattacharyya (1995), p. 61	"The capacity of a people to order their world… to create, reproduce, change, and live according to their own meaning systems, the powers effectively to define themselves as opposed to being defined by others."
Black, (2016), p. 296	"Moral agency refers to the ability of individuals to determine their behavior when it affects others' well-being."
Bryan et al., (2014), p. 242	"The sense that one is in control of one's life, and is the initiator of one's own actions."
Burger and Walk (2016)	"Individuals' capacity to gain control over their lives largely independently of social structure (Chin and Phillips 2004),"

Article	Agency definition
Cadenas et al., (2021), pp. 93–94	"Critical agency can be conceptualized as a component of critical consciousness that combines motivation and beliefs of self-efficacy to address societal injustices or it is identified as ones perceived ability to make a difference for social change."
Cavazzoni et al., (2022), p. 1126	"People's ability to exert control over one's life and pursue goals."
Cheong et al., (2017), p. 25	"The 'ability to define one's goals and act upon them'." (citing Kabeer, 1999, p. 438)
Christensen and Hooker (2000), p. 133	"AGENTS are entities which engage in normatively constrained, goal-directed, interaction with their environment."
Franklin and Graesser, (1996), p. 25	"An autonomous agent is a system situated within and a part of an environment that senses that environment and acts on it, over time, in pursuit of its own agenda and so as to effect what it senses in the future."
Giddens (1984), p. 14	"To be able to intervene in the world, or to refrain from such intervention, with the effect of influencing a specific process or state of affairs."
Graham and Nikolova (2013), p. 4	"The capacity to pursue a purposeful and fulfilling life."
Grower & Ward, (2018), p. 139	"Sexual agency is a multidimensional construct that reflects the awareness of self as a sexual being; the ability to identify, negotiate, and communicate one's sexual needs; and the successful initiation of behaviors that allow for the satisfaction of these needs."
Habashi & Worley, (2009), p. 44	"The ability of the agent to reinvent the local resources that are produced by global/local discourse while responding to the same global hegemony."
Harvey (2002), p.173	"The capacity of persons to transform existing states of affairs,"
Hitlin and Elder, (2006), p. 38	"An individual capacity for meaningful and sustained action." the sense of having the capacity for meaningful and successful action, something related, but not equivalent, to the perception of having structural opportunities to exercise such capacities." (p. 40) "Agency represents a human capacity to influence one's own life within socially structured opportunities." (pp. 56–57) "Agency, in this model, represents an individual capacity, one that is both the result of individual differences (planfulness) as well as achieved successes (self-efficacy) and a sense of temporal, self-reflective understanding about one's life chances (optimism)." (p. 60)
Horvath (1998), p. 139	"A mode of human functioning that involves self-concern, self-protection, self-determination, self-efficacy, and an instrumental approach to the environment"
Kabeer (1999), p. 438	"The ability to define one's goals and act upon them."
Kauffman, (2000), p. 8	"A system that can act on its own behalf in an environment."
Klein et al., (2018)	"Sexual agency is commonly defined as the ability to act according to one's own wishes and have control of one's own sexual life." (quoting Fahs and McClelland, 2016, p. 396)
Kotan (2010), p. 370	"The ability to exert power so as to influence the state of the world, do so in a purposeful way and in line with self-established objectives."

Article	Agency definition
Krauss et al., (2014), p. 1552	"Psychological agency refers to beliefs about one's abilities in nonsocial environments, such as intellectual or artistic skills (Zimmerman and Zahniser 1991), and the ability to set goals and organize one's actions to achieve them (Bandura 2006; Larson and Angus 2011)."
Lautamo et al., (2021)	"The capacity of individuals to act independently and to make their own free choices." (citing Barker, 2005)
Maes, (1994), p. 136	"A system that tries to fulfill a set of goals in a complex, dynamic environment."
McWhirter & McWhirter, (2016), p. 553	"Critical agency combines commitment to and efficacy for taking action against racism and discrimination."
Moore et al., (2016), p. 890	"Belief in one's ability to affect change," "Agency refers to the ability to intentionally influence one's life circumstances," (p. 891, citing Bandura, 2006)
Narayan and Petesch, (2007), p. 15	"People's ability to act individually or collectively to further *their own interests*."
Nestadt et al. (2022), pp. NP8819-NP8820	"Agency is the ability to define one's goals and take action to realize them (Kabeer, 1999). Practically, it is the ability to make choices and act in accordance with what one desires to do without impediment (Blanchard et al., 2013; Kabeer, 1999; Mosedale, 2005)."
Onyx and Bullen (2000), p. 29	"The capacity of the individual to plan and initiate action."
Pleeging et al., (2021), p. 1025	"The belief that we are able to achieve our goals."
Poteat et al., (2018)	"A global belief in one's ability to make and attain goals in general; Snyder et al., (1996)"
Reeve & Tseng, (2011), p. 258	"We define agentic engagement as students' constructive contribution into the flow of the instruction they receive."
Richardson et al., (2019), p. 3	"Agency is the ability to identify one's goals and act upon them (Kabeer, 1999)."
Richardson, (2018), p. 541	"The ability to make choices and act upon those choices" (citing Malhotra & Schuler, 2005 and Kabeer, 1999)
Russell and Norvig, (1995), p. 33	"An agent is anything that can be viewed as perceiving its environment through sensors and acting upon that environment through effectors."
Salem et al., (2020), p. 653	"As women's exercise of choice in [decision-making, freedom of movement, and gender attitudes],"
Samari, (2017), p. 562	"The ability to define life choices in an evolving historic and social context… Agency includes the ability to formulate one's own strategic choices, to control resources, and to make attitudinal changes under evolving constraints (Crandall et al. 2016; Dyson and Moore 1983; Yount et al. 2016)." (citing Kabeer, 1999)
Sen (1985), p. 203	"What a person is free to do and achieve in pursuit of whatever goals or values he or she regards as important."
Mortimer & Shanahan, (2007)	''The ability to exert influence on one's life.''
Smith et al., (2000), p. 458	Personal agency involves "achieving desired outcomes on one's own behalf (e.g., through ability, choices, perseverance, or planning),"
Smithers, 1995, p. 97	"Agent systems are systems that can initiate, sustain, and maintain an ongoing and continuous interaction with their environment as an essential part of their normal functioning."

