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SUCCESSFUL AGING

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Introduction to Successful Aging

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Research on successful aging is becoming increasingly relevant given an escalating demographic redistribution towards the elderly worldwide. Despite a lack of consensus on what constitutes successful aging, there is a transition in focus from medically prolonging life to understanding what it takes to live longer while maintaining a good life. Further, better understanding the processes involved in successful aging has led to innovations in preventing psychiatric illness and promoting mental health among the elderly.

Given the global significance of a better understanding of what constitutes successful aging, some authors of this Bulletin point out that there is limited literature available from the majority world. Predominantly, the models and conceptualizations come from English-speaking countries, and within these countries, from essentially homogeneous samples, thereby not doing full justice to the global diversity of the elderly and being limited in their application and outreach.

This special section focuses on “Successful aging” and features contributions across varied themes. The first paper (Rowe) delineates prominent theoretical models of successful aging and how they have evolved over the years. The second paper (Whitfield, Thorpe, Walker, & Edwards) examines successful aging in African-Americans while describing the limited research available on behavioral dimensions of successful aging among this cohort. The third paper (Marchetti, Baglio, Castelli, Blasi, Nemni, & Rossetto) adopts a longitudinal perspective, providing preliminary evidence regarding the connections between performance of subjects with amnesic mild cognitive impairment on Theory of Mind tests, and their performance on a neuropsychological battery. In the lab report section, Cosco highlights his interesting journey during his dissertation years while exploring the topic of successful aging.

The Bulletin also presents an update by Rita Žukauskienė (Chair, ISSBD 2016) on the forthcoming ISSBD 2016 conference at Vilnius, Lithuania. This is followed by a report from our Early Career Representative Josafá da Cunha highlighting the ISSBD Listserv and opportunities available for Early Career Scholars at the forthcoming ISSBD conference, among others.

This issue of the Bulletin gave us an opportunity to learn about exciting up-to-the-minute research related to successful aging. The Bulletin provides an ideal platform for researchers to showcase their findings and explore future directions. We encourage members to contact us with topics of interest and suggestions for making the Bulletin more meaningful to our readers.

Successful Aging: Then and Now

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Successful Aging is a prominent theme in gerontology. The phrase was introduced by Robert Havighurst in 1961 at a time when Cumming & Henry's "Disengagement Theory" (1961) was popular. Disengagement theory posited that aging naturally involved an inevitable, ubiquitous and progressive withdrawal from social institutions and loss of the individual (Cumming & Henry, 1961). In contrast, Havighurst's Activity Theory proposed that late life involves maintenance and replacement of the activities and attitudes of middle age. Rather than withdrawing from activities, Havighurst (1961) advocated for engagement in new social roles such as grandparenting. Activity theory principles have been further articulated through empirical study, notably by Lemon, Bengtson and Peterson (1972), Longino and Kart (1982) and Knapp (1977). The focus on "Successful Aging," which may be considered a derivative of Activity Theory, began to develop momentum in 1987 as will be discussed below.

"Successful Aging" has variously been treated as a theory, a paradigm or model, a process, a clinical program or a goal. The most prominent models are the MacArthur model; a bio-psycho-social approach; and two psychologically based models, the Berlin or Baltes model of Selective Optimization and Compensation (SOC) and Carstensen's (1992) Socio-emotional Selectivity Theory (SST).

The MacArthur Model of Successful Aging

In 1984, an interdisciplinary group of 16 scholars assembled by the MacArthur Foundation felt that gerontology was preoccupied with negative aspects of aging such as disease and disability, to the neglect of the positive aspects. Additional concerns included a belief that success was too often identified simply as lack of failure, and that functional status could not be enhanced late in life.

The group's early conceptual work was based on the age-related increase in heterogeneity found for many functions including cardiac, immune, pulmonary, kidney, lung, and glucose homeostasis, even after removal of diseased individuals from study groups, and the innate plasticity within individuals that implied potential for improvement.

These observations led to the view that "normal," i.e. non-pathological aging, can and should be divided into two forms (Rowe & Kahn, 1987). The first, "usual aging," was viewed, at least in part, as preventable and demonstrated the effects of various external and lifestyle factors (smoking, sedentary life style, over-eating, alcohol excess, exposure to pollutants, etc.). The second form was "successful aging" in

which one observed something akin to a "pure aging syndrome."

In a longitudinal study of an initially homogeneous group of high-functioning elders, they observed that over the course of several years the functional status of one-quarter of the respondents improved while there was no change in half the group (Albert et al., 1995; Berkman et al., 1993; Seeman et al., 1994). Based on these studies the MacArthur Foundation Network formulated the concept of successful aging as including the possibility that a substantial proportion of older persons had the potential to age successfully. Successful Aging (SA) encompassed low risk of disease and disease-related disability, maintenance of high mental and physical function, and active engagement with life, including active relations with others, and productivity, either in paid work or volunteering (Riley, 1998; Rowe & Kahn, 1997, 1998, 2015)

The MacArthur Successful Aging construct has found wide application in theory, empirical research and practice, and has been subjected to considerable criticism in over 100 suggested modifications (e.g. Bulow & Soderqvist, 2014; Cosco, Prina, Perales, Stephan, & Brayne, 2014; Depp & Jeste, 2006; Dillaway & Byrnes, 2009; Jeste & Depp, 2010; Katz & Calasanti, 2014; Martin et al., 2014; Martinson & Berridge, 2014; Rubinstein & de Medeiros, 2014; Kahana & Kahana, 2001).

There have been three major criticisms of the original MacArthur SA model: insufficient consideration of social factors, scant emphasis on subjective considerations, and a definition of SA that is elite and exclusive, consigning to a great portion of the older population to the status of failures at successful aging.

Soon after the original MacArthur model was proposed a number of social scientists raised the objection that the model was too narrowly focused on the individual to the neglect of the important influence of external factors including structural; social and socio-economic forces that could impede success (Pruchno, Wilson-Genderson, Rose, & Cartwright, 2010; Riley, 1998). There was concern that the model over-emphasized personal choice to the neglect of social and environmental factors that either limited or facilitated the capacity to age successfully (Kahn 1998, 2002). Consequently Kahana and Kahana (2012) proposed a broader "proactivity" model.

Others felt the MacArthur model to be overly objective and lacking a sufficient subjective component including consideration of the things older people value (Glass, 2003), their experiences over the life course (Schulz & Heckhausen, 1996) and what success means to them (Jopp et al., 2014; Katz & Calasanti, 2014).

