Internet-based self-help intervention aimed at increasing social self-efficacy among internal migrants in Poland: Study protocol for a randomized controlled trial

Anna Rogala[a,*], Maria Szczepaniak[a], Natalia Michalak[a], Gerhard Andersson[b,c]

[a] Department of Psychology, SWPS University of Social Sciences and Humanities, Warsaw, Poland
[b] Department of Behavioural Sciences and Learning, Linköping University, Linköping, Sweden
[c] Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

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ABSTRACT

Background: Migration is a challenging life transition that may be a source of various problems related to well-being and mental health. However, the psychological adaptation of migrants may be potentially facilitated by social self-efficacy—the beliefs in one's ability to initiate and maintain interpersonal relationships. Previous research suggests that social self-efficacy is positively related to adjustment and negatively related to loneliness, depression, and psychological distress. Research also confirms that self-efficacy beliefs can be effectively enhanced using Internet-based interventions. These results served as a background for creating the New in Town, a self-help Internet-based intervention for internal migrants in Poland that aims at increasing social self-efficacy. Exercises in the intervention are based on the principles of Cognitive Behavioral Therapy and relate to sources of self-efficacy beliefs: mastery experiences, vicarious experiences, verbal persuasions, and emotional and physiological states. Users complete increasingly challenging tasks that encourage them to interact with their environment. The aim of this trial was to investigate the efficacy of the New in Town intervention.
Methods: The efficacy of the New in Town intervention will be tested in a two-arm randomized controlled trial with a waitlist control group. Social self-efficacy will be the primary outcome. Secondary outcomes will include loneliness, perceived social support, and satisfaction with life. Additionally, we will measure user experience among participants allocated to the experimental group. We aim to recruit a total of $N = 280$ participants aged at least 18 years who have changed their place of residence in the last 6 months and have an Internet connection. Participants will be assessed at baseline, 3-week post-test, and 8-week follow-up.
Discussion: The trial will provide insights into the efficacy of Internet-based self-help interventions in increasing social self-efficacy. Given that the intervention works, New in Town could provide an easily accessible support option for internal migrants in Poland.
Trial registration: The trial was registered with ClinicalTrials.gov (identifier: NCT04088487) on 11th September 2019.

1. Background

The number of migrants worldwide has been growing rapidly over the past years (United Nations, 2017). Most of them migrate inside their own country (King and Skeldon, 2010). According to the estimations of the United Nations Development Programme, in 2009 there were 740 million internal migrants worldwide, compared to 214 million international migrants (United Nations, 2009). King and Skeldon (2010) suggest that "the *age of migration* is therefore also an age of mass internal migration" (p. 1621). Migration—both internal and international—is a source of potential specific stressors that could threaten migrants' well-being and mental health, e.g., communication difficulties, cultural differences, socioeconomic as well as employment status change (Kirmayer et al., 2011). It is also a challenging life transition that may be related to problems in the social area. Research has shown that students and visiting scholars from China in Canada report more communication problems, difficulties in making friendships, loneliness, and lower subjective adaptation, compared to non-Chinese Canadian

and Chinese-Canadian students (Zheng and Berry, 1991). Research also suggests that depression symptoms are more prevalent among internal migrants in China compared to the general population (Qiu et al., 2011). What is more, internal migrant adolescents report lower levels of self-esteem, higher levels of depression, and have less social connections than local adolescents (Mao and Zhao, 2012). However, psychological adaptation of migrants may be facilitated by personal resources, such as self-efficacy beliefs (Jerusalem and Mittag, 1995). Social Cognitive Theory (Bandura, 1997) defines self-efficacy as "belief in one's capabilities to organize and execute the course of action required to produce given attainments"(p. 3). Self-efficacy has been shown to be one of the important factors that help an individual to deal with stressful life transitions and adjust to a new situation (Jerusalem and Mittag, 1995). Maciejewski, Prigerson, and Mazure (2000) found that self-efficacy mediates the relationship between dependent stressful life events and symptoms of depression among Americans with a prior history of depression. Moving to a new residence (internal migration) was the most often reported life event in the aforementioned study (n = 314), along with serious financial problems (n = 216) and life-threatening illness or injury (n = 101) (Maciejewski et al., 2000). Jerusalem and Mittag (1995) suggested that "within this stressful transitional adaptation to the new societal living conditions, self-efficacy can function as a personal resource protecting against deleterious experiences, negative emotions, and health impairment" (p. 179).

Numerous studies have confirmed the positive effects of self-efficacy beliefs among migrants. Research on young East German migrants suggests that individuals high in self-efficacy perceive changes in their lives more as challenges and less as threats, and report lower anxiety and better health than migrants low in self-efficacy (Jerusalem and Mittag, 1995). American expatriates in Europe with high levels of self-efficacy express greater degrees of cultural adjustment than those with low levels (Harrison et al., 1996). Wang and Sangalang (2005) found that among Filipino immigrant employees in Canada self-efficacy is positively related to work adjustment. A study among Afghan and Kurdish refugees in New Zealand and Australia showed that self-efficacy beliefs were associated with higher subjective well-being and lower psychological distress (Sulaiman-Hill and Thompson, 2013). Self-efficacy was also found to be a predictor of mental health among Malawian returning refugees (Gillespie et al., 2016). Moreover, research among Somali adolescents resettled in the United States suggests that self-efficacy is positively related to a sense of school belonging and negatively to PTSD and depression symptoms (Kia-Keating and Ellis, 2007).

Not only self-efficacy beliefs but also social support from friends and significant others is positively related to psychological adjustment (Yusoff, 2011) and subjective well-being of migrants (Schwarzer and Hahn, 1993). Therefore, the constitution of a new social network is very important for this population. There is one type of self-efficacy beliefs that may especially help migrants to establish new social bonds—social self-efficacy (Sherer et al., 1982). Although self-efficacy can be defined (Jerusalem and Mittag, 1995) more globally as a "traitlike general sense of confidence in one's own capabilities to master different types of environmental demands" (p. 177), it is usually conceptualized as a context-specific construct (Bandura, 1997; Bandura, 2006). Research suggests that using domain-specific self-efficacy measures allows predicting the outcomes more successfully (Salanova et al., 2002). Social self-efficacy beliefs can be defined as (Anderson and Betz, 2001)"confidence in one's ability to engage in the social interactional tasks necessary to initiate and maintain interpersonal relationships in social life and career activities" (p. 98). Research has shown that social self-efficacy is negatively correlated with attachment anxiety, depression, and loneliness among internal migrants in the USA—freshman college students (Wei et al., 2005). In addition, social self-efficacy mediates the relationship between attachment anxiety and loneliness (Wei et al., 2005). Social self-efficacy is also negatively related to acculturative stress, depression, and self-concealment among international college

students in the United States (Constantine et al., 2004). Fan and Mak (1998) found that first-generation migrant students in Australia reported lower social self-efficacy than second-generation ones. They also reported more social difficulties and fewer shared interests with people in the host society, compared to second-generation migrant students (Fan and Mak, 1998). International students in Canada also reported lower levels of social self-efficacy than Canadian and second-generation migrant students. Moreover, their low self-efficacy predicted low academic satisfaction and high psychological distress (Leung, 2001a). Similar results were obtained in Australia—Chinese migrant and overseas students reported lower self-efficacy than Anglo-Australian and second-generation migrant students from Southern Europe. Social self-efficacy was also positively related to academic satisfaction and negatively to psychological distress. Overall, the results of the aforementioned study suggest that social relationship issues impact the academic satisfaction of overseas students and migrants to a greater extent than the satisfaction of non-migrant students (Leung, 2001b). Therefore, it may be concluded that social self-efficacy is potentially beneficial for the psychological adjustment of migrants helping them establish new connections in the social environment. However, most evidence for the positive effects of social self-efficacy is derived from non-experimental research. Our study addresses this gap.

Not only social self-efficacy, but also other factors, such as age, gender, educational level, and occupational background, socio-economic position, and availability of social support are related to adjustment and well-being of migrants (Das-Munshi et al., 2012; Bhugra and Gupta, 2010). However, not all of these factors can be easily changed. On the other hand, self-efficacy beliefs in various domains, including initiating and maintaining interpersonal relationships, are malleable and can be intentionally enhanced (Gist and Mitchell, 1992). In line with Bandura's Social Cognitive Theory (Bandura, 1997), self-efficacy beliefs can be altered by interpreting information from four different sources. First, perceived as the most powerful is *mastery experience* rooted in the interpretation of one's own performance in a specific domain as successful. Second, the *vicarious experience* is related to observing the accomplishments of others which can be interpreted as a proof of specific goals attainability. Encouraging feedback about one's own skills, abilities or performance given by significant others serve as a third source of self-efficacy beliefs, *verbal and social persuasion. Psychological and emotional states* are the fourth source. Individuals treat their emotional and physiological reactions like stress or anxiety while performing particular tasks as indicators of their capabilities (Bandura, 1997). Bandura's theoretical framework found support in empirical research results (Anderson and Betz, 2001; Usher and Pajares, 2008). Therefore, we can distinguish not only theoretically but also empirically the aforementioned sources in the context of social self-efficacy beliefs (Anderson and Betz, 2001).