Article	Agency definition
Stattin et al., (2017), p. 309	"Political agency is defined as person's intentional attempts to affect other peoples' minds about political and issues."
Steckermeier (2019), p. 31	"Agency combines two different aspects: The ability to act independently from others—comparable to the process aspect of freedom in the capabilities approach; and the ability to choose from different opportunities—denoted as the opportunity aspect in the capabilities approach (Sen 2007, p. 10; Archard 2015, p. 5)."
Thoits (2003), p. 190	"The ability to initiate self-change (e.g., Kiecolt, 1994; Lazarus & Folkman, 1984)."
Veronese et al. (2018), p. 863	"Agency can be defined as a creative and dynamic act of resistance to oppose the oppressor and/or occupier (Peteet,1994)."
Veronese et al., (2019b), p. 2	"The capacity to act positively across space and time with respect to oppressive structures in one's environment (Jeffrey, 2012)."
Veronese et al. (2020a), p. 243	"The transformational and generative operations by which cognitive models are translated into proficient action… as well as the changes that occur in multilevel regulation of skills as they are perfected." (quoting Bandura, 1991, p. 61)
Victor et al. (2013), p. 32	"Kotan (2010, p. 370) defines agency as 'the ability to exert power so as to influence the state of the world, do so in a purposeful way and in line with self-established objectives.' "
Ward et al. (2018), p. 30	"Although scholars define sexual agency in many ways, in general it includes the acknowledgment of self as a sexual being; the ability to identify, communicate, and negotiate one's sexual needs; and the successful initiation of behaviors that allow for the satisfaction of these desires (Fetterolf & Sanchez, 2015; Froyum, 2010; Horne & Zimmer-Gembeck, 2005)."
Williams and Merten (2014), p. 1565	"Agency is more than independence or autonomy; the construct refers to a person's capacity, willingness, and ability to actively construct their life course (Elder and Hitlin 2006)."
Yount et al. (2016)	"Women's agency refers to their ability to make strategic life choices under historically evolving constraints (Kabeer, 1999; VanderEnde et al., n.d.)."
Yount et al., (2020), p. 6	"Ability to make strategic choices under constraints." (citing Kabeer, 1999)
Zimmerman et al., (2019), p. 1	"'The capacity to make purposeful choices' (Kabeer, 1999)"

Appendix B: Descriptive Statistics and Tests of Multivariate Normality

Descriptive statistics—MIDUS II

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Control over life in general at present*	1	4	4955	3.69	0.6	−1.96	6.8	2478	3.68	0.6	−1.9	6.5	2477	3.7	0.6	−2.01	7.2
Where there's a will there's a way*	1	4	4014	3.21	0.8	−0.71	2.9	2011	3.2	0.8	−0.68	2.9	2003	3.22	0.8	−0.73	3
Do what can to change for better*	1	4	4017	3.44	0.6	−0.79	3	2014	3.44	0.7	−0.8	3	2003	3.45	0.6	−0.78	2.9
Even when feel too much, get it all done*	1	4	4005	3.22	0.8	−0.73	2.9	2007	3.21	0.8	−0.69	2.7	1998	3.24	0.8	−0.78	3
Know what I want out of life*	1	4	4010	3.14	0.8	−0.68	2.8	2009	3.14	0.8	−0.68	2.9	2001	3.14	0.8	−0.69	2.8
Not afraid to voice opinions in opposition*	1	7	4020	5.56	1.6	−1.28	3.8	2015	5.58	1.5	−1.28	3.8	2005	5.53	1.6	−1.27	3.8
In charge of situation in which I live*	1	7	4021	5.96	1.3	−1.73	6	2016	5.95	1.2	−1.69	5.8	2005	5.97	1.3	−1.77	6.2
Difficult arranging life in satisfying way	**1**	**7**	**4018**	**5**	**1.9**	**−0.48**	**1.9**	**2018**	**4.97**	**1.8**	**−0.44**	**1.9**	**2000**	**5.03**	**1.9**	**−0.52**	**1.9**

Descriptive statistics—MIDUS II

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Decisions not influenced by others doing*	1	7	4021	5.49	1.6	−1.08	3.3	2018	5.39	1.6	−0.99	3.1	2003	5.59	1.5	−1.18	3.6
Demands of everyday life often get me down	**1**	**7**	**4020**	**4.76**	**1.9**	**−0.25**	**1.7**	**2016**	**4.77**	**1.9**	**−0.23**	**1.7**	**2004**	**4.74**	**1.9**	**−0.28**	**1.7**
Actively carry out plans I set for self*	**1**	**7**	**4023**	**5.59**	**1.5**	**−1.22**	**3.9**	**2018**	**5.59**	**1.5**	**−1.18**	**3.8**	**2005**	**5.6**	**1.5**	**−1.26**	**4**
Judge self by what I think is important*	1	7	4024	6.09	1.2	−1.74	6.2	2019	6.08	1.2	−1.74	6.1	2005	6.1	1.2	−1.74	6.3
Able to build lifestyle to my liking*	**1**	**7**	**4022**	**5.9**	**1.3**	**−1.71**	**5.9**	**2019**	**5.86**	**1.4**	**−1.65**	**5.6**	**2003**	**5.95**	**1.3**	**−1.78**	**6.3**
Influenced by people with strong opinions	1	7	4022	4.74	1.8	−0.16	1.7	2017	4.72	1.8	−0.15	1.7	2005	4.77	1.8	−0.17	1.7
Good managing daily responsibilities*	1	7	4020	6.09	1.3	−1.97	7.1	2016	6.08	1.3	−1.89	6.8	2004	6.09	1.2	−2.06	7.5
Difficult voice opinion on controversial	1	7	4017	4.97	2	−0.51	1.8	2016	4.96	2	−0.51	1.8	2001	4.98	2	−0.51	1.8
Overwhelmed by my responsibilities	**1**	**7**	**4019**	**4.85**	**1.9**	**−0.36**	**1.7**	**2016**	**4.83**	**1.9**	**−0.34**	**1.7**	**2003**	**4.87**	**1.9**	**−0.38**	**1.7**

Descriptive statistics—MIDUS II

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Little can do to change important things	**1**	**7**	**4007**	**5.61**	**1.7**	**−1.23**	**3.4**	**2009**	**5.58**	**1.7**	**−1.18**	**3.3**	**1998**	**5.65**	**1.7**	**−1.29**	**3.6**
Helpless dealing with problems of life	**1**	**7**	**4008**	**5.42**	**1.8**	**−0.88**	**2.5**	**2009**	**5.38**	**1.8**	**−0.86**	**2.5**	**1999**	**5.47**	**1.7**	**−0.91**	**2.5**
Do just about anything I set my mind to*	**1**	**7**	**4014**	**5.8**	**1.4**	**−1.55**	**5.1**	**2011**	**5.78**	**1.4**	**−1.53**	**5**	**2003**	**5.82**	**1.4**	**−1.57**	**5.1**
Others determine what I can and cannot do	**1**	**7**	**4012**	**5.88**	**1.5**	**−1.37**	**4**	**2012**	**5.83**	**1.5**	**−1.31**	**3.7**	**2000**	**5.92**	**1.5**	**−1.44**	**4.2**
What happens in life is beyond my control	**1**	**7**	**4009**	**5.19**	**1.8**	**−0.72**	**2.2**	**2009**	**5.2**	**1.8**	**−0.73**	**2.3**	**2000**	**5.17**	**1.8**	**−0.7**	**2.2**
When really want something, find way*	**1**	**7**	**4007**	**6**	**1.2**	**−1.75**	**6.7**	**2013**	**5.97**	**1.2**	**−1.76**	**6.6**	**1994**	**6.03**	**1.1**	**−1.72**	**6.8**
Many things interfere with what I want do	1	7	4009	4.3	1.8	−0.02	1.7	2011	4.27	1.8	0.01	1.7	1998	4.33	1.8	−0.05	1.7
Whether I get what want is in own hands*	1	7	4009	5.25	1.5	−0.95	3.1	2012	5.24	1.5	−0.91	3	1997	5.26	1.6	−0.98	3.2

Descriptive statistics—MIDUS II

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Little control over things happen to me	**1**	**7**	**4008**	**5.42**	**1.6**	**−1**	**3**	**2011**	**5.41**	**1.6**	**−0.97**	**2.9**	**1997**	**5.44**	**1.6**	**−1.04**	**3.1**
Really no way I can solve problems I have	**1**	**7**	**4008**	**5.98**	**1.4**	**−1.66**	**5.3**	**2012**	**5.97**	**1.4**	**−1.63**	**5.2**	**1996**	**6**	**1.4**	**−1.68**	**5.4**
Feel pushed around in life	1	7	4012	5.54	1.7	−0.9	2.5	2012	5.49	1.8	−0.85	2.4	2000	5.59	1.7	−0.95	2.6
Happens to me in future depends on me*	1	7	4013	5.89	1.4	−1.67	5.5	2014	5.89	1.4	−1.68	5.6	1999	5.89	1.4	−1.66	5.5
Rate control over life	0	10	4002	7.91	1.8	−1.24	4.8	2004	7.86	1.9	−1.23	4.7	1998	7.96	1.8	−1.25	4.9

*Item reversed

Tests of multivariate normality—MIDUS II

Test	Value	χ^2	DF	*p*
Mardia—skewness	75.31973	48,119.183	4960	0.0000
Mardia—kurtosis	1207.884	30,643.314	1	0.0000
Henze-Zirkler	2.113454	4.98e^9	1	0.0000
Doornik-Hansen			60	0.0000

Descriptive statistics—MIDUS III

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Control over life in general at present*	1	4	3288	3.63	0.6	−1.76	5.8	1640	3.62	0.7	−1.77	5.9	1648	3.63	0.6	−1.75	5.8
Where there's a will there's a way*	1	4	2888	3.22	0.8	−0.65	2.9	1439	3.2	0.8	−0.68	3	1449	3.23	0.7	−0.62	2.8
Do what can to change for better*	1	4	2897	3.45	0.6	−0.75	2.8	1441	3.45	0.6	−0.75	3	1456	3.46	0.6	−0.75	2.6
Even when feel too much, get it all done*	1	4	2887	3.18	0.8	−0.66	2.8	1439	3.14	0.8	−0.6	2.6	1448	3.23	0.8	−0.71	3
Know what I want out of life*	1	4	2863	3.16	0.8	−0.68	2.9	1427	3.16	0.8	−0.68	2.9	1436	3.16	0.8	−0.67	2.8
Not afraid to voice opinions in opposition*	1	7	2907	5.61	1.5	−1.31	4.1	1447	5.57	1.5	−1.26	3.9	1460	5.64	1.5	−1.35	4.3
In charge of situation in which I live*	1	7	2914	5.96	1.3	−1.77	6.3	1452	5.93	1.3	−1.74	6.2	1462	5.98	1.3	−1.79	6.3
Difficult arranging life in satisfying way	**1**	**7**	**2906**	**5.11**	**1.8**	**−0.6**	**2.1**	**1451**	**5.08**	**1.8**	**−0.58**	**2.1**	**1455**	**5.14**	**1.8**	**−0.61**	**2.1**
Decisions not influenced by others doing*	1	7	2911	5.56	1.5	−1.14	3.6	1450	5.56	1.5	−1.19	3.7	1461	5.56	1.5	−1.1	3.4

Descriptive statistics—MIDUS III

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Demands of everyday life often get me down	**1**	**7**	**2913**	**4.88**	**1.8**	**−0.4**	**1.9**	**1451**	**4.91**	**1.8**	**−0.43**	**1.9**	**1462**	**4.85**	**1.9**	**−0.37**	**1.8**
Actively carry out plans I set for self*	**1**	**7**	**2910**	**5.59**	**1.5**	**−1.22**	**3.9**	**1450**	**5.56**	**1.5**	**−1.14**	**3.7**	**1460**	**5.62**	**1.5**	**−1.29**	**4.2**
Judge self by what I think is important*	1	7	2911	5.89	1.3	−1.66	5.8	1451	5.9	1.4	−1.67	5.8	1460	5.89	1.3	−1.66	5.9
Able to build lifestyle to my liking*	**1**	**7**	**2913**	**5.84**	**1.4**	**−1.62**	**5.3**	**1451**	**5.81**	**1.4**	**−1.58**	**5.2**	**1462**	**5.88**	**1.4**	**−1.65**	**5.5**
Influenced by people with strong opinions	1	7	2912	4.77	1.7	−0.18	1.8	1452	4.73	1.7	−0.14	1.8	1460	4.81	1.7	−0.23	1.9
Good managing daily responsibilities*	1	7	2910	6.08	1.2	−1.86	6.8	1451	6.07	1.2	−1.81	6.7	1459	6.1	1.2	−1.92	7
Difficult voice opinion on controversial	1	7	2907	5.06	1.9	−0.61	2	1450	5.06	1.9	−0.61	2	1457	5.06	1.9	−0.61	2
Overwhelmed by my responsibilities	**1**	**7**	**2907**	**4.99**	**1.9**	**−0.5**	**1.9**	**1450**	**4.95**	**1.9**	**−0.46**	**1.9**	**1457**	**5.02**	**1.9**	**−0.55**	**2**
Little can do to change important things	**1**	**7**	**2897**	**5.42**	**1.7**	**−1.03**	**2.9**	**1444**	**5.4**	**1.7**	**−1.04**	**2.9**	**1453**	**5.43**	**1.7**	**−1.02**	**2.9**

Descriptive statistics—MIDUS III

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Helpless dealing with problems of life	**1**	**7**	**2898**	**5.44**	**1.7**	**−0.91**	**2.6**	**1443**	**5.45**	**1.7**	**−0.93**	**2.7**	**1455**	**5.43**	**1.7**	**−0.89**	**2.6**
Do just about anything I set my mind to*	**1**	**7**	**2897**	**5.64**	**1.5**	**−1.37**	**4.4**	**1442**	**5.6**	**1.5**	**−1.34**	**4.2**	**1455**	**5.68**	**1.4**	**−1.4**	**4.6**
Others determine what I can and cannot do	**1**	**7**	**2899**	**5.84**	**1.5**	**−1.36**	**4.1**	**1443**	**5.82**	**1.5**	**−1.33**	**4**	**1456**	**5.86**	**1.5**	**−1.39**	**4.2**
What happens in life is beyond my control	**1**	**7**	**2893**	**5.14**	**1.8**	**−0.67**	**2.2**	**1441**	**5.15**	**1.7**	**−0.69**	**2.3**	**1452**	**5.13**	**1.8**	**−0.66**	**2.2**
When really want something, find way*	**1**	**7**	**2905**	**5.91**	**1.2**	**−1.59**	**6.3**	**1447**	**5.87**	**1.2**	**−1.54**	**5.9**	**1458**	**5.96**	**1.2**	**−1.65**	**6.7**
Many things interfere with what I want do	1	7	2902	4.34	1.8	−0.06	1.8	1445	4.35	1.8	−0.08	1.8	1457	4.32	1.8	−0.03	1.8
Whether I get what want is in own hands*	1	7	2900	5.17	1.5	−0.9	3.1	1445	5.11	1.5	−0.9	3.1	1455	5.22	1.5	−0.91	3.2
Little control over things happen to me	**1**	**7**	**2904**	**5.31**	**1.6**	**−0.89**	**2.8**	**1447**	**5.32**	**1.6**	**−0.94**	**2.9**	**1457**	**5.29**	**1.6**	**−0.84**	**2.7**

Descriptive statistics—MIDUS III

			Full sample					EFA sample					CFA sample				
Agency items	Min	Max	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt	*N*	Mean	SD	Skew	Kurt
Really no way I can solve problems I have	**1**	**7**	**2895**	**5.86**	**1.4**	**−1.44**	**4.4**	**1443**	**5.83**	**1.4**	**−1.4**	**4.4**	**1452**	**5.88**	**1.4**	**−1.48**	**4.5**
Feel pushed around in life	1	7	2893	5.61	1.7	−0.98	2.7	1442	5.61	1.7	−0.97	2.7	1451	5.61	1.7	−0.99	2.7
Happens to me in future depends on me*	1	7	2889	5.69	1.4	−1.43	4.8	1441	5.67	1.4	−1.45	4.8	1448	5.71	1.4	−1.42	4.7
Rate control over life	0	10	2851	7.71	2	−1.17	4.5	1422	7.65	2	−1.17	4.6	1429	7.76	1.9	−1.18	4.5

*Item reversed

Tests of multivariate normality—MIDUS III

Test	Value	χ^2	DF	*p*
Mardia—skewness	78.0815	34,579.611	4960	0.0000
Mardia—kurtosis	1222.27	23,770.41	1	0.0000
Henze-Zirkler	1.730598	$2.08e^9$	1	0.0000
Doornik-Hansen		30,822.486	60	0.0000

Appendix C: Factor Loadings for Initial 3-, 2-, and Single-Factor IPF Extractions w/Direct Oblimin Rotation

	Three-factor								Two-factor						Single factor			
	Factor 1		Factor 2		Factor 3		Uniqueness		Factor 1		Factor 2		Uniqueness		Factor 1		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Control over life in general at present							0.825	0.828					0.824	0.829	0.420	0.414	0.823	0.828
Where there's a will there's a way			**0.700**	0.545			0.610	0.744			**0.697**	**0.573**	0.625	0.742	0.444	0.356	0.803	0.873
Do what can to change for better			**0.618**	0.512			0.640	0.721			**0.631**	**0.574**	0.639	0.719	0.492	0.402	0.758	0.839
Even when feel too much, get it all done			0.512	0.433			0.756	0.803			0.505	0.486	0.767	0.801	0.399	0.336	0.841	0.887
Know what I want out of life			0.443	0.364			0.685	0.690			0.475	0.450	0.697	0.723	0.514	0.484	0.736	0.765
Not afraid to voice opinions in opposition			0.359		0.334	0.358	0.733	0.777			0.411	0.385	0.823	0.864	0.370		0.863	0.912
In charge of situation in which I live			0.423	0.419			0.592	0.603			0.449	0.443	0.606	0.602	**0.615**	**0.614**	0.622	0.623

	Three-factor								Two-factor						Single factor			
	Factor 1		Factor 2		Factor 3		Uniqueness		Factor 1		Factor 2		Uniqueness		Factor 1		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Difficult arranging life in satisfying way	**0.619**	**0.617**					0.497	0.483	**0.611**	**0.602**			0.537	0.516	**0.655**	**0.682**	0.571	0.535
Decisions not influenced by others doing			0.343			0.340	0.793	0.783			0.386	0.376	0.839	0.859	0.355		0.874	0.901
Demands of everyday life often get me down	**0.651**	**0.689**					0.593	0.549	**0.651**	**0.681**			0.616	0.585	0.550	**0.576**	0.698	0.668
Actively carry out plans I set for self			0.538	0.513			0.638	0.649			**0.557**	**0.573**	0.636	0.650	0.546	0.507	0.702	0.744
Judge self by what I think is important			0.430	0.342			0.793	0.838			0.472	0.417	0.817	0.862	0.331		0.890	0.929
Able to build lifestyle to my liking			0.449	0.393			0.635	0.636			0.474	0.439	0.641	0.638	**0.575**	**0.581**	0.670	0.662
Influenced by people with strong opinions						0.364	0.825	0.795					0.914	0.923			0.913	0.924

	Three-factor								Two-factor						Single factor			
	Factor 1		Factor 2		Factor 3		Uniqueness		Factor 1		Factor 2		Uniqueness		Factor 1		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Good managing daily responsibilities			0.452	0.405			0.700	0.719			0.479	0.467	0.704	0.727	0.504	0.471	0.746	0.778
Difficult voice opinion on controversial							0.738	0.767					0.812	0.857	0.435	0.377	0.811	0.858
Overwhelmed by my responsibilities	**0.642**	**0.615**					0.570	0.598	**0.633**	**0.604**			0.619	0.636	**0.558**	**0.561**	0.688	0.685
Little can do to change important things	**0.569**	**0.626**					0.625	0.568	**0.583**	**0.642**			0.644	0.602	**0.555**	**0.580**	0.692	0.663
Helpless dealing with problems of life	**0.698**	**0.767**					0.445	0.378	**0.710**	**0.774**			0.442	0.377	**0.702**	**0.739**	0.507	0.453
Do just about anything I set my mind to			**0.554**	0.545			0.629	0.602			0.522	0.472	0.666	0.676	0.529	0.530	0.720	0.719
Others determine what I can and cannot do	0.538	**0.596**					0.603	0.594	0.545	**0.605**			0.601	0.592	**0.615**	**0.609**	0.622	0.629

	Three-factor								Two-factor						Single factor			
	Factor 1		Factor 2		Factor 3		Uniqueness		Factor 1		Factor 2		Uniqueness		Factor 1		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
What happens in life is beyond my control	**0.626**	**0.654**					0.561	0.521	**0.638**	**0.670**			0.615	0.554	**0.560**	**0.619**	0.687	0.617
When really want something, find way			**0.646**	**0.722**			0.518	0.514			**0.615**	**0.687**	0.556	0.563	**0.601**	0.526	0.639	0.723
Many things interfere with what I want do	**0.668**	**0.656**					0.614	0.574	**0.684**	**0.666**			0.611	0.572	0.531	**0.602**	0.719	0.638
Whether I get what want is in own hands			0.387	0.544			0.682	0.624			0.336	0.442	0.740	0.738	0.505	0.470	0.745	0.779
Little control over things happen to me	**0.649**	**0.726**					0.508	0.465	**0.660**	**0.743**			0.567	0.503	**0.603**	**0.631**	0.636	0.602
Really no way I can solve problems I have	**0.639**	**0.702**					0.519	0.450	**0.653**	**0.716**			0.550	0.461	**0.625**	**0.691**	0.609	0.523
Feel pushed around in life	**0.636**	**0.617**					0.555	0.581	**0.637**	**0.618**			0.575	0.587	**0.607**	**0.610**	0.632	0.628

	Three-factor								Two-factor						Single factor			
	Factor 1		Factor 2		Factor 3		Uniqueness		Factor 1		Factor 2		Uniqueness		Factor 1		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Happens to me in future depends on me			0.354	0.497			0.730	0.651				0.412	0.822	0.737	0.416	0.483	0.827	0.767
Rate control over life	0.371			0.371			0.668	0.637	0.379	0.320		0.328	0.690	0.667	**0.558**	**0.576**	0.688	0.669
Eigenvalue	8.348	8.268	1.507	1.632	0.866	0.962			8.322	8.236	1.483	1.605			8.269	8.180		
Proportion of variance	0.779	0.761	0.141	0.150	0.081	0.089			0.849	0.837	0.151	0.163			1.000	1.000		

Bold numbers indicate a loading of good or better ($\lambda \geq 0.55$); table does not include loadings < 0.32

Appendix D: Factor Loadings and Path Diagrams for 13- and 11-Item Agency Scales

Factor Loadings for 13-Item Personal Agency And Agency Achievement Scales (GHAIs)

Full Scale Factor Loadings

	SINGLE FACTOR				2-FACTOR						3-FACTOR							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Little can do to change important things	**0.620**	**0.650**	0.616	0.578	**0.623**	**0.703**			0.599	0.545	**0.570**	**0.686**					0.580	0.508
Others determine what I can and cannot do	**0.637**	**0.634**	0.594	0.598	**0.572**	**0.624**			0.593	0.589	0.495	**0.579**					0.583	0.569
What happens in life is beyond my control	**0.605**	**0.660**	0.634	0.564	**0.701**	**0.714**			0.581	0.530	**0.723**	**0.759**					0.523	0.461
Little control over things happen to me	**0.648**	**0.684**	0.580	0.532	**0.739**	**0.754**			0.524	0.488	**0.757**	**0.772**					0.460	0.426
Really no way I can solve problems I have	**0.680**	**0.735**	0.538	0.460	**0.711**	**0.745**			0.506	0.440	**0.726**	**0.655**					0.446	0.423

Full Scale Factor Loadings

	SINGLE FACTOR				2-FACTOR						3-FACTOR							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Helpless dealing with problems of life	**0.752**	**0.798**	0.435	0.363	**0.692**	**0.764**			0.430	0.356	0.374	0.404	0.383	0.453			0.434	0.353
Difficult arranging life in satisfying way	**0.663**	**0.693**	0.560	0.520	0.524	**0.558**			0.567	0.525			**0.595**	**0.686**			0.480	0.415
Demands of everyday life often get me down	**0.585**	**0.621**	0.658	0.615	**0.574**	**0.604**			0.648	0.609			**0.730**	**0.709**			0.477	0.470
Overwhelmed by my responsibilities	**0.578**	**0.571**	0.666	0.674	**0.576**	**0.571**			0.654	0.666			**0.718**	**0.664**			0.490	0.544
Able to build lifestyle to my liking	0.514	0.510	0.736	0.740			0.485	0.460	0.657	0.653			0.316	0.389	0.453	0.380	0.635	0.637
Actively carry out plans I set for self	0.486	0.435	0.764	0.811			0.518	**0.591**	0.665	0.632					0.494	0.498	0.670	0.646

Full Scale Factor Loadings

	SINGLE FACTOR				2-FACTOR						3-FACTOR							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Do just about anything I set my mind to	0.481	0.458	0.769	0.790			**0.604**	**0.530**	0.617	0.655					**0.612**	0.515	0.595	0.638
When really want something, find way	0.541	0.442	0.707	0.805			**0.777**	**0.734**	0.430	0.506					**0.782**	**0.781**	0.401	0.392
Eigenvalue	4.742	4.952			4.792	4.996	0.737	0.811			4.846	5.050	0.772	0.867	0.609	0.602		
Proportion of variance	1.000	1.000			0.867	0.860	0.133	0.140			0.778	0.775	0.124	0.133	0.098	0.092		

Bold numbers indicate a loading of good or better ($\lambda \geq 0.55$); table does not include loadings < 0.2

Loadings on Individual Factors

	Personal agency		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Little can do to change important things	**0.634**	**0.671**	0.599	0.549	**0.659**	**0.710**					0.566	0.496
Others determine what I can and cannot do	**0.631**	**0.637**	0.602	0.594	**0.634**	**0.660**					0.598	0.564
What happens in life is beyond my control	**0.636**	**0.680**	0.596	0.538	**0.683**	**0.719**					0.533	0.483

Loadings on Individual Factors												
	Personal agency		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Little control over things happen to me	**0.676**	**0.708**	0.543	0.499	**0.718**	**0.744**					0.485	0.446
Really no way I can solve problems I have	**0.698**	**0.748**	0.513	0.441	**0.743**	**0.766**					0.447	0.413
Helpless dealing with problems of life	**0.756**	**0.801**	0.429	0.359	**0.694**	**0.742**	**0.703**	**0.755**			0.506	0.430
Difficult arranging life in satisfying way	**0.643**	**0.668**	0.586	0.553			**0.735**	**0.768**			0.460	0.411
Demands of everyday life often get me down	**0.599**	**0.629**	0.641	0.604			**0.699**	**0.720**			0.511	0.482
Overwhelmed by my responsibilities	**0.594**	**0.585**	0.647	0.658			**0.686**	**0.665**			0.529	0.557
Able to build lifestyle to my liking							0.491	0.499	**0.554**	0.535	0.693	0.713
Actively carry out plans I set for self									**0.580**	**0.591**	0.664	0.651
Do just about anything I set my mind to									**0.618**	**0.605**	0.618	0.634
When really want something, find way									**0.755**	**0.726**	0.431	0.473
Eigenvalue	3.845	4.206			2.852	3.148	2.235	2.368	1.595	1.529		

Factor loadings for 11-item personal agency and agency achievement scales (GHAIs)

Full Scale Factor Loadings

	SINGLE FACTOR				2-FACTOR						3-FACTOR							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Instrumental agency		Intrinsic agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
What happens in life is beyond my control	**0.577**	**0.627**	0.667	0.607	**0.610**	**0.625**			0.640	0.595			**0.685**	**0.753**			0.528	0.439
Little control over things happen to me	**0.632**	**0.651**	0.601	0.576	**0.663**	**0.661**			0.569	0.558			**0.803**	**0.747**			0.387	0.415
Really no way I can solve problems I have	**0.647**	**0.709**	0.582	0.497	**0.617**	**0.690**			0.572	0.488			**0.625**	**0.588**			0.494	0.441
Helpless dealing with problems of life	**0.750**	**0.784**	0.438	0.386	**0.713**	**0.784**			0.424	0.364	0.418	0.522	0.321	0.309			0.444	0.379
Difficult arranging life in satisfyingway	**0.674**	**0.713**	0.546	0.492	**0.603**	**0.662**			0.545	0.492	**0.614**	**0.711**					0.483	0.415

Full Scale Factor Loadings

	SINGLE FACTOR				2-FACTOR						3-FACTOR							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Instrumental agency		Intrinsic agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Demands of everyday life often get me down	**0.601**	**0.639**	0.639	0.591	**0.682**	**0.713**			0.586	0.541	**0.734**	**0.721**					0.477	0.469
Overwhelmed by my responsibilities	**0.593**	**0.590**	0.649	0.652	**0.683**	**0.678**			0.592	0.598	**0.722**	**0.661**					0.491	0.545
Able to build lifestyle to my liking	0.534	0.534	0.714	0.715	0.228	0.301	0.407	0.356	0.674	0.675	0.315	0.402			0.443	0.370	0.637	0.637
Actively carry out plans I set for self	0.498	0.459	0.752	0.790			0.476	0.483	0.677	0.677					0.491	0.492	0.672	0.644
Do just about anything I set my mind to	0.484	0.470	0.766	0.779			**0.622**	0.531	0.598	0.636					**0.617**	0.521	0.597	0.632
When really want something, find way	0.548	0.454	0.699	0.794			**0.804**	**0.808**	0.386	0.390					**0.784**	**0.778**	0.400	0.397
Eigenvalue	3.947	4.122			4.009	4.177	0.727	0.810			4.070	4.235	0.757	0.831	0.563	0.521		

Full Scale Factor Loadings

	SINGLE FACTOR				2-FACTOR						3-FACTOR							
	Agency		Uniqueness		Personal agency		Agency achievement		Uniqueness		Instrumental agency		Intrinsic agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Proportion of variance	1.000	1.000			0.846	0.838	0.154	0.162			0.755	0.758	0.141	0.149	0.105	0.093		

Bold numbers indicate a loading of good or better ($\lambda \geq 0.55$); table does not include loadings < 0.2

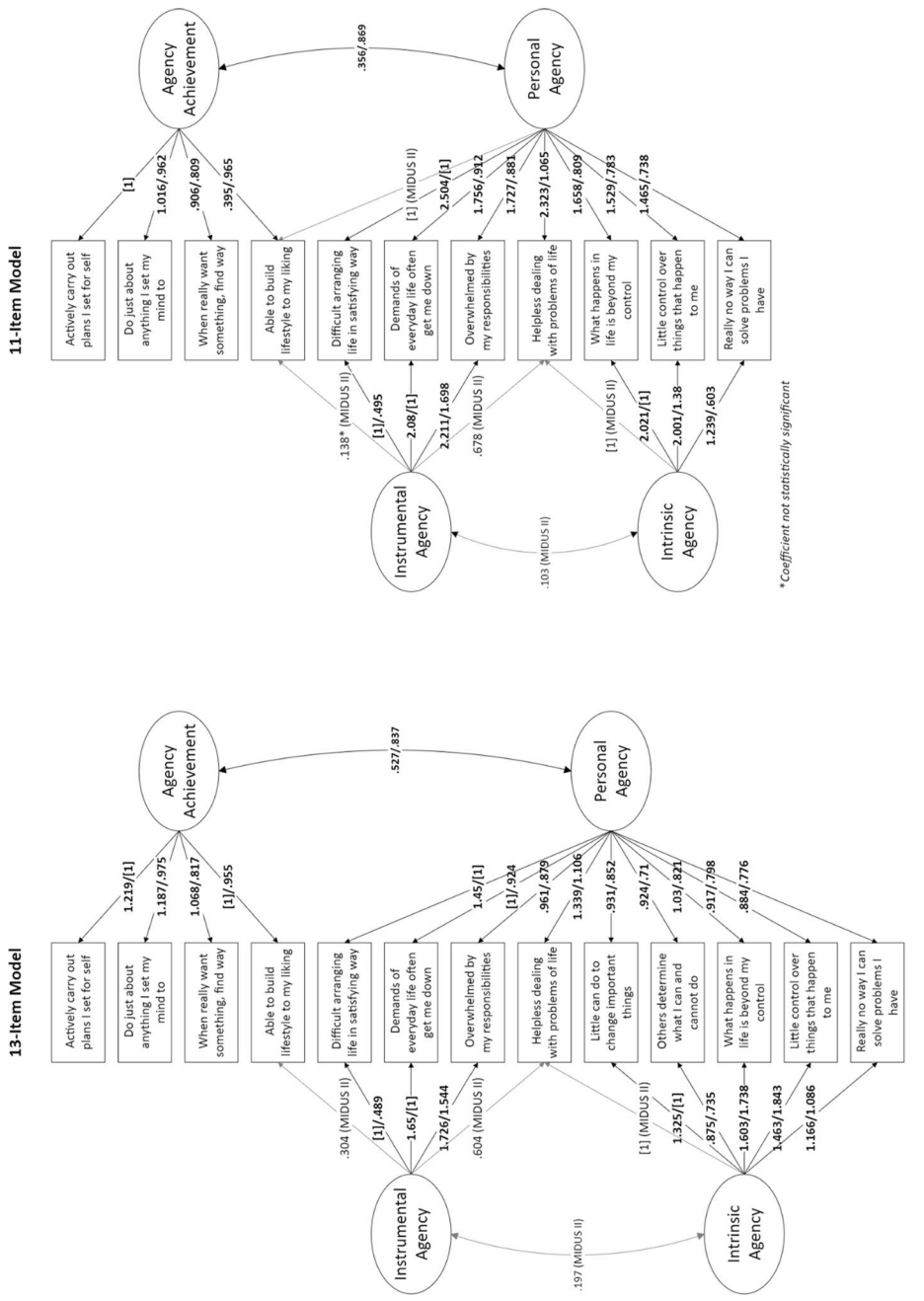
Loadings on Individual Factors

	Personal agency		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
What happens in life is beyond my control	**0.597**	**0.639**	0.643	0.591	**0.690**	**0.726**					0.524	0.473
Little control over things happen to me	**0.651**	**0.666**	0.576	0.557	**0.759**	**0.748**					0.425	0.440
Really no way I can solve problems I have	**0.650**	**0.719**	0.578	0.483	**0.723**	**0.775**					0.478	0.400
Helpless dealing with problems of life	**0.763**	**0.797**	0.417	0.365	**0.661**	**0.705**	**0.703**	**0.755**			0.506	0.430
Difficult arranging life in satisfying way	**0.676**	**0.713**	0.543	0.492			**0.735**	**0.768**			0.460	0.411
Demands of everyday life often get me down	**0.635**	**0.666**	0.596	0.557			**0.699**	**0.720**			0.511	0.482
Overwhelmed by my responsibilities	**0.628**	**0.622**	0.606	0.613			**0.686**	**0.665**			0.529	0.557

Loadings on Individual Factors												
	Personal agency		Uniqueness		Intrinsic agency		Instrumental agency		Agency achievement		Uniqueness	
Item	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Able to build lifestyle to my liking	0.469	0.478	0.780	0.772			0.491	0.499	**0.554**	0.535	0.693	0.713
Actively carry out plans I set for self									**0.580**	**0.591**	0.664	0.651
Do just about anything I set my mind to									**0.618**	**0.605**	0.618	0.634
When really want something, find way									**0.755**	**0.726**	0.431	0.473
Eigenvalue	3.261	3.570			2.010	2.185	2.235	2.368	1.595	1.529		

For cross-loaded items in 3-factor solutions, uniqueness reported is for factor on which items had highest loading