Strawbridge, Wallhagen, and Cohen (2002), among others, expressed concern that the defining criteria in the MacArthur model identified a very small portion of the elderly as aging successfully thus creating an elite subset of "winners" while relegating all other elders to being "losers." There was concern that the model excluded individuals with disabilities from the possibilities of aging



successfully, thus providing a “blame the victim” perspective. This objection is not surprising. As (Martinson and Berridge 2014) pointed out, a normative model such as the MacArthur model is by definition exclusionary. It is not meant to apply to everyone, but to those who lack the limitations that make the objective goals of the model unattainable. As to the facts, the actual proportion of the older population that meets researcher-defined criteria of Successful Aging averages 26.0% over numerous studies (Cosco et al., 2014).

While opinions have varied as to whether the model should be revised or replaced, its continued prominence in the literature supports the views recently expressed by Stowe and Cooney (2014) that “the popularity of the model in the mainstream literature and its extensive use in scientific inquiry warrant modifications over disposal.” The editors of the *Journal of Gerontology Psychological Sciences and Social Sciences* (May 2015) say: “While the original successful aging model generated many empirical assessments, critiques, and calls for revision, the core concepts have remained intact.”

Psychologic Models of Successful Aging

Regarding successful aging, Paul and Margret Baltes (1989, 1990), Laura Carstensen (1992) and other psychologists cautioned against an over-emphasis on structural factors and definitive criteria. They presented models that urged a more dynamic approach emphasizing the “how” (psychologic processes) rather than the “what” (strict definition of end result). For them the key was not so much establishing rigid objective criteria but in understanding the psychological processes by which individuals develop strategies and make choices, often to compensate for losses. Baltes’ well recognized theory of Selection (S), Optimization (O) and Compensation (C) throughout the life span, included consideration of antecedent conditions, the intermediary processes of S, O and C, and outcomes, such as functional status. Feedback was inherent through life, and outcomes became antecedent conditions for the next phase of life (Baltes and Baltes, 1989, 1990; M. M. Baltes & Carstensen, 1991; P. B. Baltes & Smith, 2003), P. B. Baltes, Smith, & Staudinger, 1991). Many psychologists expressed varying degrees of agreement or disagreement with this model (Abraham & Hansson, 1995; M. M. Baltes & Carstensen, 1996; Garfein & Herzog, 1995; Lang & Tesch-Romer, 1993; Schulz & Heckhausen, 1996).

As described by Carstensen, Fung, & Charles (2003), the socio-emotional selectivity theory (SST) held that individuals monitor time, including life time, at both conscious and subconscious levels; that they set goals in this temporal context; that those goals change with advancing age as individuals become increasingly mindful of the shortened horizon, and that this re-setting of perspective has an important impact on people’s approach to the details of everyday life.

Directions for the Future

The models discussed above continue to evolve. Considerable empirical research continues on the SST and it has influenced not only psychology but many other fields as well, including economics, health care and marketing.

The MacArthur model is subject to frequent revision with inclusion of more social factors and greater subjectivity. New developments in genetics and epigenetics, also referred to as “precision medicine,” may facilitate or impede SA (Silverstein 2015). The application of the concept of Successful Aging to societies around the world may enhance the physical and cognitive function, productivity and social interaction of aging individuals. A re-engineering of society’s core institutions may be required, along with the policies needed to facilitate these adaptations (Rowe, 2015).

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Successful Aging in African Americans

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There are many ways to conceptualize successful aging (Rowe & Khan, 1987). Interest in very late life (85+ years) is growing, due in part to the demographic changes showing that the oldest-old are the fastest growing age-segment in industrialized countries (Thorpe & Angel, 2013). While individuals in very late life often experience physical and cognitive impairments, there may be much to learn from their resilience (Baltes & Baltes, 1990). Persons in their 80s are also becoming more ethnically diverse but there are relatively few studies that address this growing segment of the population. Previous studies of exceptional longevity have typically included very few, if any, African Americans. Moreover, there is a lack of research on behavioral dimensions of successful aging among very old African Americans. We believe that such limitations in sample composition are likely to produce unreliable findings regarding African Americans. Given differences in mortality, life experiences, and patterns of family characteristics, relative to other racial/ethnic groups, African Americans living into their 80's represent exceptional longevity.

There is very little evidence of what accounts for longevity among African Americans in the face of such hazards as stress from discrimination and the cumulative effects of lifelong social inequalities (Burton & Whitfield, 2006). Based on the brief review of literature addressing behavioral and biological factors involved in longevity, and chronic health factors that contribute to mortality, three observations can be made: 1) due to patterns of mortality, exceptional survival among African Americans, is a much understudied and underdeveloped issue, 2) it appears that the same factors that may impact longevity are also indices central to the prevalence and incidence of poorer health in African Americans, and 3) the impact of these variables can be readily observed in families due to genetic influences and possibly due to learned behaviors, which could arise from shared environment within families. Taken together, these observations suggest that there are complex pathways to achieving exceptional survival in African Americans.

Living Long

Longevity represents the optimal outcome when considering the impact of behavior and biology on health status and successful aging. As lifespans are extended through advances in medical treatments, there is growing interest in characterizing what accounts for longevity (NIA report on Longevity, 2001). Because there is no certainty that specific behaviors or biology will result in a long life, many have opted to characterize those living into very late life as "exceptional survivors." These are individuals who have been described as: 1) those whose productive life span greatly exceeds the average for their relevant sub-group(s), living into very late life with intact cognition, without major physical disability or severe chronic disease; and 2) persons with chronic diseases or risk factors who survive to a much older age than expected. Presently, there is no widely accepted variable or set of variables used to define exceptional survival but many of those studied are of interest to scholars across multiple disciplines that examine the biological underpinnings of health, disease and aging (NIA Report on Longevity, 2001). Estimations of what accounts for exceptional survival include assessments of mortality and life expectation at specific ages in the population. Not only do individuals at specific ages have different survivorship and life expectations but members of different racial/ethnic groups do as well (NIA Report on Longevity, 2001). Thus, the classification of exceptional survivors is constrained not only by age but also race.

One of the most striking demographic characteristics in health statistics continues to be the race difference in mortality/longevity between African Americans and Whites. The age and gender adjusted death rate from all causes is significantly higher in African Americans than in Whites (U.S. DHHS, 2000). This difference in death rate estimates for African-Americans persists until age 85 (Arias, 2007), resulting in a life expectancy gap of 6.2 years for men and 4.5 years for women (Arias, 2007). For Americans in 2004, the overall expectation of life at birth was 77.8 years (Arias, 2004). At age 40, the differential between Whites and African Americans in life expectancy was 3.8 years; at age 60 the difference was 2.2 years; but at 80 years of age the estimates were equal and at 90 years African Americans showed a slight (0.6 year) advantage. An examination of age cohorts shows that by age 85 among African Americans, over 66% of the women and nearly 80% of the men had passed away. African Americans living today who are currently 85 years of age or older have lived well beyond expectations of longevity and have a slightly greater life expectancy than Whites. The survivors in this cohort represent a special group of African Americans who seem to possess special characteristics that could identify keys to longevity.

