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# Pandemic Palliatives and COVID-19 Coping: Toward the Development of a “Coping with Crisis Communications” (COCCO) Scale

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## ABSTRACT

The COVID-19 pandemic underscored the critical role of coping strategies during global crises and demonstrated how official communications shape public responses. This study evaluates the psychometric validity of a novel pentadic “Coping with Crisis Communication” (COCCO) Scale, which categorizes coping behaviors into five behavioral responses: *moving-with*, *moving-against*, *moving-outward*, *moving-away*, and *moving-inward*. A national representative survey of 742 Swiss residents, conducted in February 2022, measured these coping responses to official COVID-19 communications from the Swiss Federal Office of Public Health (FOPH) and traditional Swiss news media (TNM). Items were developed to assess how participants engaged with, opposed, reached outward for support, distanced from, or internalized the messages. Confirmatory factor analyses tested multiple models (5-, 6-, 7-, and 8-factor structures) based on both the initial pentadic theory and data-driven refinements. While the original 5-factor model showed insufficient fit, a 7-factor model (moving-with, moving-toward, moving-against, moving-outward, moving-away, negative-moving-inward, positive-moving-inward) provided a satisfactory factor solution. This model exhibited measurement invariance across the three language versions of the scale (French, Italian, German) and across the two communication contexts (FOPH, TNM). The COCCO scale offers an effective, movement-based assessment of coping strategies in response to crisis communications, serving as a valuable tool for understanding public behavior during global crises.

Pandemics have profoundly altered the trajectory of human history. Historical events such as the Black Death in the 1300s, the Spanish flu in the early 20th century, and the recent COVID-19 pandemic have tested human resilience and highlighted significant challenges in public health responses amidst the complexities of new media and globalization. Despite centuries of experience with pandemics, the world was surprisingly unprepared at all levels for the COVID-19 outbreak and its far-reaching effects. As the pandemic has now transitioned to an endemic phase, it is crucial to enhance preparedness for similar future crises. Research indicates an alarming rise in the occurrence and severity of zoonotic disease outbreaks (Meadows et al., 2023), underscoring the need to understand how various coping strategies function during such global crises and how governments and news media can facilitate effective coping.

This study introduces a novel conceptual typology and measurement framework for organizing and assessing coping strategies people engage in response to official crisis communications. It evaluates this approach through a nationally representative analysis of public responses to government and news media communications during the COVID-19 pandemic. The investigation advances a pentadic typology of behavioral coping emphasizing *movement* (i.e., moving with, moving against, moving away, moving inward, moving

outward), offering a more comprehensive understanding of coping in response to official communications in times of global crises.

## A pandemic of pain and progress

The COVID-19 pandemic represented an extraordinarily complex stressor to society. It was simultaneously a health risk, a sometimes deadly and often debilitating illness, a social and relationship stressor, an interruption of everyday behavioral routine, an economic and financial burden, and an existential threat to political and institutional systems and collective social identities. In addition to direct mortality costs, the debilitating aspect of COVID-19 was evidenced by the extraordinary morbidity resulting from the pandemic and its effects on social order. People experienced challenges navigating a more spatiotemporally compressed home life, missed life milestones, and experienced loneliness, social isolation, and worrisome uncertainty about the future (O’Sullivan et al., 2021). The personal, social, and societal costs of the pandemic were severe and still continue. Overall, global research has demonstrated a significant increase across 19 of 27 countries in self-reported psychological distress from pre-pandemic to post-pandemic restrictions (Randall et al., 2022). Such psychological stresses can have their own tangible effects.

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In the U.S., estimates indicate almost 40% more years of life lost due to deaths of despair (i.e., deaths due to alcohol, other substances, or suicide), which were most likely amplified by pandemic stressors (Entrup et al., 2023).

Not all such losses and costs are inevitable. To the extent that publics can be better prepared for resilience and preventive coping responses, the effects of pandemics can be significantly reduced. For example, wider scale compliance with standard health practices such as social distancing, masking, and hygiene could have decreased the mortality rate of COVID-19 up to 90% (Girum et al., 2021). A study across 44 countries found that the COVID-19 mortality rate was over five times higher in countries without mask mandates (Motallebi et al., 2022). Worldwide, a modeling study estimated that full vaccination could have saved up to 14 million lives across 185 countries between December 2020 and December 2021 (Watson et al., 2022). As health standards and promoted health practices are a primary responsibility of governments and news media to establish and communicate to their respective publics, it becomes vital to understand how these publics process these sources of information and the media through which official health messaging is communicated.

### Coping during COVID-19

When situational demands exceed individual goals and resources, individuals tend to reflect on their ability to cope with the situation. That is, stressful experiences elicit self-appraisal of coping capabilities. Coping is broadly defined as the “cognitive and behavioral efforts to manage psychological stress” (Lazarus, 1993, p. 237). According to appraisal models of stress and coping, there are two forms of appraisal. *Primary appraisals* ascertain the severity of the challenge(s) and emotion(s) evoked by a stressor. In contrast, *secondary appraisals* of the stressor prioritize the coping goal(s), the available strategic repertoire and the move(s) deemed appropriate, followed by the cognitive and motor assembly regarding which coping tactics and resources to deploy in pursuit of the extant goal(s) (Lazarus & Folkman, 1984). Thus, a common response to such person-environment challenges is an experience of stress, which in turn mobilizes appraisal of a person’s coping repertoire to manage the situation. Stress can elicit coping, and coping responses can reduce or amplify the stress, depending significantly on the competence of the coping responses pursued.

A common way of conceptualizing coping is as tactics, strategies, and styles. *Tactics* are specific actions, such as seeking social support or trying to ignore or avoid a source of stress. *Strategies* are sets of tactics that cohere as families of actions that are similar in some important way, such as function or topology. For example, there are many different tactics that represent the strategy of avoiding a stressor (e.g., unsubscribing to a stressful news source, avoiding a person who persists in discussing the stressor, seeking distractions). When a person tends to engage in similar tactics and strategies over time and place, they demonstrate a *style* of coping. This set of distinctions slightly elaborates the traditional state-trait distinction, in which tactics and strategies represent the state

process, and style is more reflective of a trait or dispositional orientation (e.g., Lazarus, 1993).

Research generally shows that coping strategies and tactics normatively considered more functional mediate or predict anxiety, stress, depression, loneliness, relationship quality, happiness, life function and other deleterious forms of psychological distress (e.g., Cohen-Louck & Levy, 2022; Randall et al., 2022; Savitsky et al., 2020; Yıldırım et al., 2022). However, the particular strategies that are most functional depend significantly on their goodness of fit (Folkman & Lazarus, 1980; Wolfers & Schneider, 2021) for the person and the particular stressors encountered (Ahuja, 2022; Kalaitzaki et al., 2022; Lazarus, 1993; Lischetzke et al., 2022; Simione et al., 2022). In general, coping strategies have demonstrated moderation, mediation or direct relationships with well-being and distress during the COVID-19 pandemic context, although the size and direction of these relationships tend to vary considerably across studies (e.g., Agha, 2021; Cohen-Louck & Levy, 2022; Kalaitzaki et al., 2022; Orsolini et al., 2022; Park et al., 2022; Randall et al., 2022; Savitsky et al., 2020; Yıldırım et al., 2022; Zsido et al., 2022). There may even be potential for traumatic growth in such contexts. People who experienced more fear of COVID-19, psychological distress, and financial stressors from the pandemic were significantly more likely to mobilize their coping resilience (Rahman et al., 2021).

A 4-wave study following pre-COVID assessment of the status of people’s personal relationships found that overall positive effects of the pandemic (e.g., focusing on and appreciating the relationship) were stably higher than negative effects (e.g., relational conflict, stress and tension; Holmberg et al., 2022). One study found that social media use among Italian youth of ages 18–24 during the pandemic provided a “protective/resilient” role “in mitigating the depressive symptomatology” (Orsolini et al., 2022, p. 8). Other studies have demonstrated that some people experienced forms of personal and social resilience and traumatic growth alongside the negative effects of COVID-19 (e.g., Miao et al., 2022). For example, Fino et al. (2022, p. 9) found that fear about the pandemic was “associated with both negative and positive outcomes” and these relationships were partially mediated by coping strategies: Disengagement coping negatively mediated the link between pandemic fear and anxiety and depression, whereas engagement coping positively mediated the relationship between pandemic fear and post-traumatic growth. Such findings illustrate the importance of identifying the role of coping in mediating functional as opposed to dysfunctional outcomes in the pandemic context.