Furthermore, previous research showed that an Internet-based intervention drawn upon Social Cognitive Theory could be an effective means of self-efficacy beliefs reinforcement (Cieslak et al., 2016). Human services professionals exposed to indirect trauma who took part in an Internet-based intervention displayed significantly greater improvements in self-efficacy beliefs related to managing secondary traumatic stress compared to an active control group. The Internet-based sessions included modules focused on recalling past personal successes, the cognitive reappraisal of situations perceived as failures, an individually tailored plan of boosting self-efficacy beliefs and positive thoughts, and emotions reinforcement (Cieslak et al., 2016). Internet-based interventions are a promising approach to reinforcing the self-efficacy of participants in a variety of specific contexts. Teachers who accomplished an Internet-based problem-solving training displayed significantly greater improvements in general and work-specific self-efficacy compared to waitlist control group members (Ebert et al., 2014). An online positive psychology intervention to promote positive emotions, self-efficacy, and engagement at work consisting of modules targeting happiness, goal setting, and resource building, has shown its

positive impact on participants' self-efficacy (Ouweneel et al., 2011). The web-based intervention aimed at promoting healthy eating has proven its effectiveness in enhancing self-efficacy for total dairy intake among college students (Poddar et al., 2010). Moreover, the Internet-based program aimed at reducing cannabis use has shown a positive effect on participants' use-related self-efficacy (Tossmann et al., 2011). To sum up, empirical evidence suggests that self-efficacy beliefs are malleable and can be effectively enhanced using Internet-based interventions (Cieslak et al., 2016; Ebert et al., 2014; Poddar et al., 2010; Tossmann et al., 2011). The aim of this study will be to evaluate the efficacy of a newly developed self-help Internet-based intervention, New in Town, in enhancing social self-efficacy when compared to a waiting-list control group. Whereas Internet-based interventions aimed at self-efficacy reinforcement have been investigated in the various aforementioned contexts, New in Town may be the first one targeting internal migrants. According to the National Census of Population and Housing 2011 in Poland, 38,9% of Polish citizens are migrants—they had lived elsewhere before for at least one year. In the years 2002–2011 most of them (95,6%) were internal migrants. Only 4,4% of Polish migrants had lived abroad before moving to the current place of residence (Statistics Poland, 2012).

It also overcomes the limitations of numerous existing self-efficacy enhancement Internet-based interventions by encompassing theory-driven content. We expect that an experimental intervention group will be superior to the control group regarding primary outcome—social self-efficacy—and secondary outcomes such as loneliness, perceived social support, and satisfaction with life. Furthermore, we will evaluate the user experience of the intervention.

2. Methods

2.1. Trial design

The study is a two-arm randomized controlled trial in parallel design. Participants will be randomized into two groups: a self-help Internet-based intervention (New in Town) and a waiting list control group. The trial was registered at ClinicalTrials.gov (identifier: NCT04088487) on 11st September 2019.

2.2. Ethical approval

The study protocol and informed consent have been approved on 15th January 2019 by the Ethics Committee of the Faculty of Psychology at the SWPS University of Social Sciences and Humanities in Warsaw, Poland (ref. no. 4/2019).

2.3. Study setting

The New in Town is an Internet-based intervention created by the researchers at the SWPS University of Social Sciences and Humanities in Warsaw. It is available in the Polish language version. The mode of Internet recruitment and data collection enables potential participants from all over Poland to apply for trial enrollment.

