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Time and Ties: Investigating temporal and social dynamics during health behaviour change

Submission date
11/06/2025

Recruitment status
No longer recruiting

Registration date
07/07/2025

Overall study status
Ongoing

Last Edited
28/01/2026

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol
Background and study aims
Changing behaviour can be challenging, but doing this together with a romantic partner can help overcome this challenge. The current intervention studies investigate several techniques to change physical activity: First, planning the new behaviour has been shown to be beneficial. Thus, providing couples with planning tools is one part of the intervention. Then, sometimes social support is well-intended but not well-executed. Thus, couples receive information on skilled support. Moreover, this study aims to support couples at the right time when they need help with behaviour change. These so-called just-in-time adaptive interventions (JITAIs) have been shown to be effective in promoting a variety of health behaviours in individuals. However, it remains an open question how to adapt such interventions to work best with couples and determine the optimal timing and content that matches couples' needs for these interventions. The aims of the studies were to:
1. Investigate the psychological and social factors involved when couples try to change their physical activity together.
2. Examine the effectiveness of planning interventions, skilled support, and dyadic JITAIs among romantic partners.
3. Test a new algorithm that matches the right dyadic JITAIs to each couple’s needs.

Who can participate?
Romantic couples can participate if they fulfil the following criteria:
1. Both partners must live in Switzerland, Liechtenstein, Germany or Austria.
2. Both partners must be at least 18 years of age.
3. Partners must be in a romantic relationship with each other and have lived together for at least 6 months.
4. Both partners must be physically active for less than 150 minutes per week.
5. Both partners must have the intention to be more physically active.
6. Both partners must have a smartphone that they use regularly.
7. Both partners must speak German fluently.
8. Neither partner must have severe health conditions that pose a risk for participation when being physically active.

What does the study involve?
Study 1: German-speaking romantic couples living together in Switzerland are recruited through Facebook and Instagram ads. The study duration is about 2 months. First, couples complete a baseline questionnaire, responding to questions about their psychological and social exchange processes, as well as their physical activity. Then there is a 55-day diary phase. During the diary phase, physical activity data is collected through daily diaries and accelerometers. Data on the psychological and social processes is assessed through daily diaries. Couples are randomly placed in one of three groups, each receiving dyadic interventions in different weeks, with a baseline week that includes no interventions. One group receives dyadic interventions in weeks 2 to 4, another in weeks 6 to 8, and the final group over the entire study period except the first week. First, the couples receive an intervention on providing skilled support to each other and discussing ways to enhance their mutual support. Furthermore, participants plan as a couple when they want to be physically active. Finally, they receive dyadic just-in-time adaptive interventions (JITAIs) on specific topics via a smartphone app. One week after the diary phase, there is an end questionnaire similar to the baseline questionnaire.
Study 2: German-speaking romantic couples living together in Switzerland, Liechtenstein, Germany, and Austria are recruited through various social media outlets (e.g., Facebook, Instagram), flyers, and online advertisements. Study 2 involves a continuous recruitment of couples over about 2 years, with each couple's participation lasting 5 months (baseline questionnaire, 55-day diary phase, end questionnaire, and 3-month follow-up). Study 2 implements a similar design as Study 1, with some changes based on the insights and the feedback from Study 1. The changes include modifications to the algorithm that triggers the dyadic JITAIs and adjustments to the intervention content and questionnaires. Furthermore, there are additional short daily questionnaires with varying timings, depending on when the physical activity was planned, as well as a 3-month follow-up questionnaire. Finally, Study 2 no longer includes different groups and consists of a 1-week baseline phase without dyadic interventions, followed by 7 weeks of dyadic interventions, relying fully on a micro-randomised design.

What are the possible benefits and risks of participating?
The researchers do not expect any potential risks associated with participating in the study. The benefits of participating include increasing couples' physical activity, improving the quality and quantity of their social exchanges (e.g., social support, social control, companionship), and ultimately enhancing their relationship quality, mood, and overall health. Furthermore, participating couples received 300 CHF (Study 1) / 200 CHF (Study 2) for their participation.

Where is the study run from?
University of Zurich (Switzerland). The study was conducted via a smartphone app and was fully remote.