One of the resources upon which coping strategies are likely to depend is the information base guiding coping efforts. Approach, avoidance, problem-solving, emotion-focused coping, social support seeking, and other forms of coping are likely to depend on the sources of information people consume to guide them in seeking, locating, and utilizing these strategies. Community coping responses are influenced by public health campaigns, sources of governmental and institutional information diffusion, and mainstream media platforms. These crucial sources of public health information face substantial challenges and responsibilities in pursuing optimal

individual, community, and institutional management of the disease. As such, the role that institutional and traditional media play in people's coping with the pandemic bear investigation.

### Media and coping

Audiences frequently turn to media to cope with stressors (Nabi et al., 2022). Also during the COVID-19 pandemic, media use was among the most frequently reported coping techniques (Eden et al., 2020; Wolfers & Schneider, 2021). Media-based coping strategies (MBCS) can be defined as “the use of media (and their contents) in order (a) to adapt better to the context of risk and the aversive situation, and (b) to improve possibly impaired hedonic, psychological, and social well-being” (Courbet et al., 2023, p. 6). In this sense, media use can be viewed as distinct strategies themselves (Nabi et al., 2022, Wolfers & Schneider, 2021), or, in contrast, as tools “through which (a) a coping goal can be achieved and (b) a coping behavior can be performed” (Wolfers & Schneider, 2021, p. 1222). Despite evidence that media consumption could enhance coping efficacy during a pandemic (Nabi et al., 2022), media use is inconsistently represented in existing coping typologies, “as using media has sometimes been included in these taxonomies in different ways or not at all” (Wolfers & Schneider, 2021, p. 1212). All health messaging represents a significant avenue for public health policies and campaigns. Therefore, it becomes vital to comprehend how various forms of communication were used in coping in the pandemic crisis.

Throughout the pandemic, most publics expected their government communication to be (1) accurate, transparent, timely, personally relevant, (2) informative about protective measures, pandemic status, and the locus of pandemic-crisis responsibility, and (3) to avoid partisan self-promotion (Kim, 2022). In general, publics appeared to generally prefer their central government's health agency (e.g., CDC) and experts (i.e., doctors) as a key source of information during the pandemic (Kim, 2022). Mass communications such as television and social media were commonly consumed (Stjernswärd et al., 2021) as a way of managing emotions during COVID-19 (Bae, 2023; Eden et al., 2020; Grady et al., 2022), although the extent and selection of media use shifted as the pandemic evolved (Jennings & Caplovitz, 2022; Orsolini et al., 2022).

Institutional or official sources of information were among the most sought-after sources of information on the pandemic in general (Walsh et al., 2023; Wilson & Scacco, 2023), and particularly among the Swiss population (Zimmerman, 2024). An analysis of tweets during the early stages of the pandemic indicated that the account of the WHO ranked fifth among mentions, indicating “the importance of the WHO as an information source for people concerned with coronavirus” (Park et al., 2022, p. 8). Another analysis of over 21 million global tweets in the early stages of the pandemic found the CDC ranked 25th and the WHO ranked 27th in the 50 most shared website domains (Pobiruchin et al., 2020). A survey in Spain, Italy and the UK, for example, found that information from public institutional web or blogs was not the most common source, but was nevertheless sought by 50.6%, 41.9%, and

45.7% of respondents, respectively (Moreno et al., 2023). A survey of the German-speaking Swiss public in the early stages of the pandemic found that health professionals, health authorities and the official info-hotline were not the most prominently consumed, but were in general the most trusted sources of information about the pandemic (De Gani et al., 2022). Another survey in Germany, Austria and Switzerland in 2020 found that 75% reported consuming more news after the beginning of the pandemic, and the most significant increase in sources was in public organizations, based on the criterion people applied of seeking credible information (Dreisiebner et al., 2022). Government and official sources were not always the most consumed, but they were among significant segments of the population, and generally among the most trusted.

While media can inform, they can also evoke negative affect and lead to the selective avoidance of information (Schoultz et al., 2023). For example, Eden et al. (2020) reconceptualized a traditional coping measure to represent five functions that media use could serve: problem-focus, avoidance, escapism, reframing, and humor. They found that “different media-related coping strategies were associated with different indicators of well-being, potentially suggesting adaptive or maladaptive functions” (p. 9).

The negative adaptive role of media-based coping has been found in several studies. For example, one study found that “while users reported using less media overall as the pandemic wore on, some types of media were increasingly associated with negative affect” (Grady et al., 2022, p. 30). Another study of COVID coping found that spending more time playing video games or watching TV shows and movies was reported significantly more by those lower rather than higher in psychological well-being (Tuason et al., 2021). Other research indicated that social media consumption during the pandemic was associated with information overload, social media fatigue and dysfunctional coping (Pang et al., 2022; Zhang et al., 2021). Overall, a meta-analysis of 14 studies found that increased social media use by young adults during the pandemic was associated with greater anxiety and depressive symptoms (Lee et al., 2022).

In contrast, other studies found that media use during the pandemic was capable of adaptive value. Nabi et al. (2022) showed that media use provided “a means of coping with negative affect around the stressor, as evidenced by greater coping efficacy,” and also “promoted protective behavior” such as social distancing (p. 298). In the Eden et al. (2020) study, anxiety was associated with all media uses, and in particular, “anxious individuals were far more likely to report adaptive forms of media coping, such as problem-focused media use” (p. 14).

Thus, media consumption appears to play a potentially vital role in responses to a pandemic. Trust and distrust in science, government and mainstream media were common concerns during the COVID-19 pandemic (Van Scoy et al., 2021). Distrust in particular was a common facet of pandemic conspiracy theories and misinformation (Park et al., 2022; Quinn et al., 2021). Such conspiracy beliefs (Tsamakis et al., 2022) and distrust, in turn, tended to erode both resistance to misinformation and compliance with health preventative measures (Allington et al., 2021; Hartmann & Müller, 2022; Tsamakis



et al., 2022). In particular, the consumption of traditional media during the pandemic was associated with greater resistance to misinformation and preventative health measures, whereas the consumption of digital or social media was more associated with greater susceptibility to conspiracy beliefs and noncompliance (Hartmann & Müller, 2022; Park et al., 2022).

Modeling of trust and distrust of higher quality information sources indicates that even the “slightest changes in the density of distrusting population . . . can be the difference between suppressing and outbreak or merely mitigating against it” (Sontag et al., 2022, p. 9). Given the importance of institutional public health campaigns and mainstream media to effective coping with pandemics, further study is warranted. Such study requires valid assessments of how such sources of public health communication are utilized by the public.

### **Conceptualization and measurement of pandemic coping strategies**

There are many reasons why studies of coping strategies find mixed results in discerning their relationship with functional and dysfunctional outcomes. In the most comprehensive analysis of categorical and dimensional approaches to conceptualizing and measuring coping strategies, Skinner et al. (2003) emphasized that the “lack of consensus about core categories has slowed progress in the field” (p. 216). This lack of consensus is suggested by a review of media as a coping tool that identified “over 200 identified theories and models” (Wolfers & Schneider, 2021, p. 1225).

The most common approaches to studying the role that coping plays in stress and anxiety management processes is through self-reports of the frequency with which any of a list of strategies and tactics are used to manage responses to a stressor. Studies typically use an off-the-shelf coping measure that lists strategies and tactics cast at widely varying levels of abstraction or contextual relevance. Tactic clusters or factors in current measures may not be internally or strategically consistent, such that some specific items in a cluster of items may function positively, whereas others might function negatively, thereby resulting in null relationships with trauma outcomes (Edwards & O’Neill, 1998; Simione et al., 2022; Skinner et al., 2003).

Among the most common measures of coping are 2-dimensional (L. J. Brown & Bond, 2019; Folkman & Lazarus, 1980; Kalaitzaki et al., 2022; Littleton et al., 2007) and 3-dimensional (Compas et al., 2001; Courbet et al., 2023; Lazarus & Folkman, 1984) instruments, often in which multiple subscales are aggregated hierarchically under these macro-level categories of coping (i.e., problem-focused/emotion-focused, approach/avoidance, and cognitive/behavioral dimensions). In an extensive review of coping typologies, Skinner et al. (2003) recommended abandoning these two- and three-dimensional approaches, indicating that they are overly simplistic, mix multiple abstraction levels within categories, and are unable to represent the full multifunctionality of coping. In particular, “ways of coping cannot be classified by function because functional ‘categories’ are not mutually exclusive” (p. 22), and thus, “no single topological distinction (dimension) should be used

as a higher order category of coping” since “all lower order categories are multidimensional” (p. 228).