2.4. Participants and recruitment

Potential participants will be recruited through social and traditional media campaigns, the project's website, flyers, and newsletters among freshman university students. The recruitment has begun on 14th January 2020. The New in Town intervention includes tasks that encourage participants to interact with the social environment. Interpersonal interactions pose the risk of infection during the COVID-19 pandemic (WHO, n.d.). Therefore, following the recommendations of the Ethics Committee of the Faculty of Psychology at the SWPS University of Social Sciences (16th March 2020) the recruitment is suspended until 1st September 2020, with the possibility of extension. The anticipated date of recruitment completion is 14th December 2020. Applicants will be directed to the study website where they will be informed of the study design and asked to complete online screening questionnaires about demographic data and their Internet access. Inclusion criteria are as follows: (1) being at least 18 years old, (2) having changed the place of residence in the last 6 months. Targeted sample is prone to adjustment disorders development. In line with DSM-V, adjustment disorder became chronic when the symptoms persist more than six months from the moment when the trigger has occurred (American Psychiatric Association, 2013). As the New in Town intervention is focused on soft skills development related to social self-efficacy it cannot be treated as professional help for those individuals who faced clinical symptoms of chronic adjustment disorder. Therefore, we have chosen the criterion of 6 months. When explaining participants this criterion we use internal migration definition of Statistics Poland—"change of place of residence (…) in the territory of Poland, related to crossing the administrative border of a *gmina* (Polish administrative unit), including—in case of urban-rural gminas—changes of the place of residence within a gmina, i.e. from rural to urban areas and vice versa" (Statistics Poland, 2020). The exclusion criterion is the lack of Internet access. Applicants who meet inclusion criteria will be automatically directed to electronic informed consent to enroll in the study. All study participants will be informed of their right to delist from the study without any consequences. After giving consent, participants will be asked to complete baseline questionnaires.

Table 1
Content of the New in Town intervention.

Module	Description
Module 1: Introduction	Psychoeducation on social self-efficacy
Module 2: Our successes	Psychoeducation on sources of self-efficacy beliefs
	Systematic exposure to social situations and enhancing self-efficacy beliefs through mastery experiences (e.g. Giving Compliments Exercise)
Module 3: Negative thoughts	Psychoeducation on negative thoughts and learning methods of dealing with them (e.g. Cognitive Restructuring Exercise)
Module 4: Social models	Systematic exposure to social situations
	Enhancing self-efficacy beliefs through vicarious experiences (e.g. Social Model Exercise)
Module 5: Hobby	Psychoeducation on the benefits of engaging in enjoyable leisure activities (e.g. Outdoor Activities Search)
Module 6: You can do it!	Systematic exposure to social situations and enhancing self-efficacy beliefs through social persuasions
	Psychoeducation on social support (e.g. Buddy Support Exercise).
Module 7: A sound mind in a sound body	Psychoeducation on emotional and physiological states as a source of self-efficacy beliefs (e.g. Self-care Exercise).
Module 8: Problem-solving	Psychoeducation on goal setting
	Planning initiating and maintaining interpersonal relationships (e.g. Goal Setting Exercise).

2.5. Intervention: New in Town

The intervention aims at increasing social self-efficacy and consists of Cognitive Behavioral Therapy (CBT)-based exercises related to sources of self-efficacy beliefs: 1) mastery experiences, 2) vicarious experiences, 3) verbal persuasions, and 4) emotional and physiological states (Bandura, 1997). Intervention contains 8 modules (see Table 1). Users complete increasingly challenging tasks that encourage them to interact with their environment. Modules are activated one by one. Anytime, intervention users can come back to previous modules. Study participants are asked to complete modules at their own pace, wherein they are informed that the intervention will be open for three weeks since the first login. Each module contains psychoeducation. In seven out of eight modules, participants are asked to do exercises. Some of them require interaction with other people.

The intervention begins with psychoeducation on self-efficacy. This module presents an explanation of self-efficacy beliefs in the context of adaptation to the new place of residence. The next module provides insight into sources of self-efficacy beliefs and consists of an exercise aiming at enhancing self-efficacy through mastery experience. In order to complete the exercise participants are encouraged to make contact with other people by giving a compliment to them. The third module is dedicated to cognitive restructuring. Participants are taught how to recognize and undermine the validity of negative thoughts. The module contains an exercise in which participants may deal with own negative thoughts that have recently appeared. The fourth module discusses vicarious experiences by sharing the experience of other people in establishing new relationships. The exercise given to participants is to get to know the story of a person that moved into a new city and managed to make a new network of friends. The fifth module provides information about the benefits of engaging in enjoyable leisure activities. The module exercise is to define own interests and find events that are related to them via the Internet. Participants are asked to visit one of them. In the sixth module, participants will be provided with psychoeducation on social support. The module introduces social persuasions as the source of self-efficacy and includes an exercise in which participants are asked to talk to a person about the problem of making friends in the new place of residence. The seventh module explains the impact of emotional and physiological states on self-efficacy beliefs and introduces self-care tools. In the last module, participants are provided with psychoeducation on goal-setting. The module exercise is to specify the own goal of establishing and maintaining relationships. Participants are provided with tools to design an action plan to achieve a defined goal.