When is the study starting, and how long is it expected to run for?
August 2021 to December 2027

Who is funding the study?
This study was funded by the Swiss National Science Foundation (grant number 10001C_197471)

Who is the main contact?
1. Prof. Dr Urte Scholz, urte.scholz@psychologie.uzh.ch
2. Dr Robert Tobias, robert.tobias@uzh.ch

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Additional identifiers

Protocol serial number
10001C_197471

Study information

Scientific Title
Dynamic modelling of temporal patterns in dyadic health behaviour change among romantic couples: Evaluating the effectiveness of dyadic interventions to increase physical activity

Acronym
T&T

Study objectives
1. Couples show higher moderate-to-vigorous physical activity (MVPA; device-based and self-reported) during the intervention phase than during the control phase.
2. On days for which participants had planned to be physically active during the planning intervention, participants engaged in more MVPA (device-based and self-reported) compared to days for which they had not planned to be physically active.
3. On days when a dyadic just-in-time adaptive intervention (JITAI) targeted the actor’s MVPA compared to days without a dyadic JITAI targeting the actor's MVPA, the actor will engage in more MVPA (device-based and self-reported).
4. On days when a dyadic JITAI targeted the partner's MVPA compared to days without a dyadic JITAI targeting the partner's MVPA, the actor will engage in more MVPA (device-based and self-reported).
5. Dyadic JITAIs targeting joint dyadic behaviour change techniques (DBCTs) will be more effective than dyadic JITAIs targeting cross-over DBCTs.

Ethics approval required
Ethics approval required

Ethics approval(s)

1. Approved 28/09/2021, Ethics committee of the Faculty of Arts and Social Sciences (Binzmühlestrasse 14 / Box 34, Zurich, 8050, Switzerland; -; hopwood@psychologie.uzh.ch), ref: 21.9.11

2. Approved 02/10/2022, Ethics committee of the Faculty of Arts and Social Sciences (Binzmühlestrasse 14 / Box 34, Zurich, 8050, Switzerland; -; hopwood@psychologie.uzh.ch), ref: 21.9.11

Primary study design
Interventional

Study design
Within-person (/dyad) micro-randomized trial (MRT)

Study type(s)
Efficacy, Prevention

Health condition(s) or problem(s) studied
Physical activity

Interventions
Studies 1 and 2 employ a within-person (/dyad) micro-randomised trial (MRT) design implemented over 55 days, conducted via smartphone.

There are small differences between the studies. In Study 1, three different groups are compared during the 55-day diary phase: one group receiving dyadic interventions throughout (after the baseline phase of 7 days), one group receiving 3 weeks of dyadic interventions after the 7 days baseline and then 4 weeks with no interventions, and one group receiving no interventions for 4 weeks right after the 7-day baseline, but ending the 55 days with 3 weeks of dyadic interventions. In Study 2, all couples received the same treatment: a 7-day baseline assessment followed by 7 weeks of dyadic interventions.

In both studies, the researchers apply different dyadic interventions sent via smartphones.
1. Participants engage in weekly dyadic planning (i.e., joint planning, targeting the behaviour of one person only; Burkert et al., 2011) and collaborative planning (i.e., joint planning and joint behavioural performance; Prestwich et al., 2005). Planning involves the concrete details of when, where, and how to implement the behaviour, as well as what to do when obstacles arise.
2. Furthermore, a one-time skilled social support intervention is presented (Rafaeli & Gleason, 2009). Skilled support encompasses various recommendations on how to optimise supportive acts (e.g., regarding reciprocity or ideal timing of support) to minimise the negative side effects of support, such as feelings of indebtedness due to unequal support provision. This intervention also includes information on the proper implementation of social control.
3. Finally, various dyadic just-in-time adaptive interventions (JITAIs) are implemented. The JITAIs aim to provide the right type of intervention at the right time (Nahum-Shani et al., 2015). The dyadic JITAIs in this study aim to initiate or modify social exchange processes, such as social support or social control, between partners. The dyadic JITAIs are micro-randomised. For example, a dyadic JITAI may be triggered before a planned activity, prompting the partner to provide instrumental support to the target to help them be physically active. This JITAI may be selected because the partner struggled to engage in the last activity and indicated that they did not receive enough support in the end-of-day diary.