Beyond two- and three-dimensional typologies lies a vast landscape of coping typologies and factor analytic structures (see Table 1). Indeed, Skinner et al. (2003) identified over 100 typologies comprising over 400 distinct labels. A recent systematic review of factor-analytic studies of coping measures identified over 30,000 peer-reviewed published studies, mostly encompassed by only nine measures. These “studies rarely converged upon the same factor structure” often “even within the same coping instrument” and produced factor structures ranging from 2 to 12 dimensions (Gugiu et al., 2022, p. 243).

Various studies have examined coping specifically in regard to COVID-19 or aspects of the pandemic such as lockdown policies. Most of these have simply copied or slightly adapted existing measures to reflect content or instructions specific to the pandemic (e.g., Fino et al., 2022; Langley et al., 2023; Park et al., 2022; Rahman et al., 2021; Savitsky et al., 2020) or to media-based coping (e.g., Nabi et al., 2022). Given the importance of coping during global crises such as pandemics and the importance of media-based messaging in particular, there is a need for a more conceptually coherent and grounded measure of coping with traditional forms of governmental mediated communications that is specific to the context of the crisis.

### **Toward a novel directional typological framework**

Other than Little et al. (2001), Courbet et al. (2023) and Skinner et al. (2003), few typologies of coping have attempted a hierarchical or multilevel taxonomic a priori approach. Instead, most approaches have tended to consist of lists of varied coping strategies that sometimes factor into higher-order dimensions and sometimes do not (Gugiu et al., 2022). Here we seek to see if a directional analogue might provide a coherent higher-order structure for conceptualizing and measuring pandemic coping strategies.

As early as 1915, Cannon was hypothesizing that “the emotion of fear is associated with the instinct for flight, and the emotion of anger or rage with the instinct for fighting or attack” (p. 187), and some form of this approach-avoidance dimension has been commonly recognized in topological approaches to coping strategies (Skinner et al., 2003), sometimes being represented broadly as an adaptive(protective)-versus-maladaptive(defensive) dichotomy (Lowry et al., 2023) or healthy/unhealthy coping dichotomy (Stallman, 2020). After Cannon, scholars realized that there was a third response orientation: to freeze. Horney (1946); see also: Carlson et al., 2022) recast these orientations as personality dispositions to move toward (compliant), move against (aggressive), or move away (detached). These strategic orientations have been linked to physiological and affect in three systems: a behavioral approach system, a flight-flight-freeze system, and a behavioral inhibition system (Bacon & Corr, 2020; Corr & Cooper, 2016). This tripartite system is widely manifest in the conflict and negotiation literature, represented as the strategic styles of distributive, integrative, or avoidant strategies (e.g., Gottman & Driver, 2005; Sillars et al., 1982). Finally, recently scholars have suggested a fourth category: fawn (Evans, 2023).

**Table 1.** Selected a priori, coding, or factor-analytic coping structures.

N	Factors/Dimensions	Source
1	Composite of emotional regulation, information, accommodation, social support, and altruism Meaning-centered coping Coping resilience	Cunza-Aranzábal et al. (2022) Eisenbeck et al. (2021) Nochaiwong et al. (2022)
2	Approach, Avoidance  (1.1) Microsocial: active and passive media use; (1.2) Macrosocial: support seeking and collective action; (1.3) Psychological well-being: affective, cognitive and behavioral meaning and growth; (1.4) Individual emotions: escapist, humor, entertainment; (2.1) Cognitive reframing and acceptance of uncertainty; (2.2) Reduction in media exposure; (2.3) Selective regulation of media use; and (2.4) Change in types of leisure pursued Engagement, Disengagement Approach, Avoidance (Socioemotional: emotional expression and engagement, seeking social support; Action-related: activity as active tackling or as diversion, motivation for activities; Cognitive: attitude to current problems, attitude to long-term coping with problems) Overall approach coping (Problem/Behavioral approach, Emotion/cognitive approach); Overall avoidance coping (Problem/behavioral avoidance, Emotion/cognitive avoidance) Approach Coping Strategies (logical analysis, positive reappraisal, guidance/support, problem solving), Avoidance coping strategies (cognitive avoidance, resigned acceptance, alternative rewards, emotional discharge) Adaptive (putting into perspective, positive refocusing, positive reappraisal, acceptance, planning), Maladaptive (self-blame, other-blame, rumination, catastrophizing)	Bento et al. (2020); Kirchner et al. (2008) Courbet et al. (2023) Fino et al. (2022) Finset et al. (2002) Littleton et al. (2007) Rijavec and Donevski (1994) Zsido et al. (2022)
3	Problem-focused (information seeking), emotion-focused (wishful thinking), social support Problem-engagement, Social/emotional, Avoidance Problem-oriented coping, Emotion-oriented coping, Disengagement Task, Emotion, Avoidance Personal hygiene practice, Social distancing, Support-seeking Approach coping (Active coping, Emotional support, Informational support, Positive reframing, Planning, Acceptance); Avoidance coping (Self-distraction, Denial, Substance use, Behavioral disengagement, Venting, Self-blame); Other (humor, religion)	Ahuja (2022) Cook and Heppner (1997) Hudek-Knežević et al. (1999) Endler and Parker (1994) Miao et al. (2022) Wootton et al. (2022)
4	Active avoidance, problem-focused, religious/denial Social support, Problem-solving, Avoidance, Positive thinking Despair, adjustment, proactivity, and aversion Effective psychological defense, Active problem confrontation, Active situation avoidance, Psychological compensation Problem-focused, avoidant, escapist, and humor-based coping Problem focused (Self-improvement, positive action, reflective planning, compromise), Seeks social support (emotional support, active support), Wishful thinking (active wishing-change, passive wishing-fantasy), Avoidance (isolation, denial, negative affect) Indirect-Prosocial (e.g., emotional support seeking), Indirect-Antisocial (e.g., avoidance, hostility), Direct-Antisocial (e.g., aggressive individualism), and Direct-Prosocial (e.g., social cooperation). Distraction, Active coping, Support seeking, Avoidance Active coping, avoidant coping, emotion-focused coping, acceptance coping Healthy lifestyle, daily structure, joyful activities, and prevention adherence	Agha (2021) Baumstarck et al. (2017) Burro et al. (2021) Balcar et al. (2011) Eden et al. (2020) Halstead et al. (1993) Little et al. (2001) Paasivirta et al. (2010) Phelps and Jarvis (1994) Simione et al. (2022)
5	Religious coping, social support, various coping, alcohol & cigarette consumption, reflective coping Rumination, Social support, Externalization, Problem solving, Reflection	O'Rourke et al. (2021) Ouyang et al. (2016)
6	Preventive adherence, healthy lifestyle, rest, meaningful activities, daily structure, and social support	Lotzin et al. (2022)
7	Communalities, Problem-focus, Seeking social support, Blamed self, Wishful thinking, Avoidance Asking for support, Disclosing directly, Alluding to the stressor, Using humor, Celebrating achievements, Sharing stories and memories, Shouting out Coping through activation, Social support, Humor, Denial, Self-handicapping, Psychoactive substance abuse, Religion Solution-focused (active coping, planning, information seeking, detached reappraisal), defeat (substance use, give up), exercise, minimizing (denial, distancing), positive emotion generation (distraction, savoring, positive reappraisal, humor), social connection (instrumental support, emotional support, fun socializing) Withdrawal, Positive adaptation, Problem-solving, Disengagement, Prosocial focus, Seeking emotional support, Self-regulation	Sawang et al. (2010) Buehler et al. (2019) Genc et al. (2020) Langley et al. (2023) Zhao et al. (2022)
8	Escapism, Exercised caution, Instrumental action, Minimization, Support mobilization, Self-blame, Negotiation, Seeking meaning Confrontive coping, Distancing, Self-controlling, Seeking social support, Accepting responsibility, Escape-Avoidance, Planful problem-solving, Positive reappraisals Direct action, Relaxation, Distraction, Redefinition, Venting emotions, Seeking social support, Seeking spiritual support, Acceptance Engagement (Problem Engagement: Problem solving, cognitive restructuring; Emotion engagement: Express emotions, Social support), Disengagement (Problem Disengagement: Problem avoidance, Wishful thinking; Emotion Disengagement: Self-criticism, Social withdrawal)	Aldwin and Revenson (1987) Folkman et al. (1986) Lischetzke et al. (2022) Tobin et al. (1989)
9	Rumination, Catastrophizing, Self-blame and other blame, Positive refocusing, Acceptance, Positive reappraisal, Refocus on planning, Putting into perspective	Muñoz-Navarro et al. (2021)
13	Problem solving (Instrumental action, Direct action, Decision making, Planning), Support seeking (Comfort seeking, Help seeking, Spiritual support), Escape (Avoidance, Disengagement, Denial), Distraction (Acceptance), Cognitive restructuring (Positive thinking, Self-encouragement), Rumination (Intrusive thoughts, Negative thinking, Self-blame, Worry), Helplessness (Inaction, Passivity, Giving up), Social withdrawal (Self-isolation), Emotional regulation (Emotional expression, Self-calming), Information seeking (Observation, Monitoring), Negotiation (Offer exchange, Compromise, Prioritizing), Opposition (Aggression, Blame others), Delegation (Maladaptive help seeking, Self-pity)	Skinner et al. (2003)
14	Active coping, Planning, Positive reframing, Acceptance, Humor, Religion, Using emotional support, Using Instrumental support, Self-distraction, Denial, Venting, Substance use, Behavioral disengagement, Self-blame Active coping, Planning, Suppression of competing activities, Restraint coping, Seeking social support for instrumental reasons, Seeking social support for emotional reasons, Positive reinterpretation and growth, Acceptance, Turning to religion, Focus on and venting of emotions, Denial, Behavioral disengagement, Mental disengagement, Alcohol-drug disengagement Active coping, Planning, Instrumental support, Use of emotional support, Self-distraction, Relief, Behavioral disconnection, Positive reinterpretation, Denial, Acceptance, Religion, Substance use, Humor, Self-blame	Carver (1997) Carver et al. (1989) Eisenbeck et al. (2021)