2.6. Data collection

All data including informed consent will be stored in cloud-based software, SurveyMonkey. This platform uses an encrypted connection, which guarantees the security of data transmission. Assessments will not require any personal data, except an email address. It is necessary in order to send an online questionnaire link at post-test and follow-up. Only authorized persons will have access to the stored data.

2.7. Sample size

The sample size will be determined a priori using G*Power (Faul et al., 2007). Empirical evidence suggests a medium effect of Internet-based interventions aimed at increasing self-efficacy beliefs (Cieslak et al., 2016). In our analysis we will include four outcomes. Therefore, we will apply Bonferroni's adjustment that will compensate for multiple comparisons and lower the probability level. With an expected medium effect size (d = 0.50), an adjusted probability level of 0.0125, and a statistical power of 0.80, power analysis resulted in a sample size of 182 participants. Based on previous studies on unguided interventions we expect a dropout rate between 5 and 45% (Cuijpers et al., 2011).

Therefore, we plan to include 280 participants at baseline (140 participants per condition).

2.8. Procedure

After completion of the informed consent and baseline questionnaires, all participants will be randomized and assigned with a 1:1 ratio to one of two groups. Information about group allocation will be provided within 2 days to participants. Blinding allocation is not possible due to the study design. Participants assigned to the New in Town group will be provided with login details as soon as possible. The waiting-list group will be given login instruction 8 weeks after baseline. Both groups receive access to the intervention for a period of 3 weeks. In order to log in to the intervention website, all participants will get a unique password. After logging for the first time each participant is automatically asked to create own password. The participants can change the password to an account any time they wish. The post-test assessment is scheduled at 3 weeks after baseline, follow-up assessment at 8 weeks after baseline. All assessments (baseline, post-test, and follow-up) are self-reports and will be conducted online. Research has confirmed the reliability and validity of the Internet administration format of self-report psychological questionnaires (Hedman et al., 2010). Participants will be informed via email to complete assessments and will receive links to online questionnaires. Two email reminders will be sent if the questionnaires stay incomplete for one week.

Fig. 1 provides the study flow chart, while the schedule of enrollment, interventions, and assessments (SPIRIT figure) is presented in Fig. 2.

2.9. Randomization

Eligible participants will be randomized by an independent researcher after the baseline measurement to either an experimental group or a waitlist control group (1:1 allocation ratio) using an online randomization program (www.randomizer.org). To ensure an equal number of participants in both study conditions we will use non-stratified block randomization with two participants per block.

2.10. . Measurements

All outcomes will be measured in each assessment; baseline, post-test (3 weeks after baseline), and follow-up (8 weeks after baseline). Exceptions are demographic data and user experience. Demographic data will be collected at baseline, while user experience will only be assessed at the post-test among participants allocated to the experimental group. In a feasibility study, the reliability of measures was acceptable, with Cronbach's alpha ranging from 0.58 to 0.96. The average completion time of online questionnaires was 18 min.

2.10.1. Primary outcome measure

General Self-efficacy Scale. Social self-efficacy is the primary outcome studied. It will be measured with the General Self-efficacy Scale (GSES) (Sherer et al., 1982). The GSES consists of two subscales for measuring 1) generalized beliefs about self-efficacy (17 test items) and 2) beliefs about self-efficacy in establishing and maintaining relationships with others (6 test items). The remaining test items (7) are buffer theorems. The respondents give answers on a scale 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). In the trial, we will use one subscale, which measures beliefs about self-efficacy in establishing and maintaining relationships with others. Social self-efficacy will be indicated by the total sum of 6 items scores, e.g. "I have acquired my friends through my personal abilities at making friends". Higher scores reflect a higher level of self-efficacy. The scale demonstrates good psychometric properties (Sherer et al., 1982).
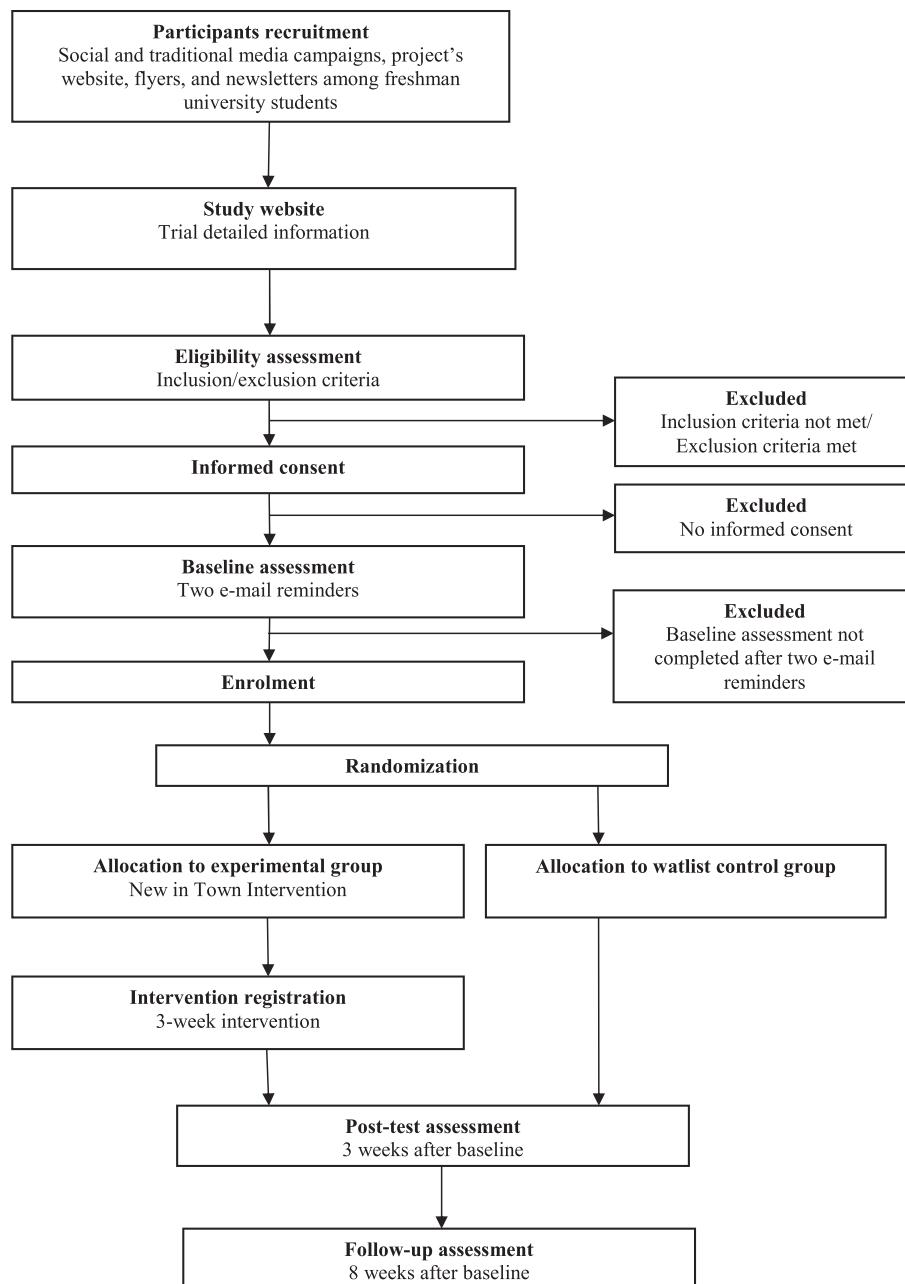
Fig. 1. Study flow.

2.10.2. Secondary outcome measures

De Jong Gierveld Loneliness Scale (De Jong-Gierveld and Van Tilburg, 1999) will be used to measure loneliness. The scale is composed of 11 items; 6 of them are formulated negatively and 5 positively. Each item is measured using on 5-point Likert scale (1 = definitely yes, 5 = definitely no), e.g. "I often feel rejected". Positive items should be reversed. The sum of scores is counted on 2 separate subscales: emotional and social loneliness. The scale can be applied in different data collection modes; in face-to-face interviews as well as in online questionnaires. It is a well-validated measure with a bifactor structure (Grygiel et al., 2013).

The Berlin Social Support Scale (BSSS) (Schulz and Schwarzer, 2003) will be used to assess social support. The BSSS consists of 6 subscales: perceived available support, need for support, support seeking, actually received support (recipient), provided support (provider), protective buffering scale. The scale contains 32 items that are scored on a 4-point scale (1 = strongly disagree, 4 = strongly agree). Before scoring items,

negative ones need to be reversed, e.g. "I get along best without any outside help". Scores can be counted either on a general scale or subscales. The measure was validated in several studies and showed good reliability (Schulz and Schwarzer, 2003; Schulz and Schwarzer, 2004). In the trial, only 3 of 6 subscales will be applied: perceived available support (8 test items), need for support (4 test items), and support seeking (5 test items).

The Satisfaction with Life Scale (SWLS) (Diener et al., 1985; Jankowski, 2015) will be used to assess perceived satisfaction with one's life. The SWLS consists of 5 items, e.g. "In most ways my life is close to my ideal". The respondents provide answers on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Possible scores range from 5 to 35, while the score of 20 indicates a neutral point. Internal consistency and test-retest reliability are highly satisfactory (Pavot and Diener, 2008). SWLS is widely used to measure satisfaction understood as a component of well-being (Pavot et al., 1991).

TIMEPOINT**	STUDY PERIOD				
	Baseline	*Intervention*	*Post-test*	*Follow-up*	*Partcipation complete*
ENROLMENT:					
Eligibility screen	X				
Informed consent	X				
Allocation	X				
INTERVENTIONS:					
Experimental Group: New in Town		●———●			
Waitlist control group					●———●
ASSESSMENTS:**					
Demograhic data	X				
GSES	X		X	X	
DJGS	X		X	X	
BSSS	X		X	X	
SWLS	X		X	X	
UEQ			Xª		

*ª Assessment applied to experimental group.
** GSES General Self-efficacy Scale, BSSS The Berlin Social Support Scales, DJGS De Jong Gierveld Loneliness Scale, SWLS Satisfaction with Life Scale,UEQ User Experience Questionnaire.

Fig. 2. Schedule of enrollment, intervention, and assessments.

2.10.3. Other measures

Demographic Data Questionnaire. This short questionnaire contains questions about gender, age, education, profession, tenure, the old and the new place of residence (rural area, city up to 20,000 residents, city up to 100, 000 residents, city up to 500, 000 residents, city with more than 500,000 residents).

User Experience Questionnaire. An overall impression of the intervention will be assessed by The User Experience Questionnaire (UEQ) (Laugwitz et al., 2008). It is a self-reported measure that contains 6 subscales: attractiveness, perspicuity, efficiency, dependability, stimulation, novelty. Participants respond to 26 items (e.g. annoying/enjoyable) using a 7-point scale (-3 = the most negative answer, 0 = neutral, $+3$ = the most positive answer). The UEQ presents high internal consistency and good validity of scales (Laugwitz et al., 2008).

2.11. Statistical analysis

Generalized estimating equations (GEE) approach will be used to examine changes in primary and secondary outcomes over time and to assess differences between experimental and waitlist control group. This approach allows the correlated structure of data from repeated measures. What is more, GEE is nonparametric and does not assume that the dependent variable is normally distributed (Liang and Zeger, 1986; Hubbard et al., 2010; Locascio and Atri, 2011). We will include group (experimental/waitlist control), measurement time and interaction between group and time as independent variables. Dependent variables will include social self-efficacy, loneliness, perceived social support, and satisfaction with life. QIC coefficients will be used to choose the best assumption for the working correlation matrix. We will follow intention-to-treat (ITT) principles and use model-based imputation to handle missing values (Groenwold et al., 2012). Adverse events will be assessed through the categorization of primary outcome change. We will recognize change that: 1) is higher than -30% from baseline as deterioration events, 2) is between -30% to 30% from baseline as non-response events, 3) is between 30 and 50% from baseline as minimal response events, and 4) is higher than 50% from baseline as remission events. This classification scheme will enable us to compare outcomes, such as worsening with improving symptoms or non-response to intervention (Karin et al., 2018; Kayrouz et al., 2020).

To assess possible measurement bias we will compare the outcome change with and without the effect of missing data. All analyses will use intention-to-treat (ITT) principles. We will additionally perform per-

protocol analyses to examine the robustness of the effects. Individual characteristics of participants can become confounding variables. Random assignment to groups minimizes the potential for confounding. Nevertheless, to assess possible assignment bias we will compare demographic and baseline characteristics between experimental and waitlist control group. The choice of sensitivity analyses will be, therefore, to some extent, data-driven (Thabane et al., 2013).

3. Discussion

Migrants go through a stressful process of transition and adaptation which may be related to problems in the area of well-being and mental health (Kirmayer et al., 2011). However, research suggests that adaptation of migrants may be facilitated by social self-efficacy beliefs (Constantine et al., 2004; Fan and Mak, 1998; Leung, 2001a; Leung, 2001b). Evidence also suggests that self-efficacy is malleable and can be effectively reinforced using Internet-based interventions (Cieslak et al., 2016; Ebert et al., 2014; Poddar et al., 2010; Tossmann et al., 2011). Because the number of migrants is steadily increasing over the past years (United Nations, 2017) and more than 30% of Polish citizens are internal migrants (Statistics Poland, 2012), the current challenge is to develop an effective and easily accessible intervention targeting this population. With our study, we hope to gain insight into the efficacy and acceptance of the New in Town—self-help Internet-based intervention aimed at increasing social self-efficacy among internal migrants in Poland. The study is a randomized controlled trial with a waitlist control group. The primary outcome is social self-efficacy. Secondary outcomes include loneliness, satisfaction with life and perceived social support. We will also explore user experiences.

The study is not free from limitations. Firstly, the online platform does not collect the data of the way participants will use the intervention (duration and frequency of being logged in to it). It is crucial to explore participants' patterns of accomplishing modules and identify the most crucial modules. Each intervention module is activated one by one, but participants have always the possibility to return to previous ones. Dates of module activation are not set in advance. Therefore, the chance that some participants might complete the whole intervention at once still exists. On the other hand, open access to non-blocked modules allows participants to use the intervention at own pace and to adapt exercise completion to the daily life duties. At the post-test, we plan to collect user experience data that might be helpful in enhancing the intervention. Secondly, the New in Town and assessments were not

provided on the same platform. This inconvenience may have an impact on drop-out rates. Relatively high dropout rates are found in a number of Internet-based interventions studies (Christensen et al., 2009; Melville et al., 2010). Therefore, we plan to adjust for missing data using the GEE approach (Hubbard et al., 2010).

The other concern is recruitment. Participants will be recruited via social and traditional media campaigns. It will be a self-selected sample that might be highly motivated for Internet-based interventions. This fact could affect the outcomes and become the main concern that should not be ignored without considering further research directions. For this reason, we plan in the near future to transfer the intervention to a more traditional medium and conduct it in the form of workshops or e-learning courses dedicated to freshman college students and assess its efficacy as well. Moreover, the control group in our study is a waitlist control. Research has shown that using this type of control condition may lead to bigger treatment effect sizes estimates compared to no treatment and psychological placebo (Furukawa et al., 2014). However, the aforementioned research was on CBT for depression and therefore generalizability of this evidence may be limited. Additionally, one of the inclusion criteria is having changed the place of residence in the last 6 months. Therefore, participants in a waitlist control group can wait longer to access the intervention than they were between changing the place of residence and study enrollment. Because of that study could yield more conservative results. Future studies should focus on comparing the New in Town with a different intervention as an active control condition.

There will also be several strengths of this study. Firstly, the content of the New in Town intervention is theory-driven. Exercises in the intervention are based on the principles of Cognitive Behavioral Therapy and relate to four sources of self-efficacy beliefs. According to Social Cognitive Theory, these beliefs can be enhanced by interpreting information from mastery experiences, vicarious experiences, verbal persuasions, and emotional and physiological states (Bandura, 1997). Secondly, we will use well-validated measures of primary and secondary outcomes. The strong aspect of the study design is also using two follow-up measurement points that enable us to track long-term effects. Finally, the New in Town is designed specifically for migrants, who are potentially at greater risk of difficulties in the social area (Kirmayer et al., 2011; Zheng and Berry, 1991).

Abbreviations

ANOVA	analysis of variance
BSSS	Berlin Social support Scale
CBT	Cognitive Behavioral Therapy
GEE	generalized estimating equations
GSES	General Self-efficacy Scale
ITT	intention-to-treat
RCT	randomized controlled trial
SWLS	Satisfaction with Life Scale
UEQ	User Experience Questionnaire

Trial status

Protocol version 1.0 was registered at ClinicalTrials.gov on 11th September 2019 (identifier: NCT04088487). Participant recruitment has begun on 14th January 2020. Anticipated completion date: 14th December 2019.

Ethics approval and consent to participate

The study protocol and informed consent have been approved on 15th January 2019 by the Ethics Committee of the Faculty of Psychology at the SWPS University of Social Sciences and Humanities in Warsaw, Poland (ref. no. 4/2019). Informed consent to participate in the study will be obtained from every participant.

Availability of data and materials

Not applicable.

Authors' contributions

AR initiated this study and created the New in Town intervention. AR, MS, and NM designed the trial and drafted the manuscript. GA provided a critical review of this manuscript. All authors contributed to the further writing of the manuscript and accepted the final version of the manuscript.

Declaration of competing interest

The authors declare that they have no competing interests.

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