

SHORT COMMUNICATION

The SingWell project protocol: the road to understanding the benefits of group singing in older adults

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ABSTRACT

SingWell is an international network of researchers, nongovernmental organizations, and practitioners exploring the potential for choir singing to support well-being among older adults, particularly those living with diseases that are typically associated with aging. In addition to studying the biopsychosocial effects of group singing in established choirs, this project involves tracking newly formed choirs longitudinally. Taking

a multi-disciplinary, ability-focused approach, data collection includes structured qualitative interviews, psychosocial questionnaires and biophysiological measurements. Over the long term, the project aims to engage in knowledge mobilization through the dissemination of best practices, and to develop policy initiatives for the social prescription of singing.

Keywords: GROUP SINGING, SOCIAL CONNECTEDNESS, WELL-BEING, OLDER ADULTS

CHALLENGES AND OPPORTUNITIES

Many older adults face formidable challenges relating to social well-being. Foremost is the social isolation and loneliness that may arise from a combination of factors including retirement from work, increased physical distance from family, cessation of driving, and the death of loved ones. A meta-analytic review incorporating 148 studies (308 849 participants) found that the impact of social isolation on the risk of mortality is equivalent to that of other well known risk factors such as smoking and alcohol consumption (1). The loneliness epidemic, commonly associated with urban American life, is surprisingly widespread in Europe, especially in the south (2), and has been recognized as one of the greatest public health challenges for the aging population in the Region (3).

In addition to cultural factors, a diagnosis of an age-related disease (for example Parkinson disease or dementia) can intensify the risk of loneliness and social isolation in older adulthood. This is particularly relevant given the rapidly rising level of older adults living with age related diseases. According to the World Health Organization there are around 10 million people living with dementia in the European Region, for example, which is expected to double by 2030 (4).

These demographic and societal shifts come with the concomitant rising costs and unsustainable levels of stress on health systems, particularly long-term care. In this context, the development of evidence-informed health promotion strategies and social programming is critically necessary to foster social connectedness and well-being in late life.

Increasingly, older adults are discovering singing as a meaningful arts-based social activity. Most individuals can participate in group singing given the right conditions. The presence of a group with some aspect of shared identity (such as a specific age-related disease), the structure of a regular musical rhythm, the familiarity of lyrics from well-loved songs, and an emphasis on inclusive participation can allow even the most reticent singer to find their voice. A recent report by the European Choral Association estimated that there are over 20 000 self-identified older adult singers in Europe and reported that socialization and social integration are key aims of choral participation (5).

While group singing has been an integral cultural practice in societies around the world throughout history, the establishment of choirs to support social well-being in older adults, particularly those living with age-related disease, is a relatively new phenomenon. Anecdotal reports suggest that choirs provide an excellent opportunity to combat some of

the aforementioned social challenges; however, how and why group singing can mitigate loneliness and promote well-being in late life remains largely unknown.

WHY GROUP SINGING?

The effects of choir singing on social well-being have received considerable attention over the last decade. Researchers have uncovered the remarkable ability of group singing to foster social connectedness in children and young adults (6-8). This is thought to be due, at least in part, to the synchronous movement that naturally occurs in the context of singing together (8-11). Research on the biomechanical aspects of group singing has revealed exquisite movement synchronization across individuals, spanning the lungs, larynx, head, and facial muscles (12). Synchronous movement in the context of song (or dance) has been shown to make individuals more likely to share (8, 9), to be more resilient to pain (10), and to feel more socially connected (11).

Several authors have proposed a sociobiological theory for the elevated sense of social connectedness that is reported following group singing (13). The sociobiological theory is consistent with evolutionary accounts of song and dance that emphasize their role in social bonding and group resiliency (14). In particular, it has been suggested that group singing leads to decreases in cortisol (associated with stress), increases oxytocin (associated with pair bonding) and increases in β -endorphins (associated with reward and pain). While the effects of group singing on cortisol (15) and on pain tolerance (used as a proxy for β -endorphins) has been fairly unequivocal (10), consensus on its effect on oxytocin has not been reached.