Thus, in response to a threat or trauma, fight “entails facing the danger and fighting the threat aggressively,” flight “implies running away from the threat,” freeze “is equivalent to playing dead through immobility until the threat passes,” and fawn “is the submissive response” (Zingela et al., 2022, pp. 2–3) reflecting the “need to gain the approval” of others (Evans, 2023, p. 87).

Even this 4-function system is directionally and topologically incomplete. We posit that in addition to the prospect of moving with, against, or away, a person may also move inward or outward. A person can move with, against, away, outward or inward in orienting to an attributed stressor, source, its actions, media, affiliates and/or effects. Moving inward is reflected in various aspects of catatonia (Zingela et al., 2022), and moving outward is reflected in social support (Buehler et al., 2019; Crowley & Faw, 2014) and communal coping (Afifi et al., 2020).

Consider how a person might cope with information seeking in response to the threat of an emerging pandemic. The prospect of illness and death, and the uncertainty of how to avoid such outcomes, would pose significant threats. In response, a person might seek information from trusted sources and comply with their advice (i.e., moving with). A person might actively seek to redress perceived misinformation or disinformation in news sources (i.e., moving against). A person might seek to avoid such information due to distrust or fear of its implications (i.e., moving away). A person might seek to adjust their thoughts and feelings about the threat itself and seek to rationalize away the threat (i.e., moving inward). Finally, a person might seek information from, and to provide information to, others (i.e., moving outward). Extensive inductive analyses of research on a particularly stressful type of encounter, stalking victimization, has evidenced this pentadic structure of coping strategies (Spitzberg & Cupach, 2014).

We propose that this is a comprehensive taxonomic directional metaphor – these are the only directions an organism

can pursue in response to a threat. While comprehensive, they are not necessarily mutually exclusive, as they can be combined in various ways (e.g., discussing news with or seeking informational social support from a trusted member of a social network is employing both moving with and moving outward). These directional orientations to stresses or the information resources that would underly coping with such stresses are shown parsimoniously in Figure 1, and the conceptual definitions and exemplars are listed in Table 2.

These behavioral responses to threat, fear and reward have been variously couched in neuropsychological theories of emotion (Theodoratou & Argyrides, 2024) such as the reinforcement sensitivity theory (RST; Corr, 2013; Corr & Cooper, 2016). According to RST, approach and goal-directed responses are activated by appetitive stimuli such as food and mating, fight-flight-freeze reactions are activated by aversive stimuli such as predators, and conflicting stimuli activate inhibition responses when there are both positive and negative stimuli. Aversive stimuli that can be avoided activate avoidance (moving away) and aversive stimuli that cannot be avoided activate fight (moving against) or freeze (moving inward). The behavioral inhibition response system involves reacting to both fear and trepidation as well as urges to act, which could activate any of the movement-oriented responses. For example, personal safety concerns about COVID-19 were related to the fight-flight dimension, and self-isolation was related to the fight-flight-freeze dimension. In contrast, approach orientation (i.e., reward reactivity) was proposed to activate more purposeful health responses such as self-efficacy, masking and safety hygiene (Bacon & Corr, 2020).

The rationale of a more complete topological pentadic typology is that it should be more comprehensive and more differentiated than the more common 2- and 3-factor typologies, and yet more parsimonious and coherent than the 8-, 9-, 13-, and 14-factor typologies. It is compatible with RST as a theoretical underpinning, yet differentiates its approach

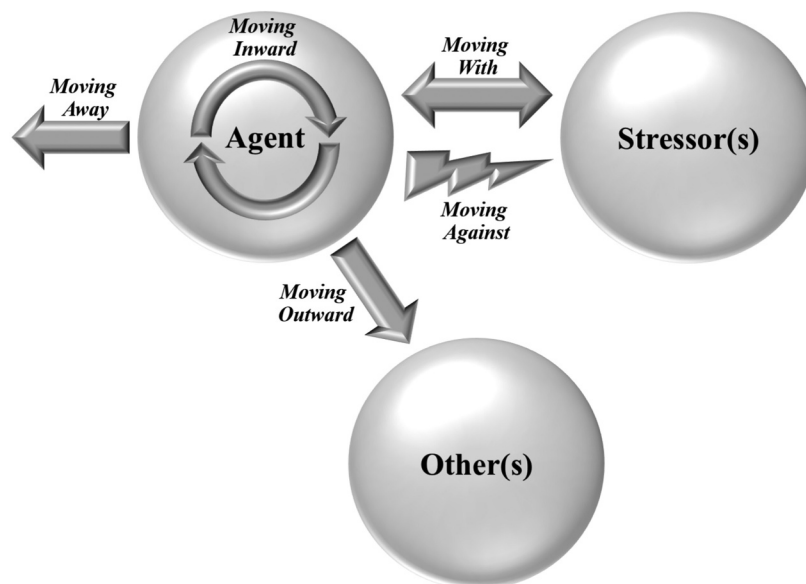


Figure 1. Directional orientations to stressor or coping strategies.

**Table 2.** Definitions and exemplars of the pentadic coping typology.

Category	Conceptual Definition	Action exemplars
Moving With/ Toward	Actions that seek to or function to integrate interests, negotiate, compromise, or find common ground with the source or content of a noxious or stressful stimulus, action or event.	<ul style="list-style-type: none"> <li>● General exemplar: Communicating in a problem-solving way with the stressor</li> <li>● General exemplar: Providing feedback to the stressor to produce adjustments in the stressor's actions</li> <li>● Pandemic exemplar: Trust institutional recommendations</li> <li>● Pandemic exemplar: Providing positive feedback to government via website</li> </ul>
Moving Against	Actions that seek to or function to annul, erase, immobilize, destroy, or incapacitate the source or content of a noxious or stressful stimulus, action or event.	<ul style="list-style-type: none"> <li>● General exemplar: Threatening to sue or harm the stressor</li> <li>● General exemplar: Threatening to stop subscription</li> <li>● Pandemic exemplar: Expressed disapproval against their communication</li> <li>● Pandemic exemplar: Actively resisted their messages</li> </ul>
Moving Away	Actions that seek or function to avoid, avert, bypass, escape, evade, hide from, circumvent, or otherwise become inaccessible to the source or content of a noxious or stressful stimulus, action or event.	<ul style="list-style-type: none"> <li>● General exemplar: Avoid television or social media containing stressor</li> <li>● General exemplar: Reduce exposure to stressor.</li> <li>● Pandemic exemplar: Avoid others who might have virus</li> </ul>
Moving Inward	Actions that seek or function to (re)focus attention, perspective, attitude, belief, value, or viewpoint in regard to the source or content of a noxious or stressful stimulus, action or event.	<ul style="list-style-type: none"> <li>● Pandemic exemplar: Trusted alternative sources of information</li> <li>● General exemplar: Take up or increase use of meditation</li> <li>● General exemplar: Exercise for distraction and general health</li> <li>● Pandemic exemplar: Worry or ruminate about the pandemic.</li> <li>● Pandemic exemplar: Work on feeling more confident about my ability to manage the pandemic.</li> </ul>
Moving Outward	Actions that seek or function to mobilize support, protection, or management of the source or content of a noxious or stressful stimulus, action or event.	<ul style="list-style-type: none"> <li>● General exemplar: Seek social, financial, legal, occupational assistance from other(s)</li> <li>● General exemplar: Consult therapist, friends, family for practical or emotional support</li> <li>● Pandemic exemplar: Made arrangements to have someone ready to help me if I became sick or quarantined</li> <li>● Pandemic exemplar: Mobilized other people to challenge the [government's]/[news media's] messages</li> </ul>

system into moving with the stimuli and moving outward to others who may facilitate coping. In addition to its parsimony, it relies on a mnemonically intuitive underlying analogy of directional movement in three-dimensional space, which may assist in communicating the typology in planning, training, campaigning, or intervening. In this sense, it is possible for “broad dimensions of coping [to] serve as organizing principles that represent the overarching characteristics of responses to stress” (Compas et al., 2001, p. 92).