The gap in longevity between African Americans and Whites has spurred efforts to reduce health disparities and

attracted intense scrutiny of health care practices and outcomes (c.f., Whitfield, Weidner, Clark, & Anderson, 2002). Behavioral and social scientists have identified many factors influencing racial/ethnic differences in health and mortality. While it is clear that behavior plays an important role in the unequal health burden between these groups, those factors interact with biological factors such as genes (Whitfield, 2005a; Whitfield & McClearn, 2005). If genes play a significant role in longevity, there should be greater similarity of individual longevity within families or lineages than within the population as a whole (Pearls, Kunkel, & Puca, 2002). As a result, families may be an integral unit to better understand longevity in particular among older African Americans.

Psycho-social factors have been considered central explanatory mechanisms for the health disparities that lead to truncation of life experienced by African Americans. Among the behavioral aspects of aging, coping strategies and stress responses are considered to be central to the overwhelming cardiovascular problems experienced by African Americans (Whitfield et al., 2002). The impact of perceived stress on other health status outcomes such as hypertension has been a vital element in understanding why racial/ethnic differences in health exist (Macera, Armstead, & Anderson, 2000). Coping should also be considered as a factor which could lower the risk for chronic disease that truncates life.

Perceived Stress, Coping, and Health

African Americans continue to evince the highest mortality rates due to cardiovascular disease (CVD), as well as a prevalence rate of hypertension (44%) that is the highest in the world (AHA, 2013). Deaths associated with CVD arise from myriad risk factors which include but are not limited to: elevated blood pressure, smoking, excess body weight, sedentary lifestyle, hypercholesterolemia, and diabetes, all of which are influenced to varying degrees by behavioral factors (e.g., Whitfield, Weidner, Thorpe, & Edwards, 2012). Chronic psychosocial stress is a commonly studied behavioral precursor of poor health. Factors such as chronic work stress/job strain, major life events and early childhood adversity have been resoundingly linked to increased CVD risk (Brotman, Golden & Wittsen, 2007; Dimsdale, 2008; Hamer & Malan, 2010; Steptoe & Kivimäki, 2012). However, the extent to which these findings are generalizable to African Americans is limited. In African Americans, psychosocial stress is most often characterized as exposure to discrimination (Williams & Mohammed, 2009), low socioeconomic status (SES) and limited access to proper nutritional, financial and medical resources (Adler & Rehkopf, 2008). These environmentally-mediated psychosocial factors seem particularly salient here as minorities, in general, have been noted to report greater perceived stress, on average, compared to Whites (Cohen & Janicki-Deverts, 2012). Perceived stress scores have been found to be positively associated with plasma cholesterol, smoking, and alcohol consumption (Heslop, et al., 2001). In contrast, other studies have reported differential associations between perceived stress and blood pressure in African Americans. For example, (Heard, Whitfield, Edwards, Bruce, & Beech, 2011) reported an inverse association between perceived stress and systolic blood pressure in African Americans, but a

positive association with diastolic blood pressure. Results of these studies indicate a definite relationship between measures of perceived stress and blood pressure. However, inconsistencies regarding the direction of this association, limited findings on African Americans, and broad heterogeneity in operationalizations of stress in previous studies in this population beckon for additional research.

Genes and Longevity

Heritability of life span has been found to vary significantly by age and by race/ethnic group with African Americans having the lowest heritability (Lee, Bigdeli, Riley, Fanous, & Bacanu, 2004). This does not suggest that genes do not impact survival among African Americans, but rather that complex relationships exist between genes and environment to account for longevity in perhaps different patterns than found in other racial/ethnic groups.

The National Institute on Aging (2001) has presented a fairly substantial list of candidate genes for longevity. While there have been many investigations of genetic polymorphisms as contributors to longevity, there is perhaps no more studied than Apolipoprotein E (APOE). Variants of this gene have been found to be associated with increased risk for Alzheimer's disease (AD) (e.g., Evans, Smith, & Scherr, 1991; Chen et al., 2002), CVD (Hofman et al., 1997), and mortality (e.g., Corder et al., 1996). However, it is not completely clear what impact the APOE gene has on African Americans. Maestre et al., (1995) found that the APOE2/E3 genotype (not the E4/E4 allelic combination) was associated with an eightfold increased risk of AD in African Americans and was conversely associated with reduced risk in Whites. This is one example indicating that the mere presence of this genotype does not predetermine the presence of the disease state. In part due to its similarity to the processes that create AD, Presenilin 1 (PS1) gene mutations have also been of interest in studies of longevity (e.g., Riazanskaia et al., 2002; Zatti et al., 2004).

There is growing interest in polymorphisms, which control the homeostatic capacity (genes like IGF-1, IGF2, PPAR gamma-2) and thus may affect the chance of successful aging in humans (e.g., Barbieri, Gambardella, Paolisso, & Varricchio, (2007); Franceschi & Bonafè, 2003). Another important genetic mutation found in studies of longevity is TGF-beta. Genetic variability in this marker has been found in a sample of Italian centenarians, where a haplotype spanning the TGF-beta1 promoter region (G-800/C-509) was decreased in centenarians (Carrieri et al., 2004).

Recent literature suggests that one genetic and physiological response to chronic stress is shortened telomere length (TL). Differences by race in TL may be indicative of the cumulative burden of differential exposure to oxidative stress (and its predictors) over one's life (Diez Roux et al., 2009). Geronimus et al. (2010) found that among middle-age women, African American women were 7.5 years biologically older than the same-chronologically aged White women based on shortened TL. Kananen et al. (2010) and Tyrka et al. (2009) found childhood adversity was related to shorter TL suggesting a family environment effect. Njajou et al., (2009) found that TL was not associated with survival but was associated with years of healthy life which suggests TL may be useful in evaluating healthy aging. These findings suggest TL may be useful in understanding



the relationship between stress and family environment among African Americans.

Family Studies

Three primary family based designs are employed in quantitative genetic research: classic twin study, parent-offspring family study, and an adoption design. This information is of great value in the effort to understand the forces that are involved in shaping the lives of older adults. These methods are based on population statistics and genetic theory and are intended to provide an assessment of the contributions of genetic and environmental influences on traits. Perhaps there is no more salient dimension of late life than the source of individual differences in research on mortality and disease. Much attention has been focused on the familial version of AD, with an emphasis on the heritable transmission of the disease. Sibling studies that include twins provide some of the most interesting portrayals of the relative importance of genes and environmental influences (Whitfield, 2005b).