Although oxytocin is often identified as the most likely endocrine measure underpinning the effect of group singing on social connectedness, there are only two empirical studies of choral singing of which we are aware that have assessed pre- and post-session oxytocin levels. In the first study, Kreutz recruited a large group of participants, aged 50–65 years, for a non-auditioned choir. The study compared salivary endocrine measures in response to a singing session versus the response to a conversation session. Examining the change from pre- to post-session, he found that oxytocin increased in response to the singing session but not the speaking session, suggesting enhanced social bonding in the singing group (16). However, this rise in oxytocin following group singing was not found in a second study that focused on a University-level elite choir (17). There are several possible reasons for this discrepancy,

including variability in age, depression, anxiety, relationship security, and self-assessed musical ability.

SUMMARY OF BACKGROUND AND GAPS IN THE LITERATURE

Although recent research has provided a more nuanced understanding of the social effects of group singing, by-and-large, these studies have focused on children and young adults. Comparatively little is known about older adult choirs; however, promising results suggest that group singing has the capacity to combat some of the psychosocial challenges faced by this population (18, 19). A more systematic investigation is needed tracking diverse older adult populations both for single session outcomes as well as longitudinal outcomes. Moreover, considering the uncertainty regarding the sociobiological underpinnings of social benefits arising from choir participation, a broader range of choirs should be assessed to begin to address this. In addition, given a paucity of longitudinal studies of group singing, it's also unclear whether outcomes may vary over time.

The project described in this report, entitled the SingWell project, aims to fill these gaps in the literature, develop a more comprehensive understanding of best practices, and work towards knowledge mobilization, thereby broadening the scope of older adults who may benefit from choral singing.

THE SINGWELL PROJECT

The SingWell project is run by an international, multi-sectoral team of researchers and organisations funded by the Social Sciences and Humanities Research Council of Canada (SSHRC). Our primary goal is to better understand group singing as one potential strategy to address psychosocial well-being, communication, and health issues in older adulthood. The project focuses on six different communities of older adults, including individuals living with Parkinson disease, lung disease, dementia, aphasia, hearing loss, and those who are in good health. Our secondary goal is to facilitate transfer and uptake of knowledge to receptor communities including support organizations, practitioners, and the general public. Finally, through our partnership with various nongovernmental organizations, including the Alliance for Healthier Communities (Ontario), the third goal of the

project is to build an economic case for the social prescription of singing. To achieve the above stated research goals, we will apply an interdisciplinary, mixed-methods approach by incorporating psychosocial, inventories, sociobiological markers, and structured interviews.

THE PARTNERSHIP APPROACH

The assembled team of researchers represents a multi-sectoral network. There are currently 16 active partners distributed across six countries (Canada, Germany, Switzerland, United Kingdom, Australia and New Zealand). While the Canadian arm will lead the project and devise the central research aims and methodology, the transfer and adaptation of our protocol in the European Region will significantly strengthen the research paradigm. The multinational character of the study will enable the investigation of the efficacy of group singing in different cultural settings. It is of note that healthy aging and the improvement of social health policies have been identified as key issues of social development across all partners of this project. Of particular interest is the social prescription model of health care that is gaining traction in Sweden, Norway, Denmark and in the United Kingdom. Continuing efforts to advance international partnerships with leading scholars will serve to integrate different approaches, broaden the scope of the research and its application, and explore the impact of the intervention across different political and cultural contexts.

A partnership approach on the basis of a shared study protocol appears optimal to achieve the main objectives of this research. The partners comprising the network possess expertise inclusive of social psychology, neuroendocrinology, gerontology music cognition, communication disorders, and policy development. This assemblage reflects the intrinsic complexity of understanding group singing and the need for a multi-faceted methodology that entails both the specification of knowledge within individual fields and the amalgamation of converging evidence to inform social policies. Moreover, by partnering with knowledge experts, community-based choirs, and nongovernmental organizations, we are able to develop and disseminate knowledge about how to optimize social benefits through choir singing in older adults including those living with diseases typically associated with aging. This range of perspectives has the potential to markedly advance research on the individual benefits of singing as a significant resource to social well-being. By engaging various choirs across older adult communities, we can develop an in-depth understanding of the

group- and individual-level factors that moderate the benefits of group singing with specific emphasis on the perils of social isolation that arise in the presence of chronic illness. Finally, we anticipate that the same network will be instrumental in advocacy leading to a proliferation of the benefits that we are in the process of documenting. The SingWell network is equipped with the capacity to significantly advance the scope and impact of group singing in older adulthood. This approach is potentially influential both as a paradigm on its own and as a model for further investigations of other cultural techniques that may contribute to the pursuit of healthy aging.