The pentadic version would involve the following behavioral directions:

- (1) *Moving against* strategies involve actions intended or functioning to attack, diminish, debilitate, eliminate, or otherwise impair the capacity of the stressor or its source. For example, propagating conspiracy theories or rebelling against institutional health campaign messaging would comprise attempts to attack or undermine the stressor and its sources.
- (2) *Moving with* strategies involve actions intended or functioning to embrace, face, accept, collaborate with, or translate or transform the stressor(s), its source or valence. Various problem-focused strategies seem to fit well within this category of coping (e.g., engaging in end-of-life planning; strategizing how to reorganize a working environment to minimize risks).
- (3) *Moving away* strategies involve actions intended or functioning to avoid encountering stimuli associated with the stressor or its source(s) (e.g., diverting attention away from pandemic messages or ignoring selective media with disagreeable content).
- (4) *Moving outward* strategies involve actions to fulfill any of the other primary functions through the assistance or intervention of others (e.g., contacting others to get a second opinion). All of the studies identifying social support marshaling and mobilizing fit well within this category (e.g., Eden et al., 2020; Grady et al., 2022; Halliday et al., 2022).
- (5) *Moving inward* strategies involve actions intended or functioning (a) to deny, distract, re-define, or ignore the stressor or its source(s), or (b) to meditate, re-focus, practice mindfulness, enhance self-concept and confidence, facilitate mental resilience and realistic optimism. For example, a study of ruminative thought styles found evidence of four strategies, each of which could be translated as inward coping responses: problem-focused thoughts, counterfactual thinking, repetitive thoughts, and anticipatory thoughts. A study of cognitive avoidance identified five first-order factors that reflect an inward orientation: thought suppression, thought substitution, distraction, avoidance of threatening stimuli, and transformation of images into thoughts. In contrast to moving away from the stressor, avoidance has shown up consistently as a directional orientation across studies of coping as inwardly-focused attempts to suppress or reframe thoughts about the source of stress (e.g., Eden et al., 2020; Gurvich et al., 2021).

Many if not all of the existing coping strategies can be fit into this directional template. First-order structures may well emerge within these five classes of movement, such as contextual/accontextual, problem-focused/emotion-focused, short-



term/long-term, but the initial task is to find out if the overall structure is heuristic and statistically sound as a framework for conceptualizing coping.

### Criterion validity

Given the diversity of prior coping typologies in general and the inconsistency of existing research on the use of media specifically, it is difficult to establish clear predictions of the role that information-based coping would play during a pandemic. The competence of coping strategies depends on their fit to a particular stressor and context. For example, moving outward to experts or professionals is likely to promote personal safety, while moving outward to one's social media network might offer social support but also increase exposure to misinformation. In general, the coping literature tends to indicate that the moving with, moving toward, moving outward and moving inward-*positively* (in terms of self-efficacy, confidence, etc.) would tend to be more adaptive to stressful situations, whereas moving against, moving away, and moving inward-*negatively* (e.g., rumination, denial, worry, etc.) would tend to be less adaptive.

Conspiratorial theorizing has been associated with maladaptive ways of coping with stress (Molenda et al., 2024). Subjective risk perception has been found to predict people's tendency to engage in social distancing and staying at home during the pandemic (Elharake et al., 2021). Reinforcement sensitivity theory proposes that faced with goal-directed opportunities, we tend to move toward or with, which in this case would be toward safety or compliance with protective measures. Trust in government that points to a way of minimizing risk seems likely to promote moving with and outward. Moving inward here would serve to bolster confidence, efficacy and self-reassurance. In contrast, when threatening stimuli are perceived as unavoidable, such as a pandemic or a conspiracy might imply, RST predicts a more aggressive response of moving against. In particular, to the extent the government is distrusted, then moving against seems a more likely response. For example, Heiss et al. (2021) found that threat perceptions regarding COVID-19 promoted conspiracy beliefs, an orientation clearly operating against trust in government-recommended policies and information. Bagozzi et al. (2022) found that negative views of government actions is moderated by conspiracy theories to promote hostility toward the government as well as complaints about the government and pressure toward the government. Having trusted targets to rely on has been associated with higher ability to cope with the pandemic in adaptive ways. Thus, having trust in information sources during COVID-19 is expected to influence respondents' coping strategies in this study as well. Finally, compliance with public health messaging represents an obvious objective of public health media campaigns and thus was also included as a criterion variable for the COCCO scale. The most intuitive expectations for criterion validity, therefore, are that:

**H1:** The strategies moving with, moving toward, moving outward, and moving inward-*positively* are positively related to perceived risk, trust in media and government, and compliance, but negatively related to conspiratorial beliefs.

**H2:** Moving against, moving away, and moving inward-*negatively* are negatively related to perceived risk, trust in media and government and compliance, but positively related to conspiratorial beliefs.

### Methods

A cross-sectional web-based survey was conducted across Switzerland in February 2022 for the purpose of assessing public perception of and response to official COVID-19 communications from the Swiss (1) Federal Office of Public Health (FOPH) and (2) traditional news media (TNM). The 30-minute survey was administered by Polyquest in Bern. The respondents represented a random subsample of the 50,000 existing members of the Swiss national web panel, who were contacted via personal e-mail to volunteer to participate in the survey. These Swiss residents were recruited through various channels (e.g., print, online ads, telephone, social media) in an effort to reach non-heavy online consumers. The larger panel is representative of the Swiss population in gender, age and region.

The survey was administered with extensive quality control processes, both in recruitment and administration. Panelists received nominal incentives for their participation in the form of redeemable award points equivalent to 5 Swiss Francs. All participants were at least 18 years of age and had been residing in Switzerland for the entire duration of the COVID-19 pandemic. The study was reviewed and approved by the Università della Svizzera italiana's (USI) ethics committee (CE\_2022\_1). All participants provided informed consent.

### Development of the "COCCO" measure

The original pentadic framework for organizing coping strategies (Spitzberg & Cupach, 2001) had emerged inductively from analyses of dozens of studies examining how victims coped with the stressor of a stalker. These strategies involve five behavioral coping factors that had demonstrated reasonable psychometrics (Nguyen et al., 2012). This same pentadic framework was employed in this current study to generate items relevant to how Swiss residents responded to formal FOPH and TNM communications about the pandemic. These new items were written collaboratively by the authors of this study, in close consideration of the COVID-19 literature and consultation with the authors of the original framework. This process generated 31 items across the five directional dimensions. These items were reviewed by two experts who had not been involved in the item generation process and then pilot-tested on a sample of 25 master students at USI.

In the national survey, the final COCCO scale items were introduced by the instruction: "The way the government/traditional news media communicated to us during COVID-19 made me want to . . .," with the response scale from 1 = Untrue of me to 4 = True of me. This instruction was followed by items written to reflect relatively low-abstraction coping behaviors. The items were grouped according to the pentadic typology (see Table 2): (1) *Moving inward* (e.g., "worry more about things;" "feel calm"); (2) *Moving outward* (e.g., "get help

from other people in understanding their messages”), (3) *Moving against* (e.g., “express disapproval against their communication”); (4) *Moving away* (e.g., “trust other sources of information”); and (5) *Moving with* (e.g., “act in accordance with their messages”).

### Criterion measures

#### Risk perception

Eight items were used to measure respondents’ sense of personal risk and concern of contracting COVID-19 (e.g., “I felt at risk of getting infected with COVID-19;” “I worried about getting infected with COVID-19”). The scale was reliable (Cronbach’s  $\alpha = 0.81$ ).

#### Trust

Two measures of trust were included. Trust in Swiss TNM communications about COVID-19 was assessed by a five-item scale (e.g., The media were accurate when covering COVID-19) that was adopted from Strömbäck et al. (2020). The scale was reliable (Cronbach’s  $\alpha = 0.87$ ). Trust in FOPH communications was assessed by nine items (Cronbach’s  $\alpha = 0.96$ ) assessing trust in the Swiss government’s competence (e.g., “It is expert”), beneficence (e.g., “it acts in the interest of citizens”) and integrity (e.g., “it is honest;” see Grimmelikhuijsen & Knies, 2017).