Path Diagrams for 13- and 11-Item GHAIs


11-Item Model
Agency Achievement
Personal Agency
.356/.869
[1]
1.016/.962
.906/.809
.395/.965
[1] (MIDUS II)
2.504/[1]
1.756/.912
1.727/.881
2.323/1.065
1.658/.809
1.529/.783
1.465/.738
Actively carry out plans I set for self
Do just about anything I set my mind to
When really want something, find way
Able to build lifestyle to my liking
Difficult arranging life in satisfying way
Demands of everyday life often get me down
Overwhelmed by my responsibilities
Helpless dealing with problems of life
What happens in life is beyond my control
Little control over things that happen to me
Really no way I can solve problems I have
.138* (MIDUS II)
[1]/.495
2.08/[1]
2.211/1.698
.678 (MIDUS II)
[1] (MIDUS II)
2.021/[1]
2.001/1.38
1.239/.603
Instrumental Agency
Intrinsic Agency
.103 (MIDUS II)
*Coefficient not statistically significant
13-Item Model
Agency Achievement
Personal Agency
.527/.837
1.219/[1]
1.187/.975
1.068/.817
[1]/.955
1.45/[1]
[1]/.924
.961/.879
1.339/1.106
.931/.852
.924/.71
1.03/.821
.917/.798
.884/.776
Actively carry out plans I set for self
Do just about anything I set my mind to
When really want something, find way
Able to build lifestyle to my liking
Difficult arranging life in satisfying way
Demands of everyday life often get me down
Overwhelmed by my responsibilities
Helpless dealing with problems of life
Little can do to change important things
Others determine what I can and cannot do
What happens in life is beyond my control
Little control over things that happen to me
Really no way I can solve problems I have
.304 (MIDUS II)
[1]/.489
1.65/[1]
1.726/1.544
.604 (MIDUS II)
[1] (MIDUS II)
1.325/[1]
.875/.735
1.603/1.738
1.463/1.843
1.166/1.086
Instrumental Agency
Intrinsic Agency
.197 (MIDUS II)

Appendix E: Internal Consistency Statistics and Construct Validity

Internal Consistency Statistics for Selected Agency Items and Final GPAS and GHAIs Scales

Original agency items			Intrinsic agency scales			
	9-ITEM		5-ITEM		3-ITEM	
	M2	M3	M2	M3	M2	M3
Alpha	0.910	0.911	0.809	0.833	0.753	0.782
Std. Alpha	0.914	0.913	0.812	0.835	0.760	0.786
Avg. Interitem covariance	0.556	0.561	1.177	1.294	1.312	1.411
Avg. interitem correlation	0.261	0.260	0.464	0.503	0.513	0.550

Final agency scales							Instrumental agency scale	
	13-ITEM		11-ITEM		9-ITEM		3-ITEM	
	M2	M3	M2	M3	M2	M3	M2	M3
Alpha	0.876	0.884	0.855	0.864	0.817	0.829	0.724	0.738
Std. Alpha	0.877	0.884	0.857	0.864	0.820	0.830	0.717	0.731
Avg. Interitem covariance	0.912	0.966	0.913	0.956	0.882	0.924	1.265	1.283
Avg. interitem correlation	0.354	0.370	0.353	0.366	0.337	0.351	0.388	0.405

Personal agency scales							Agency achievement scales			
	9-ITEM		7-ITEM		6-ITEM		4-ITEM		3-ITEM	
	M2	M3	M2	M3	M2	M3	M2	M3	M2	M3
Alpha	0.864	0.881	0.839	0.858	0.801	0.826	0.715	0.703	0.672	0.666
Std. Alpha	0.867	0.884	0.842	0.861	0.805	0.830	0.722	0.709	0.685	0.678
Avg. Interitem covariance	1.216	1.316	1.307	1.392	1.228	1.328	0.706	0.715	0.754	0.760
Avg. interitem correlation	0.420	0.458	0.433	0.470	0.408	0.448	0.393	0.379	0.420	0.412

Pairwise Pearson's *r* correlations between final agency items

MIDUS II													
Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Little can do to change important things	1												
(2) Others determine what I can and cannot do	0.41*	1											
(3) What happens in life is beyond my control	0.43*	0.45*	1										
(4) Little control over things happen to me	0.44*	0.40*	0.55*	1									
(5) Really no way I can solve problems I have	0.50*	0.46*	0.45*	0.54*	1								
(6) Helpless dealing with problems of life	0.51*	0.44*	0.48*	0.47*	0.52*	1							
(7) Difficult arranging life in satisfying way	0.34*	0.39*	0.35*	0.35*	0.37*	0.53*	1						
(8) Demands of everyday life often get me down	0.31*	0.31*	0.32*	0.35*	0.34*	0.49*	0.48*	1					

MIDUS II													
Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(9) Overwhelmed by my responsibilities	0.30*	0.32*	0.32*	0.34*	0.34*	0.47*	0.48*	0.54*	1				
(10) Able to build lifestyle to my liking	0.23*	0.28*	0.22*	0.25*	0.27*	0.39*	0.44*	0.31*	0.30*	1			
(11) Actively carry out plans I set for self	0.23*	0.26*	0.22*	0.25*	0.28*	0.34*	0.33*	0.26*	0.23*	0.41*	1		
(12) Do just about anything I set my mind to	0.27*	0.29*	0.26*	0.25*	0.29*	0.32*	0.29*	0.21*	0.20*	0.31*	0.34*	1	
(13) When really want something, find way	0.29*	0.30*	0.26*	0.28*	0.31*	0.35*	0.32*	0.24*	0.24*	0.39*	0.39*	0.54*	1
MIDUS III													
(1) Little can do to change important things	1												
(2) Others determine what I can and cannot do	0.42*	1											
(3) What happens in life is beyond my control	0.46*	0.48*	1										
(4) Little control over things happen to me	0.51*	0.48*	0.58*	1									

MIDUS II													
Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(5) Really no way I can solve problems I have	0.54*	0.49*	0.51*	0.57*	1								
(6) Helpless dealing with problems of life	0.56*	0.49*	0.49*	0.50*	0.57*	1							
(7) Difficult arranging life in satisfying way	0.39*	0.42*	0.39*	0.42*	0.45*	0.56*	1						
(8) Demands of everyday life often get me down	0.36*	0.36*	0.35*	0.38*	0.41*	0.54*	0.52*	1					
(9) Overwhelmed by my responsibilities	0.31*	0.35*	0.36*	0.35*	0.37*	0.49*	0.51*	0.55*	1				
(10) Able to build lifestyle to my liking	0.25*	0.29*	0.26*	0.28*	0.32*	0.40*	0.47*	0.32*	0.30*	1			
(11) Actively carry out plans I set for self	0.23*	0.27*	0.23*	0.25*	0.29*	0.32*	0.36*	0.26*	0.23*	0.41*	1		
(12) Do just about anything I set my mind to	0.27*	0.27*	0.28*	0.27*	0.31*	0.33*	0.28*	0.25*	0.21*	0.29*	0.33*	1	
(13) When really want something, find way	0.26*	0.25*	0.25*	0.24*	0.28*	0.29*	0.29*	0.21*	0.20*	0.34*	0.37*	0.53*	1

*$p < 0.05$

Pearson's *r* correlations between agency factors

2-Factor Personal Agency Models

	MIDUS II		MIDUS III	
	(1)	(2)	(1)	(2)
(1) Intrinsic agency	1		1	
(2) Instrumental agency	0.67	1	0.71	1

All correlations significant ($p \leq 0.05$)

2-Factor Personal Agency/Agency Achievement Models

	13-Item				11-Item				9-Item			
	MIDUS II		MIDUS III		MIDUS II		MIDUS III		MIDUS II		MIDUS III	
MIDUS II	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
(1) Personal agency	1		1		1		1		1		1	
(2) Agency achievement	0.61	1	0.56	1	0.59	1	0.50	1	0.54	1	0.45	1