Our network (see singwell.ca) has established nine singing groups (choirs) that are composed of individuals living with age-related diseases and/or healthy older adults. For example, *Singing with Parkinson* was developed in partnership with Parkinson Canada and support from the Canadian Opera Co.. This sustainable singing community of more than 50 members meets weekly in downtown Toronto, Canada. Although all singing groups are designed as a strength-based activity intended for a specific community of older adult, some have decided to open their doors to caregivers, family members, and other members of the community. For example, the *Chorpidus choir*, was established at the Pius Hospital (Oldenburg, Germany) for older adults living both *with and without* Chronic Obstructive Pulmonary Disease (COPD) and often achieves a gathering of over 100 singers who come to enjoy a casual, sing-a-long style event. This established choir has previously been studied by partners in the SingWell network (18).

The choirs in our network provide a healthy environment for participants through an ability-focused activity. The focus on *ability* (or asset model) may be contrasted with the *disability* focus that characterizes many support groups. While the former offers potential to enhance self-efficacy and self-regulation strategies, the latter mainly addresses the management of symptoms with lesser focus on targeting meaningful social activities as resources. We have observed that participants are often motivated to join these choirs and to continue participation because of the emphasis on abilities. In addition, sustained participation may induce transformative changes in regards to the stigma of disability. A related benefit that arises from this focus on abilities is challenging the stigma of old age that can detract from leading a full and rewarding life. Much like the effect that the Paralympics games has on physical disabilities, some of these choirs will challenge assumptions about older adults, effectively reducing stereotyping. The following quote from someone living with

Parkinson provides useful insight, albeit anecdotal. At the time of the interview, the individual had been singing in our Parkinson choir for just over 6 months.

At this point I don't feel like my Parkinson defines me as much as it used to. Now that I've been singing with the group for a while ... I feel that I'm also a singer who is part of a vibrant community. KB

METHODOLOGICAL DESIGN AND APPROACH

The SingWell project uses a multi-level model design incorporating the six different communities of older adults (Parkinson, lung disease, dementia, aphasia, hearing loss, and those who are in good health). The choirs are subdivided into existing and newly formed choirs. The majority of choirs in this partnership existed before implementation of the project; however, four of the choirs are newly formed (one healthy older adult choir, one hearing loss choir, one aphasia choir, and one Parkinson choir), providing an excellent opportunity to track longitudinal benefits from the beginning.

Each community of older adult contains choir groups, as well other types of group activities used as a comparison. For example, we are using support groups as an ecologically valid control given their prevalence among people living with age-associated diseases. Both the choir and support groups have chosen to engage a community with a common social identity (e.g. Parkinson disease).

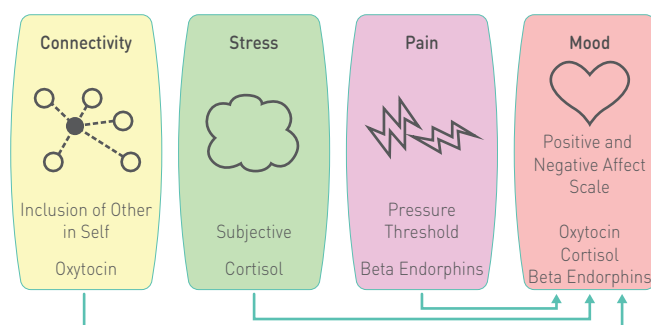
STUDY PROCEDURE

We adopt a hands-off approach whereby choir directors have the autonomy to organize their group based on their own philosophy, professional expertise, and unique circumstances. This affords the SingWell researchers the opportunity to investigate choir in its *natural habitat*, thereby providing an opportunity to consider group-level effects (for example, the choir director's approach). A team of researchers visits each choir on two occasions (separated by two months) to collect the data. The following standard set of measures remains consistent across site and population of interest.

BASELINE MEASURES

The following measures are collected before the individual begins participation in the choir. These variables are assessed as potential covariates of outcomes: social/emotional loneliness (The Dejong & Gierveld short scales); trait anxiety

FIG. 1. THE CONCEPTUAL RELATIONSHIP BETWEEN MEASURES OF SOCIAL WELLBEING AND THEIR POTENTIAL NEUROENDOCRINOLOGICAL UNDERPINNINGS



and depression (Hospital anxiety and depression scale); current social network (The Social Network Index); cognitive functioning (Montreal cognitive assessment); and self-assessed musical skills (Goldsmiths Musical Sophistication Index, Gold-MSI).

PRE- AND POST-SESSION TESTING

The following subjective measures are collected in a set order for all participants before and after group singing. 1) Psychosocial well-being is assessed using questionnaires designed to assess social connectedness (for example, *Inclusion of Others in Self*), mood (for example, *Positive and Negative Affect Schedule*), and stress (for example, *Perceived Stress Scale*); 2) Pain thresholds are obtained using an instrument called a dolorimeter. The research assistant applies increasing pressure to the index finger of the participant. Participants are instructed to say “stop” as soon as the pressure becomes uncomfortable; 3) The neuroendocrinological underpinnings of these effects, namely oxytocin and cortisol, are assessed through saliva samples obtained through the passive drool method; (see Fig. 1 for the conceptual relationship between measures of social well-being and their potential neuroendocrinological underpinnings). Each group is assessed on their pre- and post-participation measures across two sessions separated by two months to explore any longitudinal benefits.

STRUCTURED INTERVIEWS

All choir directors and a subset of members from each choir are invited to provide additional qualitative data in the form of structured interviews. These interviews are conducted by trained graduate-level research assistants and are intended to assess group-level variables inclusive of inclusion versus achievement focus; ability versus disability focus. It is expected that interviews will provide information on the lived

experience of individuals attending choir sessions, which may not be captured by standard questionnaires.

KNOWLEDGE MOBILIZATION PLAN

SingWell is committed to engaging in knowledge mobilization activities that may directly impact and expand the growing base of older adult singers. One implication of this network is the enhanced ability to share strategies and resources for current and future choirs across the European Region. We are working to support the exchange of information between the core research team, choir directors, and knowledge experts through a series of workshops. More generally, we expect that these workshops will support the cross-pollination of ideas arising from the project, manuscript development, and outreach activities.

Upon completion of the current phase of the project (October 2020), the best practice themes assimilated from workshops, as well as results revealed through analysis of the data, will be integrated into best practice guides. The best practices will be distilled into white papers or other accessible forms of communication (for example, pamphlets, articles in community newsletters/blogs). These papers will be widely distributed to knowledge experts and through our partners at various community-based organizations. Our partners involved in advocacy (for example, Alzheimer and Parkinson Societies) will help us communicate results in a manner that is both accessible and mindful of current political dynamics within the community. Moreover, we are developing web content reflecting themes and best practices (singwell.ca). The web site is available to the general population and will broaden the impact of this research.

Over the longer term, we are motivated to stimulate interest across a broader network of partners, with the intent of enhancing policy. Group singing is a highly scalable, low-cost, high-reward intervention that creates a healthy environment for participants. We expect our findings may be instrumental in leveraging credibility among decision-makers in government and long-term care facilities, who traditionally look to medical research for direction. In particular, our findings will contribute to a growing body of literature in support of the social prescription model of health care. With this in mind, we intend to raise awareness of these findings within the medical community and will seek out opportunities to disseminate to administrators of health education programs to include group

singing as one key strategy in the wider context of standard care for older adults living with chronic health issues.

The potential benefits are threefold: 1) improved quality of life for older adults living with age-related disease; 2) improved well-being of families and personal support workers, and 3) promotion of well-being through group singing will reduce economic burden on health-care and long-term care facilities. In summary, we anticipate that our findings will influence decision-makers in government and long-term care facilities, leading to benefits for those living and working in long-term care in the European Region and beyond.

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Conflicts of interest:

None declared.

Disclaimer:

The authors alone are responsible for the views expressed in this publication and they do not necessarily represent the decisions or policies of the World Health Organization.

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