#### Conspiratorial beliefs

Conspiratorial beliefs were assessed by the conspiracy ideation subscale of the *Conspiracy Mentality Scale* (CMS, Stojanov & Halberstadt, 2019). Following the instruction: “Having followed the news media/governmental communication during the COVID-19 pandemic made me more and more convinced that . . .;” 11 items measured respondents’ generic acceptance of the plausibility of conspiratorial concepts (e.g., “The government or covert organizations are responsible for events that are unusual or unexplained;” “Some things that everyone accepts as true are in fact hoaxes created by people in power;” Cronbach’s  $\alpha = 0.91$ ).

#### Compliance

Compliance was measured by four individual items (treated as single variables), assessing the extent to which participants reported adhering to hygiene measures, social distancing, wearing masks, and getting vaccinated.

#### Statistical assumptions

All analyses were conducted using maximum likelihood (ML) estimation with the software Lavaan (Rosseel, 2012) in R-Studio (R Core Team, 2022). Maximum likelihood estimation is robust enough to tolerate moderate violations of the multivariate normal assumption (Little, 2013). The key assumptions of ML were met: (a) the sample size was large ( $N = 742$ ); (b) items were rated on 4-point interval-level scales; and (c) the distribution of parcels was close to normal (T. A. Brown, 2015). To be thorough, Weighted Least Squares (WLSMV) estimator was also run with the analysis. It did not show significant difference from the ML estimator.

## Results

### Sample

The final sample consisted of 742 Swiss residents. Randomly assigned, half of the sample ( $n = 373$ ; 50.3%) responded to questions about the FOPH’s and the other half ( $n = 369$ ; 49.7%) to questions about the TNM’s pandemic communications. Participants responded to French ( $n = 160$ ; 21.6%), German ( $n = 468$ ; 63.1%) and Italian ( $n = 114$ ; 15.4%) versions of the survey, respective of their geographical locations.

The gender distribution was equivalent (48.7% males, 51.3% females). Respondents ranged from 18–69 years of age ( $M = 42.91$ ,  $SD = 13.74$ ), equally representing all seven geographical regions of Switzerland (i.e., Bassin Lemanique, Espace Mittelland, Zurich, Ticino, Central, Northwest, and Eastern Switzerland).

### COCCO measurement model

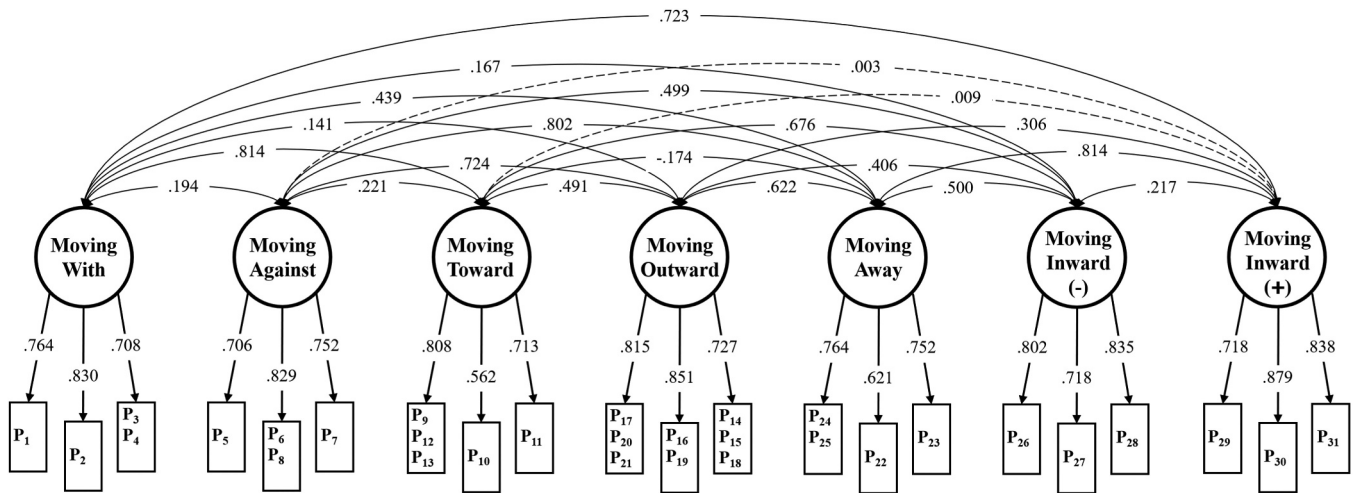
An item-level confirmatory factor analysis (CFA) was conducted on the 31 COCCO scale items to examine the factor loadings, item correlations, and modification indices of the hypothesized scale structure. Because chi-square is sensitive to sample size, the CFI/TLI cutoff values were examined based on the following rescaled benchmarks: “poor”  $< 0.85$ , “mediocre” = 0.85–0.90, “acceptable” = 0.90–0.99, “very good” = 0.95–0.99, “outstanding”  $> 0.99$ . Likewise, the rescaled benchmark cutoff values for RMSEA/SRMR were: “poor”  $> 0.10$ , “mediocre” = 0.10–0.08, “acceptable” = 0.08–0.05, “good/close” = 0.05–0.02, “great”  $< 0.01$  (Little, 2013). The a priori structure represented the five-factor item-level model. The fit indices were:  $\chi^2_{(80)} = 3448.130$ , robust RMSEA = .098, SRMR = .145, robust CFI = .721, robust TLI = .694 (see Table 3). The RMSEA exceeded the acceptable fit range (.08–.05) and the CFI and TLI both reflected poor fit (.85–.90) (Little, 2013).

Given the suboptimal fit of the a priori 5-factor model, subsequent analyses were performed to examine item-level and item-parceling strategies for an improved measurement model. As shown in Table 3, 5-, 6-, 7-, and 8-construct item and parceling analyses were examined. The 7-construct model emerged as the best option, both from a measurement and theoretical perspective. In this model, the *moving with* items of the pentadic model separated out into two subdimensions: one indicating a more passive “moving along with” response (e.g., acclimating to information found), and one that was named *moving toward* as it indicated a more active collaborative approach (e.g., seeking information). Furthermore, *moving inward* contained both negative and positive items that separated into two subfactors (i.e., *moving inward-positively*, *moving inward-negatively*). Figure 2 shows the latent correlations and indicator loadings among these 7 COCCO constructs. The fit indices of this model were:  $\chi^2_{(413)} = 1868.031$ , robust RMSEA = .069 (90% CI = .066–.072), SRMR = .092, robust CFI = .866, robust TLI = .849. The RMSEA fell within acceptable fit range (.08–.05), while the CFI and TLI showed mediocre fit (.85–.90).

Theoretical consideration and suggested modification indices were judged to determine a parceling scheme for further enhancing model fit. Parcels were created for each

**Table 3.** Model comparisons.

Model	$\chi^2$	df	CFI	TLI	RMSEA	SRMR
5-Construct (Item)	3448.130	424	.721	.694	.098	.145
5-Construct (Parcel)	815.864	80	.864	.881	.080	.109
6-Construct (Item)	3271.556	419	.737	.708	.096	.141
6-Construct (Parcel)	978.720	120	.868	.832	.098	.114
7-Construct (Item)	1868.031	413	.866	.849	.069	.092
7-Construct (Parcel)	664.170	168	.938	.922	.063	.065
8-Construct (Item)	1732.357	406	.878	.860	.066	.089
8-Construct (Parcel)	1042.979	224	.905	.883	.070	.078



**Figure 2.** CFA with the 7 latent COCCO constructs (parceled items). The circles represent the unobserved/latent constructs. The rectangles represent observed/manifest indicators. Curved double-headed lines represent variance estimates. Straight single headed lines represent loadings or the amount of information in each indicator that contributes to the definition of the construct (Little, 2013). The path factor loadings were standardized with significance levels determined by critical ratios (all  $p < .001$ ).

latent construct using the item-to-construct balancing technique and modification indices from an item-level CFA model (Little, 2013). For example, for the latent construct *moving outward*, 3 items (17, 20, 21) were averaged to create a meaningful parcel. In total, three parcels were created from eight original items. These parceling decisions were based on a comparison of the conceptual framework and an examination of the empirical data (i.e., reviewing modification indices, factor loadings, and correlation matrices). Using parcels of item scores in these advanced analyses led to improved psychometric characteristics at the measurement level (i.e., higher reliability, greater communality, higher ratio of common-to-unique factor) and improved model fit (Little, 2013). Table 4 shows the items parceled in each construct marked by superscript. This procedure evidenced improved fit indices for the parceled model:  $\chi^2_{(168)} = 664.170$ , robust RMSEA = .063 (90% CI = .058–.068), SRMR = .065, robust CFI = .938, robust TLI = .922. The model fell within the RMSEA/SRMR (.08–.05) and the CFI/TLI (.90–.99) acceptable fit ranges. Table 5 compares the initial item-level CFA with the parceled CFA.

