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# Implementation and mixed-methods evaluation of “Walk with a Doc” program at Stony Brook

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## Abstract

**Context:** Walking groups run by trained individuals, lasting under an hour in a natural environment, may be a cost-effective way by which to encourage sustainable changes in physical activity as well as foster companionship and a shared experience of wellness among participants. Walk with a Doc (WWaD) is a national program that provides a platform for medical professionals, including physicians and medical students, to deliver a short talk on a health topic prior to walking side by side with patients and community members.

**Objectives:** To evaluate the WWaD Chapter at Stony Brook following implementation, a questionnaire was designed utilizing a mixed-methods approach (i.e., containing qualitative and quantitative items) and administered to all attendees monthly prior to the health discussion. The aim of the questionnaire was fourfold: first, to obtain participant demographics; second, to obtain information on attendees' own perceptions of their health status and the role exercise plays in their health; third, to gain data on physical activity levels, including lengths of exercise sessions and types of activities performed; and fourth, to learn more about attendees' motivations and goals for participating in the walks.

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**Methods:** We received an IRB exemption. Physician and medical student volunteers were recruited from Stony Brook University Hospital, a suburban tertiary care center, to oversee program logistics. WWaD was scheduled to take place on the third Sunday of every month for 1 h at Heritage Park in Mount Sinai, New York. The event was advertised by volunteers to colleagues, peers, patients, and community members utilizing word of mouth, printed flyers, emails to listservs, and social media outlets. Each month, a physician volunteer oversaw a brief discussion (approximately 10 min in length).

**Results:** Over the course of the 5 month evaluation period, 91 individuals participated in the walks, including repeat attendees. After excluding duplicate or incomplete entries, data from 30 participants were included in this analysis. The majority of participants were female (n=24) with a mean age of 50 years (range, 23–98 years). Feedback on WWaD program elements was largely positive. Participants commended the monthly speakers for “informative talks” (n=6) on “interesting topics” (n=4), with plans to review the supplemental information in educational pamphlets following the walk (n=4). The brochures were also deemed “helpful.” Overwhelmingly, patients referred to the community gathering and team building aspects of WWaD as the “most enjoyable” aspect of the program (n=8) and a key driver for participation.

**Conclusions:** This mixed-methods study of the WWaD chapter at Stony Brook contributes to a growing body of evidence highlighting the value of walking groups as effective avenues for collaboration in producing accessible healthy behavior.

**Keywords:** exercise; health; physical fitness; United States; walking; wellness

Physical activity carries numerous health benefits, including risk reductions of 20–30 % in premature all-cause mortality, cardiovascular disease, stroke, hypertension, type 2 diabetes, and osteoporosis among individuals who exercise regularly [1, 2]. Interventions in the primary care setting to reduce sedentary activity are limited and, when they do occur, consist of the provider advising the patient to be more

active, thereby producing moderate yet short-term changes in physical activity levels [3, 4].

Walking groups run by trained individuals, lasting under an hour in a natural environment, may be a cost-effective way by which to encourage sustainable changes in physical activity as well as foster companionship and a shared experience of wellness among participants [4]. Walk with a Doc (WWaD) is a national program that provides a platform for medical professionals, including physicians and medical students, to deliver a short talk on a health topic prior to walking side by side with patients and community members [5].

Given the evidence-based benefits of walking programs, the Department of Family, Population & Preventive Medicine at Stony Brook University oversaw the implementation of a local WWaD chapter at Stony Brook, one of the few physician/medical-student-led community-based walking programs in the area. This report presents data from the program’s first 5 months at Stony Brook to inform practice-based management decisions pertaining to the clinical utility and future adaptation of walking programs in suburban communities. WWaD has widespread adaptation nationwide [6].

## Methods

### Program design and implementation

We were granted an Institutional Review Board (IRB) exemption that was reviewed and approved (IRB number: IRB2020-00162). Physician and medical student volunteers from October 2019 to February 2020 were recruited from Stony Brook University Hospital, a suburban tertiary care center, to oversee program logistics. WWaD was scheduled to take place on the third Sunday of every month for 1 h at Heritage Park in Mount Sinai, New York. The event was advertised by volunteers to colleagues, peers, patients, and community members utilizing word of mouth, printed flyers, emails to listservs, and social media outlets. Each month, a physician volunteer oversaw a brief (approximately 10 min in length) discussion on a self-selected topic highlighting the role of exercise in health. The topics included safe exercise habits, exercise for weight maintenance, lowering blood pressure with exercise, sleep and exercise, and mental health and exercise. Educational pamphlets containing key talking points were distributed to attendees. The talks were followed by a walk around the paved trail at Heritage Park.

### Questionnaire design and data collection

All participants in the study provided written informed consent in the questionnaire prior to participation. To evaluate the WWaD Chapter at Stony Brook following implementation, a questionnaire was designed utilizing a mixed-methods approach (i.e., containing qualitative and quantitative items) and administered to all attendees monthly prior to the health discussion. The aim of the questionnaire was fourfold: first, to

obtain participant demographics; second, to obtain information on attendees’ own perceptions of their health status and the role exercise plays in their health; third, to gain data on physical activity levels, including the lengths of exercise sessions and types of activities performed; and fourth, to learn more about attendees’ motivations and goals for participating in the walks.

To facilitate questionnaire development, relevant society websites, including the AAFP and American Association of Retired Persons (AARP), were queried for previously published Physical Activity Questionnaires [7, 8]. Validated questions were selected and modified for efficiency and clarity, given the varying levels of education between community members and the limited time (i.e., a few minutes) that attendees had at the start of each walk to complete the questionnaire. Both multiple-choice and short-answer questions were included. Multiple-choice questions were selected to facilitate comparison of standardized responses across the cohort, whereas short-answer questions allowed for capturing responses relating to perceptions that were not anticipated when designing the multiple-choice questions. Questionnaire design was not altered over the course of the 5-month evaluation period to facilitate longitudinal analysis. The questionnaire is provided as Appendix A.

Responses to the questionnaire were supplemented with feedback obtained during or immediately after the walk in an informal one-on-one interview between participants and one of the event organizers. Interview responses were deidentified and transcribed after each event in Microsoft Word (Microsoft for Windows). Because many participants had other commitments immediately following the walk, administration of a participant-matched postevent survey was not possible.

### Data analysis

Questionnaire and interview responses were manually coded into a Microsoft Excel spreadsheet each month. While WWaD is expected to continue year-round at Stony Brook, a data collection period of 5 months was selected because it represents half an academic year and allows medical student involvement in proposing modifications to program execution per evaluation findings, prior to the start of the following academic year.

The primary endpoint was attendee motivations for participation. Secondary endpoints were baseline physical activity and participants’ perceptions of their own health status. Data were summarized with descriptive statistics. Categorical data were summarized as frequencies and percentages. Continuous data were summarized as means and standard deviations. Responses from repeat attendees were excluded from analysis because it was unlikely that responses would change significantly month to month and because inclusion could potentially skew the data.

## Results

Over the course of the 5-month evaluation period, 91 individuals participated in the walks, including repeat attendees. After excluding duplicate or incomplete entries, data from 30 participants were included in this analysis. The majority of participants were female (n=24) with a

mean age of 50 years (range, 23–98 years). Many were referred to the walk by their doctor (n=7) or a friend and/or family member (n=12). Ten participants reported that they themselves were healthcare providers or medical students. The remaining participants cited social media as a mode of referral.

Most participants viewed their health as “very good” (n=10), followed closely by “excellent” (n=9) or “good” (n=9). A small number of individuals viewed their health as “only fair” (n=1) or “poor” (n=1). In prioritizing the role of exercise in personal health, the overwhelming majority (n=22) agreed that the exercise is the “best thing” they can do for their health, compared to five individuals, who viewed other factors, including medication compliance and adherence to a healthy diet, as more integral. The remaining three participants did not believe that exercise was important for their health.

Twenty-two participants reported being physically active on a regular basis for 6 months or longer; of these, 16 reported regular physical activity for greater than 1 year. The mean length of a single exercise session was 52 min (range, 25–120 min). Common exercises included weight training (n=14), running (n=12), walking (n=11), yoga (n=6), and biking (n=6). Less common activities were aerobics and/or water aerobics (n=2), kickboxing (n=1), and figure skating (n=1). Most individuals who exercised regularly listed more than one activity of engagement. A minority of participants reported no physical activity at baseline (n=4). Of those who exercised irregularly, three persons shared plans to initiate regular exercise habits within the next 6 months, and one planned to commence regular exercise within the next month.

When asked about desired outcomes following participation in WWaD, the majority reported a goal to be more physically active (n=15), to learn about exercise and healthy habits (n=11), or to spend time with family, friends, and the community (n=11). Most participants reported more than one objective.

