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Do disadvantaged women appreciate a synergetic exercise and psycho-educative program? Rationale and process evaluation of the Exercise without Worries course

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Abstract

Rationale, aims and objectives: Stress-related complaints and depressive symptoms are highly prevalent mental health problems among low-SES women. This paper describes the theoretical background, program content and process evaluation of the Exercise without Worries (EWW) course, a new exercise-enhanced psycho-educative intervention that targets coping and reducing stress and depressive symptoms among disadvantaged women. This eight-week prevention course has been tailored to the specific needs of adult low-SES women.

Methods: The process evaluation used a descriptive, observational mixed methods design. Quantitative and qualitative data were gathered to determine implementation fidelity and subjective evaluations from the 135 participating women and the intervention providers.

Results: Overall attendance rates were satisfactory, but 26% of the recruited participants did not take part in the course. Implementation fidelity was sufficient, while the delivered intervention dose deviated on average for 1 out of 8 sessions from the manual. Overall, the participants reported being very satisfied with all organizational and content aspects of the intervention, with no specific preference for either exercise or psycho-education.

Conclusions: The findings suggest that a non-stigmatizing approach of exercise and psycho-education appears to fit with the preferences of low-SES women for preventive interventions. By extending the number of sessions and identifying reasons for non-participation, the program contents and execution can be improved for future adoption and implementation.

Keywords

Depression, exercise, low-SES women, person-centered medicine, process evaluation; psycho-education, stress

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Introduction

In recent years, several promising primary prevention programs have been developed for women with low socioeconomic status (low-SES) [1], a group at high risk for mental health problems such as depression [2, 3]. These interventions generally apply psycho-educative, interpersonal, or

social support techniques, but low-SES women may not always wish to attend these types of interventions because of perceived stigma [4]. However, experience from community programs suggests that exercise-based interventions might also appeal to low-SES women [5,6]. Exercise as a means to prevent depression is receiving increasing interest [7]. Physical activity has been found to effectively

reduce depressive symptoms and stress sensitivity and may have both a preventive and a therapeutic impact on mental health problems [5,8,9].

Since research has shown that a combination of multiple techniques is associated with increased intervention efficacy [10], a new preventive intervention has recently been developed, implemented and evaluated in a community setting in the Netherlands. Known as the “Exercise without Worries” (EWW) course, it uses a combination of physical exercise and psycho-education aimed at adult low-SES women (20–55 years) with mild to moderate depressive symptoms or stress-related complaints. The main goal of the intervention is to reduce stress and depressive complaints and to increase the coping-related competences of disadvantaged women.

While much emphasis is placed on outcome evaluation to determine whether a preventive program is effective, process evaluation may help us understand why a program was or was not successful [11]. Because the EWW intervention has been newly designed and implemented, it is sensible to conduct a process evaluation to see what happened in the program delivery and how that could affect program effectiveness and efficiency [12]. It is also of interest to determine how well the program has been accepted and evaluated by its target population. This is of special importance in low-SES groups, since this population is more likely to report stigma concerns for mental health issues which generally prohibit their use of mental health services [13]. Including an exercise component in the EWW intervention might offer a solution for the low perceived attractiveness of exclusively cognitive-oriented programs among this study population. Thus, the outcomes of this study could guide future organization and implementation of a new preventive intervention that targets a generally underserved population. The aims of this paper are twofold: first, to describe the theoretical background and program content of the EWW intervention; and second, to determine reach, adherence rates, implementation fidelity, delivered intervention dose and participants’ perception of the program by its intended audience by means of a process evaluation.

Theoretical framework

The EWW prevention course has been tailored to the specific needs of adult low-SES women by way of its focus on risk factors for stress and depression relevant for this group. The development of the intervention was guided by the stress process model of mental health disparities first proposed by Pearlin and colleagues [14–16]. In this model, disadvantaged social status can generate elevated levels of psychological distress through the occurrence of social stressors, while at the same time limiting access to psychological resources to manage these stressors [17]. The numerous life-event stressors and chronic problems to which low-SES women in particular are exposed include low education, low and uncertain income, unemployment, in-

adequate housing, single-parent status and unrelieved child care [18–20].

Stressors and chronic problems may, over time, erode the psychosocial resources that can effectively moderate the effects of stress, especially coping strategies, social support, a sense of personal control or mastery over one’s life, and self-esteem [21–23]. To varying degrees, these resources seem to be distributed by SES and are associated with mental health outcomes [17]. In response to stressors women tend to make more use of ruminative coping strategies, defined as focusing on negative mood, negative aspects of self, or stressors [24]. Ruminative coping strategies have been found to interfere with the initiation of instrumental behaviours, increasing depressed mood and contributing to a vicious cycle that maintains and deepens depressive states [25]. Disadvantaged circumstances overstrain not only women’s coping capacities, but also their social networks and social support [26]. Elliot [27] reported greater access to social support in the form of a confidant among low-SES women, but as members of their social network are themselves likely to be poor and stressed, social networks can also serve as conduits of stress [28]. Mastery, like social support, has been conceptualized as an important resource in dealing with stress. The concept of mastery suggests both an internal locus of control as well as a positive expectancy about one’s own ability to engage in behaviours needed to cope with a stressful event. Mastery may be best understood as an “executive resource” that determines the use of other resources [29]. Studies have shown a negative association between low SES and belief in personal control and mastery [30]. Finally, disadvantaged women may perceive their current difficulties and past traumas to be evidence of worthlessness and also characteristically exhibit low self-esteem [31]. In sum, ongoing stress may diminish the availability of women’s psychosocial protective resources to cope with stressful circumstances, thus creating both increased psychological distress and diminished resilience [19]. EWW was developed as a multi-component intervention to counter the negative effects of stressful events and to increase psychosocial resources.

Intervention description

Psycho-educative programs for indicated prevention of depression, e.g., the Coping with Depression Course [32], usually address risk factors such as negative thought patterns, social skills, self-esteem and pleasant activities. These topics have been extended with other evidence-based risk factors for stress and depression in the target group of low-SES women. The EWW prevention course focuses on finding a balance between burden and capacity. The core element of the EWW course is its group-based format in which psycho-educative topics link up with body-focused exercises. In each session, psycho-education and exercise components are coordinated as far as possible in an effort to reciprocally reinforce the message. The main

focus of the intervention is on empowering the women through their strengths and resiliency, instead of focusing on their problems.

Four themes form the basis of the eight two-hour sessions, and reflect the topics covered in both the psycho-education and the exercise components [33]:

Self-image: constructive thinking, challenging negative thought patterns and attitudes about oneself and one's personal situation; increase feelings of self-respect, self-esteem, and mastery;

Balance: mending loss of balance between capacities and encountered difficulties; increasing number of pleasant activities, promoting resources to counter rumination, recognizing and acting upon signals of depression or tension in the body;

Strength: finding and reinforcing personal strengths and increasing personal control;

Boundaries: promoting assertiveness, indicating boundaries to reduce stressful situations.

Participants not only talk about a topic, but also experience it through the exercises. For example, during a session on strength they learn both to experience their physical strength and to discover their psychological strengths. The exercise component was added to increase the attractiveness of the program and involves stretching, muscle reinforcement, flexibility, body-focused exercise, and relaxation. Relaxation exercises are recommended for stress and muscle strain, especially in combination with exertion. Since low-SES women often do not have intensive exercise habits [34, 35], the physical exercise was designed to be not too strenuous compared to their habitual level so as to avoid negative feelings stemming from exhaustion [8, 36]. Yet while the exercise component did not reach an intensity in conformity with public health recommendations, activity below this norm (60 to 150 min per week) has been found to have favourable effects for the prevention of depressive symptoms as well [37, 38]. Also, beneficial effects were expected due to the psychological effects associated with engagement in exercise behaviour [8, 39, 40].

Each session is administered by two trainers: a licensed psychologist or mental health provider for the psycho-education component, and an exercise professional such as a physical therapist or licensed sports instructor. Positive feedback from the trainers helps to enhance the participants' self-esteem and confidence. Their personal strengths are further reinforced by the trainers, who explicitly ask the participants to relate their own experiences and offer solutions to issues raised during the group discussions. Using participants as "co-experts" during the sessions in this way may help increase their sense of personal efficacy [41]. Social interaction and social support are encouraged within the group, including through the exercise component in which participants train with other group

members [40, 42, 43]. Table 1 presents a comprehensive picture of the relations between the intervention components.