### COCCO measurement invariance

Measurement invariance is commonly tested in three sequential steps: (1) configural, (2) weak/metric, and (3) strong/scalar (Little, 2013). Configural invariance involves constraining the group to have the same pattern of fixed and free parameters. Weak/Metric invariance is examined by equating factor

loadings across groups. Finally, strong invariance is tested by equating intercepts (i.e., indicator means). After the configural model passes invariance by meeting the criteria of fit indices, the preceding steps are evaluated by examining the relative change in the CFI. If the CFI change less than .01 between each model, invariance is supported (Cheung & Rensvold, 2002; Little, 2013).

In this study, measurement invariance tests were run to validate the three language versions of the COCCO scale (French, Italian, German) across the two samples (TNM, FOPH). To assess invariance across these six conditions, the configural model was examined. Although the chi-square test produced a significant result,  $\chi^2_{(1008)} = 1813.182$ ,  $p < .01$ , the other fit indices suggested good model fit: CFI = .905, TLI = .881, SRMR = .081, and RMSEA = .080 (90% CI = .074–.086).

Second, the weak/metric invariance model was tested (i.e., adding equality constraints across the three conditions for the factor loadings). In this model, the fit indices suggested mediocre model fit: CFI = .899, TLI = .882, SRMR = .081, and RMSEA = .080 (90% CI = .074–.086). However, to judge invariance, the change in CFI was examined. The model did not change meaningfully ( $\Delta\text{CFI} = .006$  from configural to weak), according to the criterion of  $\Delta\text{CFI} < .01$  (Little, 1997).

Third, the strong/scalar invariance model was assessed. The fit indices suggested mediocre model fit: CFI = .880, TLI = .868, SRMR = .095, and RMSEA = .086 (90% CI = .079

**Table 4.** Parceling of the COCCO items.

Dimensions	Reliability ( $\omega$ ; $\alpha$ )	Items
Moving with	.810; .814	P1. Acted in accordance with their messages. P2. Trusted their recommendations. P3 <sup>a</sup> . Accepted what they said without question. P4 <sup>a</sup> . Did not get in the way of their efforts.
Moving against	.801; .798	P5. Expressed disapproval against their communication. P6 <sup>a</sup> . Acted against what they said. P7. Actively resisted their messages. P8 <sup>a</sup> . Took action against them.
Moving toward	.732; .700	P9 <sup>a</sup> . Contacted them if I needed information. P10. Visited their website to find out more information. P11. Tuned into their announcements more frequently. P12 <sup>a</sup> . Paid closer attention to what they were saying. P13 <sup>a</sup> . Shared information or ideas with them.
Moving outward (third party)	.839; .841	P14 <sup>a</sup> . Made arrangements to have someone ready to help me if I became sick or quarantined. P15 <sup>a</sup> . Collaborated with other people to support the [government's]/[news media's] with their declared efforts. P16 <sup>b</sup> . Mobilized other people to challenge the [government's]/[news media's] messages. P17 <sup>c</sup> . Got help from other people in understanding the [government's]/[news media's] messages. P18 <sup>a</sup> . Contacted other people to get a second opinion. P19 <sup>b</sup> . Sought support from others to feel better emotionally. P20 <sup>c</sup> . Sought connection with other people who share my views and beliefs, to gain a sense of belonging and companionship.
Moving away	.748; .757	P21 <sup>c</sup> . Was around people who would validate my positions and beliefs regarding the situation. P22. Trusted alternative sources of information. P23. Ignored what they say. P24 <sup>a</sup> . Diverted my attention away from their messages. P25 <sup>a</sup> . Reduced my exposure to them (e.g., watch less TV, listen less to the news)
Moving inward <i>Negatively</i>	.828; .829	P26. Felt worse. P27. Worried more about things. P28. Experienced more tormenting thoughts.
Moving inward <i>Positively</i>	.850; .856	P29. Felt more like I had control over what would happen to me. P30. Felt more confident about the situation. P31. Felt more calm.

Note. Introductory instructions asked "Which of the following statements most closely describe how you behaved with respect to the conflicts that have surrounded you because of COVID-19? Scaling was: 1 = Untrue of me – 4 = True of me. Items with common superscripts indicate parceling schemes;  $\omega$  = McDonald's Omega coefficient;  $\alpha$  = Cronbach's Alpha coefficient.

**Table 5.** Model fit comparison of item-level and parceled CFA.

Model Fit	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	SRMR
Item-Level CFA	1868.031	413	.866	.849	.069	.092
Parceled CFA	664.170	168	.938	.922	.063	.065

- .090). The change in CFI was  $>.01$  and did not meet the criteria for passing strong invariance ( $\Delta\text{CFI} = .019$ ). Because the strong invariance model did not retain the constraints from the weak invariance model, partial invariance was examined.

Partial invariance occurs when one or more of the intercepts cannot be constrained to equality across groups (Little, 2013). An examination to find the offending indicator was conducted to relax constraints on the problematic intercept. Keeping the indicator in the model but relaxing the constraint of invariance allowed for interpretation of the possible reasons for the change in the indicator's behavior in the context of the other indicators and constructs (Little, 2013). In this case, intercepts in the constructs *moving outward* (parcel a: items 14, 15, 18), *moving away* (item 22), and *moving inward-positively* (item 31) were relaxed, while keeping the other two parcel constraints equal across groups. Strong partial invariance showed a change in CFI  $<.01$ . Partial invariance resulted in acceptable model fit,  $\chi^2_{(1133)} = 2070.585$ ,  $p <.01$ , CFI = .889, TLI = .877, SRMR = .093, RMSEA = .082 (90% CI = .076–.087). Table 6 shows the model fit indices of the invariance test results.

### Criterion validity

The presence of expected associations with related constructs can be used to support the validity of a measure under evaluation (Carter et al., 1995). To establish criterion validity, we examined the associations the COCCO scale has with measures of conspiracy ideation, risk perception, trust, and compliance. Each of the COCCO constructs was associated in the hypothesized direction (see Table 7 for correlations, Table 8 for effect sizes): *Moving with* and *moving toward* were positively associated with compliance, trust, and risk perception, and negatively related to conspiracy theorizing. *Moving against* and *moving away* were negatively related with compliance and trust, and positively associated with conspiracy theorizing.

The fact that the a priori *moving inward* items had separated into two subfactors (i.e., moving inward-constructively, moving inward-negatively) affected the criterion validity hypotheses, which originally predicted a positive association of *moving inward* with adaptive coping mechanisms and a negative association with maladaptive coping mechanisms. *Moving inward-negatively* (i.e., feeling worse, more worried, and having tormenting thoughts in response to the FOPH/



**Table 6.** Six group invariance test results (parceled 7-construct model).

Model	$\chi^2$	df	CFI	TLI	RMSEA	SRMR	$\Delta$ CFI	Pass*
Configural	1813.182	1008	.905	.881	.080	.081	NA	NA
Metric (Weak)	1931.413	1078	.899	.882	.080	.091	.006	Pass
Scalar (Strong)	2162.000	1148	.880	.868	.085	.095	.019	No
Partial	2070.585	1133	.889	.877	.082	.093	.009	Pass

Note. \*Pass means  $\Delta$ CFI < .01, indicating that the model did not meaningfully change.

TNM communications) was positively associated with compliance, trust, and risk perception, *whereas moving inward-positively* (i.e., feeling in control, calm and confident in response) was negatively associated with compliance and trust, and positively associated with conspiracy theorizing.

## Discussion

The COVID-19 pandemic introduced a global panoply of stressors into public life. Few were spared of at least some exposure to its risks, frustrations, or trauma. Governments found themselves faced with the necessity of using institutional communications to both reinforce the importance of compliance with such policies, and to counteract widespread misinformation, disinformation, fake news, and conspiracy theories.

Establishing trust among the public in official public health campaigns was essential for achieving high levels of compliance with the best public health policies available. While there has been extensive research on the relative efficacy of such policies themselves, there has been far less research and theory on the ways in which such official communications and campaigns themselves were consumed, comprehended, and complied with. That is, governments need to know how the public copes with official communications designed to provide support and guidance, so as to optimize the design of such campaigns, regulate resource commitments, and establish trust among the various publics and stakeholders.