Genetically informed samples such as twin studies are designed to provide insight into the genetic and environmental factors that contribute to phenotypes. While highly useful as initial starting points, twin studies may reflect unique life circumstances and may not generalize to the more typical case of family similarities among non-twins (Schaie, 2005; Whitfield, 2005b). A family design assesses the extent to which individual differences are due to familial factors, both genetic and shared environmental, and it provides upper limit estimates of heritability. While genetic inheritance is salient, social learning is proposed here as the pathway for the transmission of psychosocial factors through shared environmental situations. The sharing of perceptions, ideas, and experiences among family members is proposed to make up these shared environmental situations. These situations are impacted by parental style, parental SES, familial traditions and culture. Social learning as a means for transmission of health behaviors in late life has not been studied extensively.

Conclusion

While all race/ethnic groups are living longer, little is known about the social and biological origins to longevity that arise from genetics and environmental exposures or perceptions of environment that are transmitted within and across generations in African American families. Understanding these origins will provide key information on exceptional survivorship among older African Americans. This information can be used for intervention development and policy-relevant solutions for this growing segment of the population of adults 65 years of age and older. One final note is that the different pattern of mortality for African Americans as compared to Whites suggests that those African Americans who live beyond 80 represent exceptional longevity in that population.

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Theory of Mind evolution in Mild Cognitive Impairment: preliminary evidence from a longitudinal study

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The ability to understand one's own and others' mental states and also to infer behaviors therefrom is the ultimate human capacity. In the field of psychology, this set of skills is known as "Theory of Mind" (ToM). ToM has been classically described as a multidimensional process that allows people to interpret and predict behavior on the basis of others' intentions, emotions, desires and beliefs. Investigating the phenomenon of mind has captivated developmental and clinical psychologists since the first pioneering studies with chimpanzees (Premack & Woodruff, 1978).

According to neuropsychological studies which focused on neurological or psychiatric disorders affecting social behavior, such as Asperger syndrome and autism (Baron-Cohen et al., 1995, 2001), schizophrenia (Shamay-Tsoory, Aharon-Peretz, & Levkoitz, 2007b) or brain damage (Shamay-Tsoory & Aharon-Peretz, 2005a), it is possible to distinguish between two kinds of ToM, *cognitive* and *affective*, in the light of their respective cognitive (thinking about belief, thoughts and intentions of others) or affective demands (reasoning about emotions or feelings of other people) (Shamay-Tsoory, Harari, Aharon-Peretz, & Levkovitz, 2007a, 2010; Duval, Piolini, Bejanin, Eustache, & Desgranges, 2011; Dodich et al., 2016).

In recent years, the focus of attention has shifted from childhood to the pattern of ToM changes in later lifespan development (Moran, 2013; Kemp, Després, Sellal, & Dufour, 2012; Sandoz, Démonet, & Fossard, 2014; see also DSM-V criteria that have introduced an assessment of ToM for major cognitive disorders, APA, 2013). Most of the research shows a progressive decline in ToM abilities with advancing age and with increasing task difficulties. For example, with regard to a classic ToM instrument, the *false belief task*, generally used to assess cognitive ToM, old people show worse performance in high-level ToM tasks, such as *second order false belief*, than in more simple ones like *first*

order false belief (Cavallini, Lecce, Bottiroli, Palladino, & Pagnin, 2013; Duval et al., 2011). Other studies confirm these results using advanced ToM tasks such as *Strange Stories* (Happè, 1994), showing that older adults score significantly lower than younger ones, whereas no differences in performance were usually found in control studies (Sullivan and Ruffman, 2004; Charlton, Barrick, Markus, & Morris, 2009; Duval et al., 2011). Considering a less investigated field such as the affective ToM components, most of the studies in the literature have showed contradictory results. Some authors have demonstrated an age-related decline in the ability to infer the protagonist's mental state and feelings during several tasks, including the Reading the Mind in the Eyes test (RME test; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). Castelli et al. (2010), however, reported no differences in ToM performance with age.

In recent years, brain-imaging techniques have explored neural structures and functions both in normal aging and neurodegenerative diseases. More specifically, neuroimaging studies have investigated how specific behaviors and abilities, such as ToM, depend on brain structures and physiology (Schurz, Radua, Aichhorn, Richlan, & Perner, 2014; Mahy, Moses, & Pfeifer, 2014; Cabinio et al., 2015). The latest investigations into age-related clinical conditions such as dementia have highlighted specific impairment of ToM competences in relation to the progressive involvement of cortical and subcortical brain structures in different neurodegenerative pathologies (Adenzato and Poletti, 2013; Kemp et al., 2012; Poletti, Enrici, & Adenzato, 2012; Sandoz et al., 2014).

Alzheimer's disease (AD) is a typical clinical condition that leads to the loss of social skills, especially at the more advanced levels of ToM competences, whereas the more basic aspects of social cognition may be preserved (Castelli et al., 2011; Gregory et al., 2002; Verdon et al., 2007; Zaitchik, Koff, Brownell, Winner, & Albert, 2006). A decline of ToM in people with mild cognitive impairment (MCI) has also been reported (Baglio et al., 2012; Poletti & Bonuccelli, 2013). MCI represents a preclinical stage which refers to the transition from a healthy condition to an early AD condition (Petersen, 2004; Petersen et al., 2009). People with MCI show mild cognitive deficits in memory, language skills and attention. However, their general cognitive functioning and their functional competences in daily life seem to be preserved. A more severe memory problem typifies *amnestic* MCI condition (aMCI), which is a really interesting clinical condition considering the high risk of converting to AD. The typical rate of AD conversion is 14-18% per year, and

there is also evidence of a reversion from MCI to normal or near-normal condition ranging from 4% to 15% in clinical trials and 29% to 55% in population-based studies (Koepsell & Monsell, 2012; Sachdev et al., 2013). There is little evidence in the literature showing the evolution of ToM in the MCI condition. Baglio and colleagues (2012) found lower performance in *second order false belief tasks* in people with aMCI compared to healthy controls (Baglio et al., 2012), whereas no significant differences were observed in aMCI people compared to control subjects in the behavioral performances to the RME test (Castelli et al., 2010), which is one of the most used tasks to investigate affective ToM. However, there are no studies investigating whether and how ToM performance changes across time in the MCI condition. This is particularly interesting in the light of the complex development of such a condition, towards a high risk of conversion to dementia or towards the opposite direction, i.e. normal or near-normal aging.

In the direction of our previous investigations, we are conducting a pilot study aimed at aMCI subjects, exploring the possible connections between performance on ToM tests and performance on a neuropsychological battery, adopting a longitudinal perspective (for some preliminary findings, see Castelli et al., *submitted*).

Methods and Materials

Participants

Twelve subjects diagnosed with aMCI according to the Petersen criteria (Petersen, 2004) and Grundman operational criteria (Grundman et al., 2004) were included in the study. Participants were outpatients attending a specialist dementia clinic (mean (SD) age: 76.9 (5.96) years; range 66-86 years; female: male ratio 6:6; mean (SD) education: 11 (4.24) years; see Table 1 for demographic details). To be included in this study all the aMCI participants had to meet the following inclusion criteria: memory complaint, confirmed by an informant; abnormal memory function, documented by a neuropsychological evaluation; normal general cognitive function, as determined by the Clinical Dementia Rating Scale (CDR; Morris, 1993), with at least a 0.5 rating in the memory domain, and MMSE score (Folstein, Folstein & McHugh, 1975) greater than or equal to 24; no impairment in functional activities of daily living as determined by a clinical interview with the patient and informant; no significant cerebral vascular disease, with Hachinski score less than or equal to 4 (Rosen, Terry, Fuld, Katzman, & Peck, 1980) and no white matter hyperintensities outside the normal range on the basis of patient's MRI structural scans. All subjects underwent two evaluations: one at baseline and one after six months. Each session included the neuropsychological assessment and the Theory of Mind assessment. The study conformed to the ethical principles of the Helsinki Declaration and informed written consent was collected from all subjects before starting.

Neuropsychological Assessment

Global cognitive level was assessed at the baseline and after 6 months, using the Mini Mental State Examination (MMSE; Folstein et al., 1975), and the Montreal Cognitive Assessment (MoCa; Conti, Bonazzi, Laiacona, Masina, &

Table 1. Range, mean and standard deviation (SD) scores of demographic information and MMSE score at the baseline (T0).

Criteria	aMCI
N	12
Age (years) [Mean ± SD; range]	76.9 ± 5.96; 66-86
Level of education (years) [Mean ± SD; range]	11 ± 4.24; 5-17
Gender (M: F)	6:6
MMSE [Mean ± SD; range]	27.4 ± 2.06; 25-30

Coralli, 2015; Lecce, Bottiroli, Bianco, Rosi, & Cavallini, 2015). Memory was evaluated through the Free and Cued Selective Reminding test (FCSRT Delayed Free Recall (DFR) and Immediate Free Recall (IFR); Frasson et al., 2011); executive functions were tested with the Phonemic Fluencies test (F.A.S.; Carlesimo et al., 1995), the Semantic Fluency test (Novelli et al., 1986), and the Colored Progressive Matrices (CPM), Raven, series A-Ab-B (Carlesimo et al., 1995; Raven, 1965). All the scores obtained from each test were corrected for age and educational level (conversion formulae are reported in the references of each neuropsychological test).

Theory of Mind Assessment

ToM ability was assessed with a paper-pencil battery of tasks appositely devised for research on adult and older people (Castelli et al., 2010, 2011; Baglio et al., 2012). This battery investigated ToM reasoning at different levels of complexity and from both the cognitive and affective point of view.

As regards cognitive ToM, three tasks were used: the Deceptive Box Task (Perner, Leekam and Wimmer, 1987), the Look-Prediction and the Say-Prediction tasks (Antonietti, Liverta-Sempio and Marchetti, 1999; Perner and Wimmer, 1985; Sullivan, Zaitchik and Tager-Flusberg, 1994) and a selection of stories from the Strange Stories task (Happè, Brownell and Winner, 1999; Happè, 1994; Italian translation by Mazzola and Camaioni, 2002).

The Deceptive Box Task assesses the first level of false belief reasoning, with a closed box shown to each subject. The content of the box has been previously substituted without participant's knowledge. At first each subject is required to say what the closed box contains. After that, the box is opened, the real contents are shown, and the box is closed again. Finally, the participant is asked to predict what another person would say if shown the closed box.

The Look-Prediction and the Say-Prediction tasks assess the second level of false belief reasoning. The participant has to predict the place where a character of the story thinks that another character would look for a hidden object (Look-prediction) or what a character thinks that the other ones would say about a hidden object (Say-prediction).

The Strange Stories task assesses a more advanced level of ToM reasoning with a selection of four mentalistic stories (content refers to mental states) and four physical stories (content with no reference to mental states) as the control condition.



Table 2. Mean and Standard Deviation (SD) scores of Neuropsychological tests at the baseline and at the follow-up (6 months later) in aMCI patients (n = 10); n.s.= not statistically significant ($p \geq 0.05$).

	Cut-off	Baseline		Follow-up		Group comparison p_value
		Mean	SD	Mean	SD	
<i>Cognitive functions</i>						
MMSE	23.80	27.97	1.94	27.97	1.01	n.s.
MoCa	17.36	21.85	4.42	21.14	3.16	n.s.
Phonological Fluencies	17.35	28.40	11.3	28.60	8.25	n.s.
Semantic Fluences	25	35.20	7.48	34.50	9.51	n.s.
FCSRT - IFR	19.60	23.89	5.23	22.69	6.66	n.s.
FCSRT - DFR	6.32	7.15	3.71	6.06	4.76	n.s.
Raven CPM	18.96	29.43	4.71	27.53	5.86	n.s.

Finally, affective ToM was assessed with the Reading the Mind in the Eyes test (RME test, Baron-Cohen et al., 2001). It consists of 36 pictures of the eye region from different human faces. Participants have to infer what the character is feeling or thinking and choose one from four mental states written under each picture, whereas the Gender Test was used as a control condition to test basic visual facial discrimination capacity such as gender attribution.

The whole battery was administered individually; answers were coded once the session was closed. For a more exhaustive description of the battery, please refer to Castelli et al. (2010).

Data analysis

Descriptive statistics included frequencies for categorical variables and means and standard deviation (SD) for continuous measures.

A non-parametric statistic was used to compare ToM performance at T0 with ToM performance at T1 for all the tasks showing a non-normal distribution. Subjects with no more than one mistake on control questions in the Deceptive Box Task, the Look-Prediction and the Say-Prediction tasks, and the Strange Stories were included in the analysis. As regards the Gender Test and the Physical Stories-respectively the control tasks for the RME test and the Strange Stories task-all subjects were well above the cut-off.

Furthermore, the Pearson correlation coefficient (r) was used to verify the intensity and the direction of the relation between ToM and neuropsychological performance at T0 and at T1.

Results

Neuropsychological Assessment

Demographic and clinical characteristics at the baseline of the included subjects are presented in Table 1. Table 2 shows the results to the longitudinal neuropsychological assessment. Two subjects dropped out of the study: One moved to another location, while the other had a physical accident. At 6 months after the first evaluation, all aMCI participants were not AD "converters" and the longitudinal neuropsychological evaluations showed no significant changes in global cognitive performance (MMSE and

MoCA). In addition, no changes were found in neuropsychological tests (see Table 2 for details).

ToM Assessment

Table 3 shows the results of ToM assessments. No significant differences were found at follow-up compared to the baseline evaluation in the Deceptive Box task, the Look Prediction task, the Say prediction task, and the Strange Stories task. However, it may be worth noticing that the performance on the first order false belief task shows a ceiling effect at T0 and T1; the second order false belief tasks and the Strange Stories become slightly worse over time, even if the differences between the two ToM evaluations were not statistically significant yet. The only task that showed an improvement between T0 and T1 to close to significance ($p = 0.058$) is the RME test, a task that evaluates affective components of ToM.

Finally, Pearson's correlations between neuropsychological tests and ToM tasks revealed a statistically significant correlation between the FCSRT_{DFR} and the performance on the second order false belief tasks ($r = 0.671$; $p = 0.0335$) at baseline and between the FCSRT_{DFR} and the performance on the RME test ($r = -0.670$; $p = 0.0341$) after 6 months.

Discussion

In the scientific debate concerning the evolution from successful to unsuccessful neurocognitive aging (Reuter-Lorenz, 2002; Reuter-Lorenz & Lusting, 2005), the present work constitutes an attempt to evaluate the developmental changes of ToM in aMCI patients, the most vulnerable clinical population at risk of developing dementia. Individuals diagnosed with aMCI are at high risk of transition to AD. However, little is known about changes of social interaction assessed with ToM tasks in a longitudinal perspective.

In our pilot study we found that aMCI subjects preserved similar neuropsychological and the ToM profiles over time, in the absence of the conversion from MCI to AD. Certainly, these results may be due to the short follow-up period but they could be also related to the educational level of the subjects. In fact, a higher education is associated with a lower risk of dementia and contributes to high cognitive reserve levels in conjunction with higher levels of intelligence and occupational attainment (Fratiglioni,

Table 3. Mean and Standard Deviation (SD) scores of ToM tasks at the baseline and at the follow-up (6 months later) in aMCI patients (n = 10).

	Range	Baseline		Follow-up(6 months)		Group comparison p_value
		Mean	SD	Mean	SD	
<i>ToM tasks</i>						
Deceptive Box	0-5	5.00	0.00	5.00	0.00	n.s.
Look Prediction	0-5	4.30	1.10	4.10	0.99	n.s.
Say Prediction	0-5	3.80	1.20	3.70	1.25	n.s.
Strange Stories	0-8	4.90	1.45	4.50	2.01	n.s.
Physical Stories	0-8	7.00	1.50	6.50	1.08	n.s.
RME test	0-36	18.70	6.13	21.10	5.88	n.s. (p=0.058)
Gender Test	0-36	33.00	3.20	32.40	4.06	n.s.

Paillard-Borg, & Winblad, 2004) Therefore, cognitive reserve represents an important factor that could attenuate the negative effects of cerebral aging, acting as a protective factor against dementia, possibly because of a higher tolerance to subclinical neurodegenerative pathology (Stern, 2002, 2009). Despite the general maintenance of functioning, some differences emerged when cognitive and affective demands are considered with regard to differential evolution in ToM tasks. These findings can contribute to the open debate about the dependence/independence of ToM from the cognitive domain. Our results underline that while the performance at the Look Prediction/Say Prediction tasks, at the Deceptive Box task and at Strange Stories task decreases from the baseline to the follow-up, an opposite statistical trend emerges as regards the RME test, which is often used to evaluate affective components of ToM. Moreover, correlation analysis seemed to show that high long-term memory performance is related to high levels of complex cognitive ToM reasoning (second order false belief tasks) and turned out to be inversely correlated to the performance on an affective ToM task (the RME test) at follow-up. Taken together, these data supports a possible link between ToM and cognitive processes and seem to show that high neuropsychological performance supports cognitive ToM reasoning and not the more affective competence required by the RME test. Moreover, these data highlighted the importance of better defining the evolution of the relation between neurocognitive and ToM functioning in a longitudinal perspective. Such a relation cannot be taken for granted; rather it is characterized by plasticity, which is evolving either in the direction of maintenance, or decay, or improvement. In a lifespan perspective on development, it is quite obvious that in the first phases of the life course (infancy, childhood, and adolescence) this relation evolves in the direction of a functional and successful acquisition of cognitive capacities. This is not so obvious in a period of the life course characterized by the process of aging and in the presence of a borderline condition such as aMCI. Cognitive abilities supporting ToM may change in aging, allowing individuals to maintain a high level of ToM performance by drawing on the preserved set of cognitive skills. The ability to choose the most useful cognitive support available accounts for the concept of mind/brain plasticity, as is also demonstrated by neuropsychological studies. Castelli and colleagues (2010) found no differences between young and old participants in the performance to the RME test at a behavioral level; however, they observed a significant shift in terms of the neural circuits each group used to

solve the task. These different activations may result from a brain reorganization during successful aging and may represent a compensation due to neural plasticity.

Conclusion

In standard neuropsychological assessment, it is important to investigate not only the cognitive evolution of the aging population, but also competence in Theory of Mind, a key component of social cognition that allows people to manage everyday social interactions that are relevant for the quality of life and the well-being of the elderly.

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Report from the Lab

On conceptualizing the successful aging paradigm

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Aging research has traditionally been conducted within a remediation of deficits framework; identifying risk factors for disease and impairment and developing interventions to mitigate these outcomes. As a testament to the effectiveness of these methods, there have been unprecedented increases in average life expectancy. Whilst these are monumental achievements, we must also consider the practical implications of these extra years experienced in the lived life. Are these additional years experienced in good health with a high quality of life? Or, are these long-lived individuals alive, but in constant pain and misery? I wanted to answer these types of questions; examining what the happiest and healthiest members of the population were doing and what it was that got them there.

At the outset of my PhD work, I had a sense that the successful aging paradigm was going to be immensely interesting, but also terribly frustrating. The first hurdle in the project was figuring out what exactly successful aging is. This was no small undertaking. I had originally thought (and naively hoped) that I would be able to do a quick review of the literature that would identify the gold-standard definition of successful aging, then I would get straight into the data analysis components of the project. I quickly discovered that I had opened a conceptual Pandora's Box that could not be closed. What began as a small literature review had soon evolved into a series of systematic reviews that consumed a significant proportion of my time as a PhD student.

The first systematic review we undertook captured the ways in which researchers had operationalized successful aging (Cosco, Prina, Perales, Stephan, & Brayne, 2014a). Despite the phrase having been coined half a century prior to the review it quickly became apparent that there was no real rhyme or reason to how these definitions were being conceptualized, utilized and written about in the literature. It seemed that the inherent subjectivity of "success" had permeated the successful aging literature. Further, the language surrounding successful aging was equally murky; a number of similar terms were being used interchangeably with successful aging, for example healthy aging, optimal aging, robust aging, productive aging, etc. (Cosco, Stephan, & Brayne, 2013). To complicate matters even further, researchers were using the same variables as predictors, outcomes and/or constituent components of successful aging depending on the research group (highlighted in a tongue-in-cheek commentary entitled "Successfully aging predicts successful aging in successful agers" [Cosco, 2015]).

Beginning with Robert Havighurst's initial coining of the term "successful aging" (1961), researchers adapted these preliminary conceptual works into a plethora of permutations. After all the dust settled, our review identified more than 100 unique definitions of successful aging used by researchers (Cosco, Prina, et al., 2014a)—a tripling of definitions since Depp and Jeste's review eight years earlier (2006). Definitions ranged from a single item self-rated successful aging measure to a sophisticated battery of physiological measurements. Clearly, the conceptual boundaries of successful aging had not been firmly established within the research realm; there was no gold-standard definition.

To complement the review of researcher perspectives, we felt a second review of the ways in which laypersons had conceptualized successful aging was warranted. Given the conceptual heterogeneity of the operational definitions of successful aging, I hypothesised that there would be a similar level of heterogeneity amongst older adults themselves. This review synthesized data from investigators who had interviewed older adults regarding what successful aging meant to them, how they would define it and which components were important to this definition. Twenty-six qualitative studies were identified (Cosco, Prina, Perales, Stephan, & Brayne, 2013). These data were analyzed, revealing (as expected) definitions that varied greatly from each other, but also definitions that varied greatly from those of the researchers' operational definitions. Whereas researchers had mainly posited definitions that had a biomedical or physiological focus, laypersons suggested psychosocial components were the most important aspects of successful aging (Cosco, Prina, Perales, Stephan, & Brayne, 2014b).

Although the reviews provided a comprehensive snapshot of the existing successful aging literature, the cultural, geographic and ethnic diversity of the included studies was poor. Despite including studies in any language, the vast majority of papers came from English-speaking Western countries, notably the US, UK and Canada. Therefore, despite capturing a variety of perspectives of successful aging, the reviews only encompassed a small proportion of the global diversity of successful aging conceptualizations.

In order to address this shortcoming, we undertook a seven-country qualitative study of lay perspectives of successful aging. Joined by colleagues from Estonia, Romania, Switzerland, Germany, Belgium, the Netherlands and Turkey, we conducted an online survey of young persons' perspectives on successful aging. Logistically the project presented many challenges, notably with regards to conducting independent parallel back-translations in seven languages. However, through the perseverance of the researchers involved, we were able to highlight the similarities in overarching trends in defining successful aging, e.g. a focus on active engagement, as well as noting some cultural nuances, e.g. greater or lesser focus on the family (Cosco, Brehme, et al., 2015; Cosco, Lemsalu, et al., 2015).

The next step in the project was to synthesize a model of successful aging that could be applied in a dataset of older adults. In Cambridge I was fortunate to have access to two longitudinal studies of aging, the Cambridge City over 75 Cohort (CC75C) (Fleming, Zhao, O'Connor, Pollitt, & Brayne, 2007) and the Cognitive Function and Ageing Study (CFAS) (Brayne, 2006). These studies provided a unique opportunity to study successful aging longitudinally. However, before any analyses could be conducted the data from the reviews needed to be mapped onto the dataset.

The first model I created used the most important successful aging components in researcher definitions and layperson perspectives, identifying individuals with the highest level of functioning as exemplars of "successful ageing." This binary model failed catastrophically (Cosco, Stephan, & Brayne, 2014): less than 1% of study participants met the criteria in the first three waves of data collection and no one met the criteria in the last four waves of CC75C. The inability of the binary model to articulate successful aging highlighted the impracticality of this model as well as its unrealistic standard, particularly in the oldest old. A continuum-based model was required.

Whilst at a training workshop in Dublin I met frailtologist Joshua Armstrong, who first introduced me to the frailty index. Given his interest in frailty and mine in successful aging we got to talking about the conceptual overlap of our areas of interest, mulling these ideas over a pint (Guinness-inspired ideas that eventually ended up in print (Cosco, Armstrong, Stephan, & Brayne, 2015)). These discussions opened my eyes to the possibility of using an indexing procedure similar to the frailty index within the conceptual framework I had identified during the systematic review process. Following on these conversations I set about developing what would eventually become the Successful Ageing Index (SAI) (Cosco, Stephan, & Brayne, 2015). The SAI permitted the mapping of successful aging on a continuum, rather than as a dichotomy, exploiting the granularity of the data and allowing a greater level of detail to be obtained.

Once a continuum-based measure of successful aging was mapped into CFAS and CC75C, I was able to longitudinally model trajectories. Growth mixture modelling is a person-centered latent variable technique that uses continuously observed variables to identify latent classes, or trajectories, amongst study participants (Muthen & Muthen, 2000). Using this technique I was able to identify groups of individuals that had more (or less) favorable trajectories of successful aging.

Getting to the longitudinal modeling stage of my doctoral work was an immensely taxing process. The conceptual framework of the successful paradigm is as nuanced as it is diverse, making the synthesis of the existing literature quite the task. Fortunately, I had the support of my supervisors Professor Carol Brayne and Dr. Blossom Stephan, who were invaluable resources in the development of the theoretical underpinnings and analysis of successful aging. Further, the statistical input by Dr. Graciela Muniz in the longitudinal analysis component of my project was immense.

Successful aging is an increasing area of interest as new advancements in the extension of life are made. As research methods and conceptual frameworks become more refined, greater insights into the causal mechanisms behind successful aging will surely be identified. My PhD work was a humbling experience in addressing a complex, but ultimately rewarding, area of human research.