Barriers to participation in mental health interventions by low-SES women are often related to financial costs, transportation and time [44-46]. Even though financial barriers form no, or at most a minor, impediment for disadvantaged populations to access mental health care in the Netherlands [47], the EWW course is offered free of charge, and expenses related to child care and public transport are reimbursed. In addition, because the intervention is presented and executed as a course rather than as therapy, it is non-stigmatizing. Further, the course takes place in community centres with which the women are familiar. The structure of the training also means that the course has a low accessibility threshold. For example, all assignments are tailored with the degree of difficulty adapted to the skills of the target group.

Methods

A descriptive, observational mixed methods design was used. Qualitative and quantitative findings underpin the outcomes of this study. The analyses included the computing of descriptive statistics of participant demographics and outcomes on the evaluation questionnaires. All statistical analyses were performed using PASW statistics version 17.0. Approval for this study was granted by the Medical Ethics Committee of the Academic Hospital Maastricht/Maastricht University, the Netherlands; reference number MEC 05-004.

Measures and data analysis

The recommended components of a process evaluation include reach and the attendance rates of the target population, implementation fidelity, delivered intervention dose and participant perception of a program [12].

Reach

Between April 2005 and November 2007 participants were recruited through general practitioners working in or near socioeconomically deprived neighbourhoods, social workers, debt reform programs, the community mental health centre and public health services and local media campaigns. Women referred to the EWW course completed a ten-minute telephone interview conducted by trained lay interviewers to screen for the presence of stress and depressive complaints. They completed the 10-item version of the Perceived Stress Scale (PSS; range 0-40, cut-off score 14) [48] to assess the frequency of stress inducing situations and feelings of stress over the last month and the 10-item version of the Center for

Table 1: Relation between exercise and psycho-educative components of the Exercise without Worries intervention

Course sessions and themes	Exercise	Psycho-education
1. Introduction Introduction and familiarization	Introduction and familiarization through exercise Understanding and applying concepts of physical effort and muscle relaxation	Introduction to basic course principles using the metaphor of a pair of scales Explaining the importance of finding a balance between burden and capacity
2. Self-image Deepening acquaintance, starting to build trust and secure group basis	Insight into the concept of body language: how does the body give certain signals to the environment in its presentation? Attention for and awareness of body position through exercise and position training	Insight into concepts of self-respect, self-esteem and mastery: how do you experience self-image and how do others perceive you? Relation between negative thought patterns and attitudes about oneself and one's personal situation; learning how to challenge these through constructive thinking
3. Balance I Consciousness-raising of balance or imbalance in participants' lives	Physically experiencing balance and imbalance and relating this experience to the concepts of burden and resilience	Being able to name factors that are a burden or relief in women's daily lives. Sharing experiences between participants to lead to recognition, insight and support. Regaining equilibrium by reframing negative experiences and increasing the number of pleasant activities
4. Balance II Learning to regain balance between burden and resilience	Different exercises to show the relevance of balance, energy dosage and regaining equilibrium Illustrating that exercise can be a pleasant and fun activity through the use of children's games and music	Learning that resilience can be influenced, thus empowering women to reduce burdens in their lives Examining the role of rumination in dealing with problems and coping with rumination through a thought-stop process
5. Strength Identifying and gearing towards personal sources of strength to increase resiliency	Experiencing personal and others' physical and emotional strength through push-and-pull exercises, strength exercises	Finding and reinforcing personal strengths by adapting thought processes and reinterpreting negative events Learning how to be assertive with respect for oneself and the other
6. Boundaries I Experiencing the different ways of indicating personal boundaries	Experiencing physical and emotional boundaries through bodily exercises in speed, endurance, strength, limberness and coordination Using body language to support self-assertion	Gaining insight into and practice of the ways in which personal boundaries can be identified, and indicating these boundaries through self-assertion
7. Boundaries II Experiencing physical and emotional boundaries with emphasis on shifting them	Raising awareness of how the body indicates that personal boundaries are being neglected Experiencing, recognizing and learning to cope with the personal stress reaction	Gaining more insight into the role of environmental factors in relation to personal boundaries Learning to change boundaries through self-assertion and saying no
8. Farewell/closing Repeating/enhancing knowledge and skills learned during course	Participants conceive plans for future exercise activities and discuss how these plans can be realized	Participants say goodbye to one another and course providers

Epidemiological Studies Depression Scale (CESD-SF; range 0–30, cut-off score 5) [49] to determine the presence of depressive symptoms in the last week. Women who satisfied low-SES criteria, had stress *or* depression levels above the cut-off scores and were interested in participating in the EWW course were scheduled for an intake meeting with a member of the intervention staff. A more detailed description of the recruitment process and willing-

ness of low-SES women to participate in the EWW intervention is described elsewhere [50].

Attendance

Trainers registered participant attendance for each session and noted reasons for absence when known. To determine whether differences in attendance rates were attributable to

the demographic characteristics of the participants or factors relating to the intervention itself, chi-square and ANOVA analyses were conducted for categorical and continuous variables. To account for multiple testing, Bonferroni correction was applied. The demographic variables included were age, nationality, marital status, number of children living at home, highest educational level and current employment status. Baseline PSS and CESD-SF symptom scores were used as risk scores. The course-related variables were course location, day, time, group size and trainers.

Implementation fidelity and delivered intervention dose

After each session, trainers were requested to complete a log that addressed implementation fidelity. For each session, they indicated whether the course was provided as planned and as described in the course manual. By the same means, delivered intervention dose was determined. Trainers were asked to indicate for each session to what extent all of the intervention content was provided to the participants and whether there were deviations, for instance if either content was omitted or executed differently. To assess how trainers perceived the sessions, they rated the atmosphere for each session on a 6-point scale (0=very poor, 1=poor, 2=average, 3=sufficient, 4=good, 5=excellent). Furthermore, they also had the possibility to note any particularities that occurred during a session as well as any general remarks regarding the session location.

Participants' perceptions

Participants were asked during the intake about their reasons for participating in the intervention. At the end of the last session, they completed a questionnaire to assess their experience of the program. The questionnaire was divided into questions concerning: a) satisfaction with the organization of the intervention; b) appreciation of the intervention content and c) experiences with the intervention. Satisfaction with the organization was measured with six items on a 5-point scale (1=very dissatisfied, 2=dissatisfied, 3=don't know/neutral, 4=satisfied, 5=very satisfied). These questions concerned the general content of the sessions, atmosphere during the sessions and trainers, location, day and time.

Appreciation of the intervention content for both the psycho-educative and exercise components was assessed with a grade between 0 and 10 for each psycho-educative and exercise module and a separate overall grade for the intervention in its entirety. The same analyses as for measuring attendance were used to investigate differences in satisfaction with intervention organization and content appreciation.

Results

Reach

In the period between September 2005 and May 2008, 353 women were found to be eligible for participation in the course after screening. Of the 217 women who consented to an intake, 152 (70.0%) completed the intake and 135 were willing to participate in the course. They were assigned to 15 intervention groups. Characteristics of the course participants are outlined in table 2. The participants' mean age was 43 years. Eighty-six percent of the women were Dutch citizens, while the rest were Moroccan (7.4%), Turkish (2.2%), or of other nationalities (4.4%). Most were married or in a relationship. Forty-seven percent had completed fewer than 10 years of formal education and 74.1% were currently unemployed. The percentage of women who had scored above cut-off at screening was 89.6% for depressive symptoms and 89.7% for perceived stress during the last month. The mean scores were 15.31 (range 0–29), and 23.27 (range 6–38), respectively, indicating that the women experienced considerable mental distress. The aforesaid percentages are below 100% and the ranges of scores on the measures include numbers below the defined cut-offs, since some women had increased scores for depression, but not for perceived stress and vice versa.

Table 2: Socio-demographic and clinical characteristics of the study population (n=135)

	n	%
Age years (mean, SD)	43.41 (SD=9.04)	
Nationality (% Dutch)	116	85.9
Marital status		
Single	34	25.2
Married/cohabitating	87	64.5
Divorced	6	4.4
Widowed	8	5.9
Number of children living at home (mean, SD)	0.98 (SD=1.02)	
Educational level		
Low ≤9 years	63	46.6
Medium=10 to 14 years	46	34.1
High ≥15 years	26	19.3
Employment status		
Employed	35	25.9
Housewife	51	37.8
Unemployed	16	11.9
Disabled	27	20.0
Other	6	4.4
CESD-SF score at baseline (mean, SD)	15.31 (SD=6.49)	
PSS score at baseline (mean, SD)	23.27 (SD=6.83)	

CES-D = Center for Epidemiologic Studies Depression Scale; PSS = Perceived Stress Scale

Table 3: Participant appreciation of the intervention topics (scale 0–10)

Exercise	M	SD	Psycho-education	M	SD
Relaxation	8.55	2.39	Assertiveness training	7.23	2.97
Good body position	7.89	2.69	Coping with rumination	7.18	2.56
Muscle training: abdomen/back	7.69	2.61	Learning to say no	7.16	2.82
Stretching	6.85	2.98	Regaining balance in life	7.05	2.79
Ball exercise	6.26	3.07	Tackling problems	6.94	2.97
Introduction	6.25	3.09	Pleasant activities	6.92	2.99
Strength training	6.15	3.12	Relation between thoughts and feelings	6.79	2.73
Rope skipping	5.77	3.22	Identifying positive/negative thoughts	6.59	3.17
Balance	5.52	3.27	Evaluation and farewell	6.27	3.37
			Recognizing feelings	6.23	3.23
Overall	6.90	1.88	Overall	6.84	1.98
N=66					

Attendance

Of the 135 recruited participants, 36 (26.4%) did not attend any of the course sessions. Non-participants were more often younger than others ($M=39.54$, $SD=9.09$ vs. $M=44.87$, $SD=8.63$; $t(126) = -3.07$, $p=.003$). None of the other demographic variables, baseline depression or stress symptom scores, or factors relating to the day, time, or location of the course were related to course participation. Attendance ranged between 1 and 8 meetings, with a mean of 5.84 ($SD=2.23$). The most frequently cited reasons for missing sessions were health problems or work commitments. Differences in session attendance were not attributable to demographic variables, risk score, or course-related factors (location, time, day, group size, or trainers).

Implementation fidelity and delivered intervention dose

Implementation fidelity was determined by the extent by which the course was delivered and implemented as planned in the course manual. The core element of the EWW course was its coordination of psycho-education and exercise components in each session in an effort to reciprocally reinforce the message. Of the total number of 120 course sessions (8 sessions in each of the 15 intervention groups), implementation was not delivered as planned in 22 (18.3%) of the sessions. Deviations were: changed order of components (5.8%); exercise component not executed (due to too few participants or absence of exercise trainer) (5.8%) and psycho-education trainer absent, replaced by exercise trainer (6.7%).

With regard to delivered intervention dose, on average 1.00 sessions ($SD=1.52$) out of 8 deviated from the manual (range 0–5), either in the content of the exercise component ($M=0.64$, $SD=1.39$), the psycho-education component ($M=0.83$, $SD=1.47$), or both. There was no significant difference between both components in the number of deviations. For the exercise component, deviations consisted of re-adjusting the exercise to the physical

capacities of the participants or omitting the relaxation exercise. For the psycho-education, deviations were review of intervention content from previous lessons and additional topics discussed on request of the participants.

Participants' perceptions

Reasons for participation

During the intake the women were asked to list in their own words reasons for participation in the EWW intervention. More than one reason could be given. The most frequently cited were 'Feel better in general', which 36.4% of the women indicated, followed by 'Exercise more' (35.5%) and 'Learn to relax' (31.4%). Other motivations were 'Learn something about myself' (25.6%), 'Get to know other people' (19.8%), 'Learn to better cope with stress' (17.3%), 'Learn to assert myself' (14.0%), 'Learn to ruminate less' (4.1%), and 'Feel less anxious' (1.6%).

Participant satisfaction and appreciation

Of the 99 participants who attended at least one course session, 67% completed the evaluation questionnaire. Women were very satisfied with the course organization in general, with a mean score of 4.75 ($SD= 0.38$). The participants were least satisfied with course location ($M=4.31$, $SD=0.93$), mainly due to one specific location in which the sessions were conducted in a semi-open space and thus lacked privacy. Some (4.5%, $n=3$) were dissatisfied with the course hours. Participants were most satisfied with intervention staff ($M=4.93$, $SD=0.29$) and session atmosphere ($M=4.93$, $SD=0.29$). This corresponds with the trainers' evaluations, who rated the atmosphere during the sessions as sufficient or good for the first three sessions, and either good or excellent for the last five sessions. Regarding satisfaction with the intervention content, the overall mean score for the EWW course was 8.71 ($SD=0.96$, range

6.5–10.0). The scores did not relate to socio-demographic factors, symptom scores, or course factors. Grades for the separate exercises varied between 5.52 and 8.55 (see table 3). There was no difference between the mean scores of the two course components ($p=.83$).

Experiences with the program

Of the participants who completed the evaluation questionnaire, 100% would recommend the EWW course to someone with stress-related complaints, and 96.9% would do so for people with depressive symptoms. Almost 70% ($n=45$) of the women reported that they had fewer stress and depressive complaints after completion of the course. For a subset of the participating women, post intervention scores on depressive symptoms and perceived stress were available. Outcomes of a paired sample t-test indicate that women had lower depressive symptom scores ($M=24.23$, $SD=11.79$ vs. $M=21.25$, $SD=10.47$; $t(51) = 2.07$, $p=.04$) and less perceived stress ($M=23.38$, $SD=6.73$ vs. $M=20.92$, $SD=6.80$; $t(51) = 2.62$, $p=.01$) after the 8-week EWW course. However, to confirm whether these preliminary outcomes in symptom change and the subjective evaluations of the course's benefits can be indeed be attributed to participation in the EWW course, an effect evaluation will be conducted separately.

Discussion

This study evaluated the implementation of the "Exercise without Worries" course by means of a process evaluation, providing information on its reach, adherence rates, implementation fidelity, delivered intervention dose and the appreciation of this new program by low-SES women. To our knowledge, this is the first study to examine the acceptability of a program combining exercise and psycho-education adapted to the needs and abilities of a low-SES target group. The findings of the present study indicate that the implementation of the EWW course proceeded largely according to plan, that the attendance rates were sufficient and that the participants appreciated both the organization and contents of this new course.

Previous research has shown that low-SES women seem especially interested in psycho-educative groups that are focused on general topics related to both physical and emotional health, such as coping with stress or living a healthy life, rather than on specific psychiatric disorders [4]. This was also reflected in the motivations cited by the women for their participation in the EWW intervention; the most frequent reasons were 'Feel better in general', 'Exercise more', and 'Learn to relax'. While none of the participants mentioned the motivation to feel less depressed, it could be that psychological terminology was not used because of their lower SES. However, the reasons mentioned by the women themselves might help us to understand which grounds for participation count most for

potential participants and can be used to optimize recruitment.

In all, 135 low-SES women could be reached for participation in the intervention. Attendance of at least a minimum number of course sessions is necessary for the participants to benefit from the intervention and to sufficiently internalize outcome-related skills [10]. Among the women who involved themselves in this intervention, session attendance was medium to high, with almost 78% of the women attending most (5 to 8) sessions. This attendance rate can be considered as acceptable compared to other group preventive interventions for low-SES women [51-53]. This is even more so given the fact that participants were recruited in the community without having made specific demands for help with their symptoms. However, 26% of the recruited participants did not attend the course at all, even though all women received a reminder by telephone a day before the start of each new course. Some reported explanations were related to illness or family circumstances, but it is also possible that certain women did not participate because the intervention staff was unable to allocate each woman to her preferred day or time for the intervention. Feelings of shyness or discomfort with being in groups, or stigma-related concerns may also have played a role. Previously, Nadeem et al. [54] found that stigma concerns, which included significant concerns about others in the community knowing about personal matters, reduced the odds of low-SES women seeking group treatment for depression. Including the exercise component to the EWW intervention is likely to reduce stigma concerns associated with mental health care; for instance, participants can refer to the intervention as "an exercise class". However, it is possible that for some women the fact that the intervention was delivered in community centres was perceived as an additional barrier.

With 18.3% of the sessions deviating from the manual, implementation fidelity can be considered as sufficient. In general, deviations were most often caused by changed order of intervention components or one of the trainers being absent. Importantly, the exercise professionals were also qualified mental health care providers and could meet to compensate for the absence of their partner, thus guaranteeing continuity for the participants. However, in 7 sessions on a total of 120 (5.8%), the exercise component has not been executed due to absence of the trainer. The specific aim of the EWW course was to coordinate the psycho-education and exercise components as far as possible in an effort to reciprocally reinforce the message. This observation indicates that in future practice, adequate monitoring is required to ensure that both intervention components are executed together. In case of a wider implementation of the course, a stand-in trainer for either of the intervention components, or schooling for each trainer to replace their partner when necessary, might be necessary solutions whose feasibility is worth investigating. With regards to delivered intervention dose, on average 1 out of 8 sessions deviated from the manual. These deviations were mostly adjustments to better adapt the intervention

contents to the needs of the participants. Thus, they fitted in the overall design of providing a course with a low accessibility threshold for the target group.

Overall appreciation of the intervention organization and contents was high. Also the women indicated that they had gained a variety of positive experiences from their course participation, including increased assertiveness, emotional balance, relaxation, and self-care. At the same time, they indicated that they thought the course was too short in duration, with some of them expressing concern about whether they would be able to sustain and implement what they had learned in their daily lives after only eight sessions. Most women did perceive a reduction of stress and depressive symptoms after eight sessions. Also, a subset of the participants showed a reduction in their depressive symptom and perceived stress scores. However, it has yet to be confirmed whether these preliminary outcomes in symptom change can be indeed be attributed to participation in the EWW course. This will be evaluated in a separate randomized controlled trial. It is entirely possible that long-term retention of learned skills is difficult in the face of the structural stressors and problems often present in the daily circumstances of disadvantaged women. Therefore, it is important that these women feel self-reliant in applying the course content in everyday life. Adapting the course design by extending the number of sessions or providing the participants with tangible recommendations as to how they can put the course material into practice will probably be useful adjustments. Establishing booster sessions might also help low-SES women to preserve the learned skills [55].

One of the limitations of this study was that although an intake meeting was used to establish contact with disadvantaged women to encourage their participation in the course, some of the recruited women did not actually participate in the intervention. It is known that disadvantaged women often have to manage competing demands for their time and resources [45, 46] which may take precedence over partaking in the EWW course. Although several possible barriers to participation have already been addressed and removed, our knowledge as to why women decided not to participate is limited, since we did not systematically follow up on reasons for non-attendance. Secondly, the analysis of implementation fidelity and dose delivered would have gained in strength if a representative sample of the course sessions could have been directly observed and coded for deviations from the manual. Due to limitations in funding this was not possible. However, using the methods employed we have been able to obtain a fundamental grasp of the most common problems in the course's implementation. A final limitation was the fact that evaluation questionnaires were completed during the last course session, which might have led to selection bias. The women present during this session were possibly more satisfied and motivated to participate in the intervention, which might have led to a more positive image of the intervention compared to non-attending women.

The Exercise without Worries intervention was designed to address the risk factors for stress and depression in low-SES women through a resiliency-based focus. The intervention was adapted to the culture, values and surroundings of its target population. In addition, barriers to program participation were to a large extent removed. While much emphasis is placed on outcome evaluation to determine whether a prevention program is successful, process evaluation is equally important. Process evaluation looks inside the so-called black box to see what happened in the program and how that could affect program impacts or outcomes [56]. The outcomes of this study show that the implementation of an adapted prevention program combining exercise and psycho-education is feasible, and appeals to the needs of disadvantaged women. To our knowledge, the EWW program is the first exercise-enhanced psycho-educative intervention whose utility has been tested in this specific target group. Given the high prevalence of stress-related complaints and depressive symptoms among low-SES women, prevention is an important means of providing mental health care to this group. However, still few opportunities exist for low-income women to share their experiences, have their emotional and life experiences validated, and engage in some problem-solving and skill development [41]. The positive experiences with the "Exercise without Worries" course indicate that multi-component programs combining mental and physical health are one way to better address the mental health needs of low-SES women. If the intervention appears to be effective, further dissemination of the EWW intervention can be appropriately pursued.

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