All correlations significant ($p \leq 0.05$)

3-Factor Personal Agency/Agency Achievement Models

	13-Item						11-Item						9-item					
	MIDUS II			MIDUS III			MIDUS II			MIDUS III			MIDUS II			MIDUS III		
MIDUS II	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
(1) Intrinsic agency	1			1			1			1			1			1		
(2) Instrumental agency	0.64	1		0.67	1		0.62	1		0.65	1		0.62	1		0.67	1	
(3) Agency achievement	0.54	0.48	1	0.43	0.39	1	0.50	0.48	1	0.40	0.40	1	0.50	0.45	1	0.44	0.38	1

All correlations significant ($p \leq 0.05$)

Pairwise correlations between 13-item human agency factors and correlates of agency

	MIDUS II						MIDUS III						TWO-WAVE					
Construct	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
(1) Agency	1.00						1.00						1.00					
(2) Personal Agency	0.98*	1.00					0.99*	1.00					0.98*	1.00				
(3) Agency Achievement (2-factor)	0.86*	0.74*	1.00				0.77*	0.68*	1.00				0.86*	0.74*	1.00			
(4) Intrinsic Agency	0.94*	0.98*	0.68*	1.00			0.95*	0.97*	0.62*	1.00			0.94*	0.98*	0.68*	1.00		

Construct	MIDUS II						MIDUS III						TWO-WAVE					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
(5) Instrumental Agency	0.90*	0.87*	0.76*	0.76*	1.00		0.92*	0.91*	0.67*	0.80*	1.00		0.90*	0.87*	0.76*	0.76*	1.00	
(6) Agency Achievement (3-factor)	0.79*	0.66*	0.97*	0.64*	0.60*	1.00	0.71*	0.61*	0.99*	0.58*	0.56*	1.00	0.79*	0.66*	0.97*	0.64*	0.60*	1.00
(7) Life Satisfaction	0.53*	0.49*	0.53*	0.44*	0.53*	0.47*	0.53*	0.51*	0.46*	0.46*	0.53*	0.41*	0.39*	0.37*	0.38*	0.33*	0.39*	0.33*
(8) Self-Acceptance (PWB)	0.75*	0.69*	0.74*	0.62*	0.72*	0.67*	0.74*	0.71*	0.68*	0.62*	0.75*	0.61*	0.57*	0.53*	0.57*	0.48*	0.54*	0.51*
(9) Self-Esteem	0.73*	0.68*	0.69*	0.63*	0.70*	0.62*	0.71*	0.69*	0.63*	0.62*	0.70*	0.58*	0.54*	0.51*	0.52*	0.46*	0.52*	0.46*
(10) Purpose in Life (PWB)	0.69*	0.65*	0.63*	0.62*	0.62*	0.58*	0.70*	0.68*	0.59*	0.63*	0.66*	0.54*	0.52*	0.50*	0.48*	0.47*	0.46*	0.44*
(11) Positive Relations (PWB)	0.58*	0.53*	0.57*	0.49*	0.55*	0.51*	0.56*	0.53*	0.50*	0.48*	0.55*	0.45*	0.45*	0.41*	0.43*	0.38*	0.42*	0.39*
(12) Social Integration	0.38*	0.35*	0.36*	0.33*	0.35*	0.33*	0.39*	0.37*	0.34*	0.34*	0.37*	0.31*	0.33*	0.31*	0.31*	0.29*	0.30*	0.28*
(13) Agency (Big 5)	0.36*	0.31*	0.42*	0.29*	0.30*	0.41*	0.32*	0.29*	0.39*	0.26*	0.29*	0.38*	0.30*	0.25*	0.35*	0.24*	0.24*	0.35*
(14) Autonomy (PWB)	0.52*	0.47*	0.51*	0.43*	0.49*	0.47*	0.50*	0.48*	0.45*	0.43*	0.49*	0.41*	0.40*	0.38*	0.39*	0.35*	0.37*	0.36*

*$p < 0.05$

Pairwise correlations between 11-item human agency factors and correlates of agency

	MIDUS II						MIDUS III						TWO-WAVE					
Construct	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
(1) Agency	1.00						1.00						1.00					
(2) Personal Agency	0.98*	1.00					0.99*	1.00					0.98*	1.00				
(3) Agency Achievement (2-factor)	0.82*	0.71*	1.00				0.75*	0.64*	1.00				0.82*	0.71*	1.00			
(4) Instrumental Agency	0.93*	0.94*	0.65*	1.00			0.95*	0.96*	0.59*	1.00			0.93*	0.94*	0.65*	1.00		
(5) Intrinsic Agency	0.89*	0.92*	0.61*	0.75*	1.00		0.91*	0.92*	0.57*	0.79*	1.00		0.89*	0.92*	0.61*	0.75*	1.00	
(6) Agency Achievement (3-factor)	0.80*	0.68*	1.00*	0.62*	0.60*	1.00	0.73*	0.62*	1.00*	0.57*	0.56*	1.00	0.80*	0.68*	1.00*	0.62*	0.60*	1.00
(7) Life Satisfaction	0.55*	0.52*	0.48*	0.53*	0.42*	0.47*	0.54*	0.53*	0.41*	0.53*	0.44*	0.41*	0.40*	0.39*	0.34*	0.39*	0.32*	0.33*
(8) Self-Acceptance (PWB)	0.76*	0.72*	0.68*	0.73*	0.59*	0.66*	0.76*	0.73*	0.62*	0.75*	0.60*	0.61*	0.58*	0.55*	0.52*	0.55*	0.46*	0.51*
(9) Self-Esteem	0.74*	0.71*	0.63*	0.70*	0.60*	0.61*	0.72*	0.70*	0.58*	0.69*	0.60*	0.57*	0.55*	0.53*	0.47*	0.52*	0.44*	0.46*
(10) Purpose in Life (PWB)	0.68*	0.66*	0.58*	0.63*	0.58*	0.57*	0.69*	0.67*	0.54*	0.66*	0.59*	0.54*	0.51*	0.49*	0.44*	0.46*	0.44*	0.44*

Construct	MIDUS II						MIDUS III						TWO-WAVE					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
(11) Positive Relations (PWB)	0.58*	0.55*	0.52*	0.55*	0.45*	0.50*	0.56*	0.54*	0.45*	0.55*	0.45*	0.45*	0.44*	0.42*	0.39*	0.42*	0.35*	0.39*
(12) Social Integration	0.38*	0.36*	0.33*	0.35*	0.31*	0.32*	0.39*	0.38*	0.31*	0.37*	0.32*	0.31*	0.33*	0.31*	0.29*	0.30*	0.27*	0.28*
(13) Agency (Big 5)	0.37*	0.32*	0.42*	0.30*	0.28*	0.41*	0.33*	0.30*	0.38*	0.29*	0.26*	0.38*	0.30*	0.26*	0.36*	0.24*	0.23*	0.35*
(14) Autonomy (PWB)	0.51*	0.49*	0.47*	0.49*	0.40*	0.46*	0.50*	0.48*	0.42*	0.49*	0.41*	0.41*	0.40*	0.38*	0.36*	0.37*	0.33*	0.35*

*$p < 0.05$

Declarations

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