This study introduced a novel typology of message coping strategies based on a directional metaphor. This directional metaphor, grounded in part in early conceptions of psychology of moving toward or away from stimuli, was expanded initially to

a pentadic form (i.e., moving inward, moving outward, moving against, moving away, moving with), which based on the analyses was subsequently expanded to a modified structure involving seven distinct dimensions within this pentadic directional framework: (1) moving (a) inward-positively and (b) moving inward-negatively, (2) moving (a) toward others or (b) with others, (3) moving outward, (4) moving against, and (5) moving away. Unlike most coping measures, which essentially are diverse and multilevel lists of strategies and tactics that show up in the literature, this directional metaphor provides a functionalist lens, i.e., what function a behavior serves, in regard to its orientation to the stressor or source of support to manage the stressor.

## Conspiracy theories as adaptive coping

One of the challenges of public health communications during a pandemic is how to maintain both a reasonable fear of the disease and yet maintain a reasonable sense of individual and collective efficacy in managing the outbreak. Rational fear, which arguably feeds into a maladaptive coping response, is needed to motivate appropriate attention to and compliance with government messaging and policies. In line with existing health belief models, fear-based messaging needs to integrate self-efficacy messaging that provides a path of complying with institutionally endorsed public health policies, which in turn might prevent fear from fueling maladaptive coping.

The role of conspiratorial beliefs in mediating or moderating such compliance is likely to be more complex than is often assumed. For example, conspiracy theorists who believe the disease itself is a hoax are unlikely to perceive any risk, and that therefore there is no reason to attend to public health messages

**Table 7.** Construct validity.

	Compliance with measures ( $\omega = .593$ ; $\alpha = .470$ )	TRUST ( $\omega = .928$ ; $\alpha = .927$ )	Risk ( $\omega = .823$ ; $\alpha = .809$ )	Conspiracy ( $\omega = .914$ ; $\alpha = .913$ )
Moving with	0.570	0.735	0.489	-0.317
Moving Against	-0.353	-0.254	-0.099	0.634
Moving Toward	0.414	0.571	0.450	-0.067
Moving Toward Others	-0.076	0.060	0.076	0.393
Moving Away	-0.540	-0.427	-0.334	0.667
Moving Inward (-)	-0.137	-0.247	0.080	0.433
Moving Inward (+)	0.421	0.680	0.384	-0.195

Note.  $\omega$  = McDonald's Omega coefficient;  $\alpha$  = Cronbach's Alpha coefficient.

**Table 8.** Effect sizes.

	Compliance with measures	TRUST	Risk	Conspiracy
Moving with	0.325	0.540	0.239	0.101
Moving Against	0.124	0.065	0.010	0.403
Moving Toward	0.172	0.326	0.202	0.004
Moving Toward Others	0.006	0.004	0.006	0.155
Moving Away	0.292	0.182	0.111	0.444
Moving Inward (-)	0.019	0.061	0.006	0.188
Moving Inward (+)	0.177	0.463	0.147	0.038

or restrictions. Other conspiracy theorists may believe that China designed the virus to inflict extreme mortality rates in the West. This conspiracy theory should evoke high perceived risks as well as compliance with public health messaging and measures. In contrast, conspiracy theorists who believe their own government designed the virus or is injecting mind-controlling microchips in the vaccine are likely to perceive a very high risk of personal threat from the crisis itself, yet also avoid compliance with public health messages and policies. Some conspiracy theorists can be calm and composed and noncompliant in their own echo chamber of beliefs, whereas others are likely to be highly sensitized in their fears.

In our results, conspiratorial beliefs were much more highly correlated with *moving against* and *moving away* forms of coping ( $\approx 45\%$  shared variance), which are clearly less functional forms of coping than *moving inward-positively*, with about 19% shared variance with conspiracy beliefs. Thus, *moving against* and *moving away* were over twice as strongly associated with conspiratorial beliefs than *moving inward-positively* strategies. From a criterion validity perspective, this makes intuitive sense. The question is how to make criterion validity sense of the 19% shared variance between *moving inward-positively* and conspiratorial beliefs. Possibly, this relationship reflects a certain tributary or type of conspiracy theorist: the know-it-all, narcissistic, echo chamber conspiracist who believes the outbreak is a hoax. These people might even consume a lot of media because it allows them to feel well-researched and prepared (with counterarguments).

From an institutional communication and campaign perspective, this finding might suggest that different messaging strategies are needed for this segment of the population. The fact that some conspiracists dealt with the pandemic with calm and composure in this context suggests they believe in a different conspiratorial narrative (e.g., that the disease itself is a hoax, not dangerous, simply a way for scientists to get big grants or for big pharma to make lots of money). This might make conspiracists angry but not necessarily afraid. By governments researching the population and segmenting them by the linkages between conspiratorial narratives and their associated corresponding or dominant affect states might allow the design of messages that target the underlying belief structures of these distinct conspiratorial narratives and evoke or trigger the appropriate emotion (e.g., moderate fear and apprehension).

### **Broader applicability of the COCCO scale**

There is every reason to expect that the directional framework underlying the COCCO scale may provide a heuristic approach to further measurement of coping responses, both in regard to crisis communications and in coping with stressors more generally. For example, it is relatively easy to imagine applying a standard typology within each directional category. There may be affective, cognitive, and behavioral strategies within each direction of movement. There may be instrumental or affective strategies within each direction of movement. Each direction of movement may be divisible into microsocial (e.g., “audiovisual communication to continue relationships with relatives”) and

macrosocial (e.g., “support perceived through social connectedness via SNSs”) strategies (Courbet et al., 2023, p. 12). In this study, the *moving with* direction was conceptualized as including both *moving toward* the communication (e.g., seeking out official information and messaging) as well as *moving along with* the communication (e.g., accepting and integrating the information, once found). The *moving inward* direction diverged into strategies that normatively are considered more (i.e., positive) or less (i.e., negative) functional in managing the stressor discussed in the communication.

The COCCO scale may be applied to identify individual differences in coping profiles. A latent class analysis approach to typologizing coping identified seven daily coping patterns: relax & distract, acceptance only, distract & relax & accept, all strategies but spiritual, social support & accept & relax, and all coping strategies and no coping strategies (Lischetzke et al., 2022). This indicates that coping strategies are rarely used in isolation (Lazarus, 1999). Another latent profile analysis of athletes identified four distinct coping styles during the pandemic: self-reliant, engaged, avoidant, and active/social (Pété et al., 2022). Similarly, latent profile analysis of media coping strategies during the pandemic finds three styles: compliant supporters (i.e., perceived pandemic threat and complied with officially recommended interventions), defiant deniers (i.e., moderate in negative affect, low in compliance and low perceived threat), and anxious skeptics (i.e., moderately compliant, perceived high threat) (Hannawa & Stojanov, 2024). These findings imply that adapting message design in public health campaigns may be able to target these particular segments of the audience for more effective public health interventions.

### **Limitations**

When presented with a threatening context and messages associated with that threat, the pentadic directional metaphor implies five basic functions toward which coping strategies can be oriented. The factor analysis revealed a slightly more differentiated structure than anticipated. The split by valence in the *moving inward* items may reflect that these items need to be revised to be more process-oriented rather than outcome-oriented. Specifically, items such as “felt worse” and “felt more calm,” in retrospect, may refer more to the results of processing media content, rather than how coping responses are used to manage reactions to the threat, the message, or the message source. Instead, items that emphasize cognitive and affective denial, dissonance reduction, relaxation, and emotion management might be better suited to this strategy, such as “I reflected on myself and my situation,” “I directed my attention to managing my own feelings and thoughts,” “I tried to focus on myself instead of what was being reported” and “I developed habits to relax me from what was in the media.” Such item revision could have the advantage of avoiding the assignment of an a priori valence to this set of behaviors, which are likely to be multifunctional in terms of outcome.

A second limitation is that this study was conducted on a particular cultural milieu, and it is obvious that different countries undertook very different strategies in their media

and public policy regarding the pandemic. It will be important to examine whether such cultural and national differences may or may not affect the factor structure of the COCCO measure.

## Conclusion

In summary, this study demonstrated the psychometric soundness of the directional COCCO typology, which in turn may be adapted further in applications to a variety of other coping contexts. Unlike unwieldy lists of assorted tactics and strategies, the movement typology has the benefit of a parsimonious and familiar grounding metaphor, which itself can be helpful in crafting crisis communications for optimal stickiness and stakeholder recall.

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