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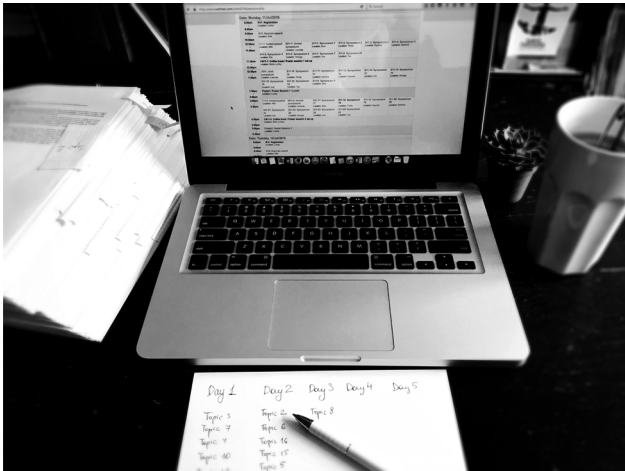
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News

ISSBD 2016 in Vilnius

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Abstracts



Since 2012 when Vilnius, Lithuania was announced as the site of ISSBD 2016, conference organizers Rita Žukauskienė (Chair, ISSBD 2016) and the local Department of Psychology at Mykolas Romeris University have been busy planning. They are getting help from the 15-person International Advisory Committee and the 18-person International Program Committee. During the whole submission period over 1,200 individual abstracts have been received. After careful review of each submission by the members of International Advisory and International Program Committee, notifications of acceptance/rejection for authors have already been sent. The detailed program was developed and published on the website making it easy for all authors to check their timings and other important information in advance.

By the end of the Early Bird registration deadline over 700 participant registrations had been received. Applications for Travel Grants were open until the end of the year 2015. Early Career Scholars were eligible to apply for Travel Grants to join the pre-conference workshops and attend the conference. The Travel Grant Committee received over 200

applications, giving them a tough task to select scholars to be funded.

Communication with the participants includes monthly Newsletters. This mode of interaction keeps the participants informed about the most recent developments in preparation for the ISSBD 2016 meeting in Vilnius. News is constantly updated on the official Facebook page of ISSBD 2016 because many delegates spend increasing time on social network platforms. The latest conference news and some interesting facts about Lithuanian culture, cities, and famous sights are constantly updated. The event attracts hundreds of delegates from all over the world who are eager to come to Lithuania for the first time and are not only looking forward to a splendid scientific program but also to explore the host country. In addition to communicating with the Society's long-term partners who were of great help and support throughout the years, such as SAGE and Jacobs Foundation, the local organizing committee works continually to find additional funds. Two companies, Wisepress and Tobii Pro, have already joined the exhibitors' group.

Conference organizers are thrilled that many of the world's leading scholars on human development will be coming to Vilnius. The conference features keynote speakers Elisabetta Crocetti, The Netherlands/Italy; Alexandra M. Freund, Switzerland; as well as Brett Laursen, USA; Rainer K. Silbereisen; Germany; and Melanie J. Zimmer-Gembeck, Australia. In addition, the conference will feature six Invited addresses by speakers from Brazil, Hong Kong, USA, and the Netherlands. The Key and Invited speakers, as well as many high-quality symposiums and poster sessions will provide a highly stimulating scientific program covering various aspects of developmental science. It will be a signal opportunity for scholars and researchers from different societies to engage in intensive and extensive communications and discussions on interesting topics.

Other conference highlights include a reception hosted by SAGE, Jacobs Foundation and ISSBD (to celebrate the 40th anniversary of the International Journal of Behavioral Development), and a banquet to be held at Belmontas Entertainment and Recreation Centre which is situated just outside the city, surrounded by nature & water, with a newly built capacious Grand hall that provides the perfect setting for a banquet. The evening will feature a great dining experience and entertainment.

The Local Organizing Committee is looking forward to welcoming you to Vilnius in 2016!

News

News from the Early Career Representative

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Dear Early Career Members:

It is a pleasure to reach out to you once again and share updates regarding ISSBD activities for early career members, which include new video resources and a new version of the ISSBD Listserv. In 2015 we organized the first online seminars by ISSBD. During these sessions, members from around the world joined for lively discussions regarding the challenges of publishing. Now these sessions are available at ISSBD's online channel (www.youtube.com/issbd). Among other videos, you will find online lectures on the basics of scientific writing (Prof. Silvia Koller) and how to handle the revise and resubmit process (Prof. Brett Laursen).

Following a number of online sessions that are planned for the near future, we look forward to yet another biennial meeting. A number of activities for early career professionals will be held in Vilnius, including a workshop on mediation and moderation, a roundtable on career planning and a meeting with editors of developmental journals. More details about these are available at the Biennial Meeting website (www.issbd2016.com).

We have also launched a new platform to allow direct exchange among early career members, the ISSBD Listserv. The objective of this listserv is to promote the exchange of resources and ideas among ISSBD members, including



Figure 1. *Revise and Resubmit: A long Journey.*

recent publications, grants and other opportunities. This is yet another benefit for ISSBD Early Career members, which we hope will increase our interactions and engagement in ISSBD, since messages submitted by members are sent directly to other members. To subscribe to this group, send an email to issbd+subscribe@googlegroups.com.

I hope that these initiatives will help our group to engage in fruitful dialogue. Please do not hesitate to contact me with questions and suggestions, and I look forward to meeting many of you in Vilnius this summer!

With very best regards,
Josafá da Cunha



MAJOR CONFERENCES OF INTEREST

May 29 - June 2, 2016

15th WAIMH Conference (World Association for Infant Mental Health)

Location: Prague, Czech Republic

Web: <http://waimh2016.org/>

June 9 - 11, 2016

Jean Piaget Annual Meeting

Location: Chicago, Illinois, USA

Web: <http://www.piaget.org/Symposium/2016/call.html>

June 22 - 25, 2016

8th World Congress of Behavioural and Cognitive Therapies 2016 (WCBCT)

Location: Brisbane, Australia

Web: <http://www.wcbct2016.com.au/invitation/>

June 28 - July 1, 2016

8th European Conference of

Positive Psychology

Location: Angers, France

Web: <http://ecpp2016.com/>

July 10 - 14, 2016

24th Biennial Meeting of The International Society For The Study Of Behavioural Development

Location: Vilnius, Lithuania

Web: [Www.Issbd2016.Com](http://www.Issbd2016.Com)

August 28 - September 2, 2016

XXth International Congress for Analytical Psychology

Location: Kyoto, Japan

Web: <http://www.iaap.org/congresses-and-conferences-events/congresses/2016-kyoto.html>

October 12 - 15, 2016

2nd Latin American Congress for the Advancement of Scientific Psychology

Location: Buenos Aires, Argentina

Web: clacip2016.org

November 7 - 11, 2016

Caribbean Regional Conference Of Psychology

Location: Port Au Prince, Haiti

Web: [Www.Crcp2016.Org](http://www.Crcp2016.Org)