Qualitative feedback was obtained from 10 participants, four of whom were medical students, to gain insights on motivations and barriers for participants. All of the students reported “lack of time due to competing academic or extracurricular responsibilities” as the main deterrent to regular exercise. The remaining community member attendees cited lack of familiarity with safe exercise habits (n=3), not having “anyone to work out with” (n=4), and/or “not having time” (n=2) as key barriers to regular exercise. Feedback on WWaD program elements was largely positive. Participants commended the monthly speakers for “informative talks”

(n=6) on “interesting topics” (n=4), with plans to review the supplemental information in educational pamphlets following the walk (n=4). The brochures were also deemed “helpful” in that they “reiterated the timing of the recurring walks” (n=2). One participant recommended the inclusion of website links on pamphlets to facilitate self-driven research on the monthly topic. Overwhelmingly, patients referred to the community-gathering and team-building aspects of WWaD as the “most enjoyable” aspect of the program (n=8) and a key driver for participation (Table 1).

**Table 1:** Questionnaire results.

Total entries received	91
Total entries analyzed after exclusion of duplicate or incomplete entries	30
Participant demographics	
Female gender (n)	24
Mean age, years (range)	50 (23–98)
Mode of referral	
Doctor	7
Friend and/or family member	12
Social media	1
Self-referred	10
Health perceptions: how do you rate your health?	
Excellent	9
Very good	10
Good	9
Fair	1
Poor	1
Health perceptions: exercise is the best thing I can do for my health	
Agree	22
Exercise is important, but other factors (medication compliance, healthy diet) are more important	5
Disagree	3
Baseline physical activity	
Regular activity > 6 months	22
Weight training	14
Running	12
Walking	11
Yoga	6
Biking	6
Aerobics	2
Kickboxing	1
Figure skating	1
Irregular activity with intention to initiate regular activity within next 6 months	4
None or irregular activity with no intention to initiate regular activity	4
Barriers to regular physical activity (qualitative comments)	
Lack of time	6
Lack of familiarity with safe exercise habits	3
No workout partner	4

## Discussion

Behavior counts for roughly 50% of a person’s overall health status, with the top three factors being exercise, smoking, and diet [9]. Walking, in particular, is a cost-effective and accessible form of physical exercise that plays a role in preventing cardiovascular disease and addressing obesity, anxiety, and depression [10]. The Surgeon General recommends that adults partake in 2.5 h of moderate-intensity physical activity (e.g., walking) and 1.25 h of vigorous intensity activity, or a combination of moderate and vigorous activity weekly [11]. Accordingly, many healthcare organizations and academic societies, including the American Heart Association, Centers for Disease Control and Prevention, and National Institute on Aging at the National Institutes of Health, routinely encourage the formation of walking groups such as WWaD [11–15].

In our cohort of individuals ages 23 to 98, most participants viewed their health as ranging from good to excellent (93.0% of total). Perceived health status is a multidimensional concept composed of a functional dimension (i.e., the extent to which patients can perform activities), coping dimension (the ability to adapt to a state of illness), well-being dimension (simply the way one feels), and a behavioral dimension (health behavior or lifestyle factors) [16]. In one study, when asked to interpret “How is your health in general?”, those over 60 years of age referred to physical and functional aspects, whereas those who were younger were more likely to refer to aspects of well-being [16]. In the present study, perhaps given the context of outdoor physical activity, 73.0% of the participants believed that exercise is the “best thing” they can do for their health. Hence, it is plausible that those who participate in walking groups may value the functional and behavioral dimensions of perceived health status over others. Of note, however, 33.3% of participants in this study were healthcare professionals, which may have skewed results to a generally healthier community subset who place a large emphasis on exercise in health maintenance compared to the general public.

The most common motivations for participation in a WWaD included: (1) health benefits (i.e., to be more physically active on a daily basis or lose weight); (2) education on healthy living; and (3) social support/community building by spending time with friends, family and the community and by conversing with physicians and medical students. In a qualitative review of barriers and incentives for participation in sports/physical activity, adults cited motivational factors as sense of achievement, skill development, medical sanction, and support network, whereas older adults aged 50 and older were more likely to cite social support, health benefits, and enjoyment [17]. The same review also

reported that impediments to participation for adults included anxiety in unfamiliar surroundings, lack of a social network, and lack of role models; for older adults, lack of role models and unclear guidance were the two main barriers [17]. In the present study, the overwhelming barrier against participation included lack of time among younger participants, who were largely medical students with competing academic commitments. For working or older adults, barriers included unclear guidance on proper exercise technique and lack of social network for physical activity. While our study did not examine rates of participant retention, the literature shows that long-term adherence to group exercise is likely if support from family, friends and professionals is present [18]. The present findings suggest that when optimizing retention rates or considering the expansion of WWaD or a similar group walking program, healthcare practitioners and community workers should relay the health benefits, educational enrichment, and social networking opportunities of participation, while addressing time commitment concerns and safe exercise habits. Notably, the walks for our study period spanned the late autumn to winter months. A greater turnout and higher retention rates should be empirically expected with improved weather during spring and summer seasons.

With regards to program feedback, participants cited the speaker-led discussions and supplemental pamphlets as effective forms of education. One study examining reception to health education pamphlets amongst low-income adults in Brazil found that effective pamphlets present material clearly and objectively utilizing appropriate vocabulary without technical terms [19]. The researchers further found that supplementing a pamphlet with verbal exposure from a caregiver (e.g., a physician) was more effective than a pamphlet alone in ensuring the recipient is not overwhelmed with information [19]. The Stony Brook WWaD chapter structure applies these principles by ensuring that the discussion is led by a physician and educational materials are created by medical students utilizing layman’s terms to foster readability and encourage self-directed research on the part of the participant. A study examining health pamphlet content in the UK found that highlighting additional recreational walking materials in pamphlets and facilitating access to the described resources translates to greater participant self-efficacy [20]. In the present study, the reiteration of timing and location of the recurring walks in the educational material served as a useful reminder for participants and likely encouraged attendee retention, though this was not directly analyzed. Indeed, the UK based study demonstrated that brochures containing general and normative information about physical activity and health, as well as behavioral

prompts encouraging general walking behaviors, may be effective in encouraging tangible and sustainable behavior change amongst community participants [20].

We also found behavior change to carry over to the primary care office setting. Posting WWaD flyers and photos from the walks in the office initiated both inter-staff and patient-staff conversations about the impact of exercise and health. While not directly analyzed, office staff who participated in the monthly walks were not only able to model healthy behaviors for patients, but also had the potential for instilling healthy lifestyle habits within themselves. The latter is especially significant because healthcare workers are often under high levels of stress and have poor health habits [21]. As such, a potential area of exploration for studies on walking groups like WWaD is the impact on not just patient and community participants, but healthcare workers as well, who often lead the charge in stimulating change in health behaviors in surrounding community networks. Because doctors are part of the community, they can also benefit from the walks and talks as well as modeling and motivating the community participation.

Long-term studies on health information retention by attendees, as well as of application of the information to lifestyle and exercise habits, would aid community workers and physicians in designing programs with real-world effectiveness translating to a tangible effect on local and regional community health. While WWaD attendees at Stony Brook cited community gathering and team building aspects of WWaD as the “most enjoyable” aspect of the program and a key driver for participation, long-term studies directly examining factors influencing longitudinal participant retention would aid in optimization of walking programs.

## Limitations

This study has several limitations. It is a retrospective, single-site study at a suburban tertiary care center and is therefore limited in its generalizability. There is also reporting bias stemming from self-reported data on physical activity, which may be skewed if individuals were unwilling to share their true exercise habits. We attempted to minimize reporting bias by emphasizing the anonymous nature of questionnaires and allowing individuals to fill out the forms privately without direct observation by program coordinators. There was disproportionate representation of members of the healthcare community including physicians, nurses, and medical students. Because their data was not excluded, it may have skewed data due to more knowledge of health impacts of exercise at baseline. All nonhealthcare

participants were referred by social media even though other recruitment methods were utilized (word of mouth, printed flyers, and email to listservs). This could have also skewed the group dynamics because they might inquire more regarding what they find healthwise on social media. Moreover, the design of the questionnaire was constrained due to time limits; as such, questions were selected based on efficiency rather than the breadth or depth of the data collected. Interviews were conducted informally during or immediately after the walk, with largely positive responses; individuals may have been unwilling to share negative perspectives with the event organizers. Future studies on the long-term impacts of the program should utilize focus groups conducted by an independent party to allow for sharing of nonbiased feedback in an environment without time constraints.

## Conclusions

This mixed-methods study of the WWaD chapter at Stony Brook contributes to a growing body of evidence highlighting the value of walking groups as effective avenues for collaboration in producing accessible healthy behaviors [11–15]. Here, we highlight a modified questionnaire tool to efficiently and effectively gauge demographics, perceptions of health status, and attendees’ goals for participation, including increased physical activity, greater knowledge of health benefits of exercise supplemented by physician-led discussion and brief pamphlets as well as social networking opportunities through the WWaD platform. In considering optimization of existing walking programs or the creation of new ones, physicians and community workers can incorporate these objectives to ensure the alignment of goals between the organizer and the participant.

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**Research ethics:** The local Institutional Review Board deemed the study exempted from review.

**Informed consent:** Informed consent was obtained from all individuals included in this study, or their legal guardians or wards.

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**Competing interests:** The authors state no conflict of interest.

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## References

1. Warburton DE, Bredin SS. Reflections on physical activity and health: what should we recommend? *Can J Cardiol* 2016;32: 495–504.
2. McPhee JS, French DP, Jackson D, Nazroo J, Pendleton N, Degens H. Physical activity in older age: perspectives for healthy ageing and frailty. *Biogerontology* 2016;17:567–80.
3. Pavey TG, Taylor AH, Fox KR, Hillsdon M, Anokye N, Campbell JL, et al. Effect of exercise referral schemes in primary care on physical activity and improving health outcomes: systematic review and metaanalysis. *BMJ* 2011;343:d6462.
4. Hanson S, Jones A. Is there evidence that walking groups have health benefits? A systematic review and meta-analysis. *Br J Sports Med* 2015; 49:710–15.
5. Freeman AM, Curran-Everett D, Sabgir D. How starting a patient education/fitness program can improve health. ‘Walk with a Doc’ program shows you how to model healthy behaviors and strengthen the patient-physician bond. *Med Econ* 2014;91:42–4, 47–8.
6. Walk with a Doc. Our story; 2020. <https://walkwithadoc.org/who-we-are/> [Accessed 18 Feb 2020].
7. AAFP. Physical activity assessment tool. *Am Fam Physician* 2008;77:1132–3.
8. Roper ASW. Exercise attitudes and behaviors questionnaire: a survey of adults age 50–79. In: AARP. Washington, D.C.: AARP Health Policy and Services research; 2002.
9. Sallis R. Exercise is medicine: a call to action for physicians to assess and prescribe exercise. *Physician Sportsmed* 2015;43:22–6.
10. Marselle MR, Irvine KN, Warber SL. Walking for well-being: are group walks in certain types of natural environments better for well-being than group walks in urban environments? *Int J Environ Res Publ Health* 2013;10:5603–28.
11. Centers for Disease Control and Prevention. Step it up! A partners guide to promote walking and walkable communities; 2015.
12. Go4Life. Starting and sustaining a walking club for older adults. National Institute on Aging at NIH; 2020. <https://go4life.nia.nih.gov/walking-clubs/> [Accessed 19 Feb 2020].
13. Mayo Clinic. Walking group: banish boredom, boost motivation; 2020. <https://www.mayoclinic.org/healthy-lifestyle/fitness/indepth/walking/art20045837> [Accessed 19 Feb 2020].
14. American Heart Association. Start or join a walking club; 2020. <https://www.heart.org/en/healthy-living/fitness/walking/start-or-join-a-walkingclub> [Accessed 19 Feb 2020].
15. America Walks. Every body walk! Collaborative; 2020. <https://americawalks.org/partnerdirectory/everybody-walk-collaborative-2/> [Accessed 19 Feb 2020].
16. Simon JG, De Boer JB, Joung IMA, Bosma H, Mackenbach JP. How is your health in general? A qualitative study on self-assessed health. *Eur J Publ Health* 2005;15:200–8.
17. Allender S, Cowburn G, Foster C. Understanding participation in sport and physical activity among children and adults: a review of qualitative studies. *Health Educ Res* 2006;21:826–35.
18. Stødle IV, Debesay J, Pajalic Z, Lid IM, Bergland A. The experience of motivation and adherence to group-based exercise of Norwegians aged 80 and more: a qualitative study. *Arch Publ Health* 2019;77:26.
19. Nascimento ÉA, Tarcia RML, Magalhães LP, Soares MAL, Suriano MLF, Domenico EBLD. Educational pamphlets on health: a reception study. *Rev Esc Enferm USP* 2015;49:432–9.
20. Elliott LR, White MP, Taylor AH, Abraham C. How do brochures encourage walking in natural environments in the UK? A content analysis. *Health Promot Int* 2018;33:299–310.
21. Clark MM, Jenkins SM, Hagen PT, Riley BA, Eriksen CA, Heath AL, et al. High stress and negative health behaviors: a five-year wellness center member cohort study. *J Occup Environ Med* 2016;58:868–73.

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