Intervention Type
Behavioural

Primary outcome(s)
Moderate-to-vigorous physical activity measured daily using self-report questionnaires (German adaptation from: Amireault, S., & Godin, G. [2015]) and continuously using accelerometers (ActiGraph CentrePoint Insight Watch) over 55 days

Key secondary outcome(s)
As the study was designed to address various research questions, there are many potential secondary outcome measures that include, but are not limited to:
1. Relationship closeness and relationship quality measured using daily questionnaires (adapted from Berli, C., Schwaninger, P., & Scholz, U. [2021] over 55 days
2. Mood measured using the short version of the German-speaking mood state scale over 55 days
3. Action and coping planning measured using daily questionnaires (adapted from Scholz, U., Schüz, B., Ziegelmann, J. P., Lippke, S., & Schwarzer, R. [2008]) over 55 days
4. Companionship measured using daily questionnaires (adapted from Stadler, G., Scholz, U., Bolger, N., Shrout, P. E., Knoll, N., & Lüscher, J. (2023) over 55 days
5. Emotional and instrumental social support measured using daily questionnaires (Bolger N., Zuckerman A., Kessler R. C. [2000]) over 55 days
6. Negative and positive social control measured using daily questionnaires (adapted from Butterfield, R. M., & Lewis, M. A. [2002]) over 55 days
7. Sabotaging measured using daily questionnaires (adapted from Ball, K., & Crawford, D. [2006]) over 55 days
8. Commitment measured using daily questionnaires (self-developed) over 55 days
9. Self-efficacy measured using daily questionnaires (adapted from Sniehotta, F. F., Scholz, U., & Schwarzer, R. [2005]) over 55 days
10. Intention measured using daily questionnaires (adapted from Scholz, U., Schüz, B., Ziegelmann, J. P., Lippke, S., & Schwarzer, R. [2008]) over 55 days
11. Action control measured using daily questionnaires (adapted from Scholz, U., Nagy, G., Schüz, B., & Ziegelmann, J. P. [2008]) over 55 days
12. Reactance measured using daily questionnaires (adapted from Scholz, U., Stadler, G., Berli, C., Lüscher, J., & Knoll, N. [2021]) over 55 days

Completion date
31/12/2027

Eligibility

Key inclusion criteria
1. Both partners must be at least 18 years of age
2. Partners must be in a romantic relationship with each other and live together for at least 6 months
3. Both partners must be physically active for less than 150 minutes per week
4. Both partners must have the intention to be more physically active
5. Both partners must have a smartphone that they use regularly
6. Both partners must speak German fluently

Participant type(s)
Population

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
99 Years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Having severe health conditions that pose a risk for participation when being physically active

Date of first enrolment
01/02/2022

Date of final enrolment
31/07/2026

Locations

Countries of recruitment
Austria

Germany

Liechtenstein

Switzerland

Study participating centre
University of Zurich
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Sponsor information

Organisation
University of Zurich

ROR
https://ror.org/02crff812

Funder(s)

Funder type
Charity

Funder Name
Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung

Alternative Name(s)
Schweizerischer Nationalfonds, Swiss National Science Foundation, Fonds National Suisse de la Recherche Scientifique, Fondo Nazionale Svizzero per la Ricerca Scientifica, Fonds National Suisse, Fondo Nazionale Svizzero, Schweizerische Nationalfonds, The Swiss National Science Foundation (SNSF), SNF, SNSF, FNS

Funding Body Type
Private sector organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Switzerland

Results and Publications

Individual participant data (IPD) sharing plan
Data will be available upon reasonable request from Urte Scholz and Robert Tobias (urte.scholz@psychologie.uzh.ch and robert.tobias@uzh.ch)
Type of data: Raw data of the variables relevant to the research question of the study will be shared. These may include data from the baseline, daily, weekly, or end questionnaire as well as the data from the ActiGraph Insight Watches.
When the data will become available and for how long: Data from the corresponding publication will be made available upon request.
By what access criteria data will be shared: Data will be shared with researchers investigating research questions of scientific importance, regardless of the type of research question or type of analyses.
Mechanism: Data will be shared via SWITCHfilesender.

Consent: Participants' consent for sharing the data was obtained in the informed consent.
Anonymisation: Before any data is shared externally, we carry out a thorough anonymization process to ensure that all personal or identifying information is removed. We adhere strictly to data protection standards and ethical guidelines. Only fully anonymized data will be made available to third parties. Under no circumstances will raw or personally identifiable data be shared.
Ethical and legal restrictions: There are no legal or ethical restrictions to sharing the anonymized data with other researchers.
Comments: Data will not be shared with researchers who want to investigate research questions that are part of our planned analyses.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		27/01/2026	28/01/2026	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study 1		20/06/2025	No	No
Study website	Study 2		20/06/2025	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes