

UNIVERSIDAD COMPLUTENSE DE MADRID

FACULTAD DE PSICOLOGÍA



TESIS DOCTORAL

Mental health problems and stressful life events in women experiencing homelessness: An adaptation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders

Problemas de salud mental y sucesos vitales estresantes en mujeres en situación sin hogar: una adaptación del Protocolo Unificado para el Tratamiento Transdiagnóstico de los Trastornos Emocionales

MEMORIA PARA OPTAR AL GRADO DE DOCTOR

PRESENTADA POR

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MENTAL HEALTH PROBLEMS AND STRESSFUL LIFE EVENTS IN
WOMEN EXPERIENCING HOMELESSNESS: AN ADAPTATION
OF THE UNIFIED PROTOCOL FOR TRANSDIAGNOSTIC
TREATMENT OF EMOTIONAL DISORDERS

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“Women’s homelessness is so often invisible. I have no contact with my family—I had a very traumatic childhood and don’t want to see them. I did a lot of sofa surfing after I left my violent partner. But then I ran out of friends and became homeless”.

(Homeless woman, quoted in Hutchinson et al., 2014, p. 4)

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Table of Contents

ABSTRACT.....	6
RESUMEN.....	9
ACRONYMS.....	12
PREAMBLE AND OUTLINE OF THE DISSERTATION.....	13
Chapter 1: Women experiencing homelessness.....	20
1.1. What does homelessness mean?.....	20
1.2. Why do people become homeless?.....	22
1.3. Women and homelessness.....	24
Chapter 2: Stressful life events among people experiencing homelessness.....	28
2.1. SLEs in homeless women's lives.....	30
Chapter 3: Mental health in people experiencing homelessness.....	33
3.1. Comorbidity.....	35
3.2. The role of mental health in the homeless situation.....	35
3.3. Mental health & women experiencing homelessness.....	37
3.4. Well-being and homelessness.....	39
Chapter 4: Psychological interventions for people experiencing homelessness.....	40
4.1. Use of healthcare resources in homeless population.....	40
4.2. Mental health interventions in people experiencing homelessness.....	41
4.3. Transdiagnostic protocols as a feasible alternative to treat mental health problems among people experiencing homelessness.....	45
4.4. Unified Protocol for Transdiagnostic Treatment of Emotional Disorders..	46
4.5. Our adaptation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women (UPHW).....	48
PUBLICATIONS.....	51
Chapter 5: Differences in stressful life events between men and women experiencing homelessness.....	52
Chapter 6: Role of stressful life events among women experiencing homelessness: An intragroup analysis.....	68
Chapter 7: Risk of mental ill-health among homeless women in Madrid (Spain).....	81

Chapter 8: Application of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders among homeless women: A feasibility study.....	90
Chapter 9: Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women.....	97
Chapter 10: Mediators and moderators of therapeutic change in the Unified Protocol for women experiencing homelessness.....	121
CHAPTER 11: DISCUSSION.....	156
11.1. Summary.....	156
11.2. How do SLEs affect women experiencing homelessness?.....	157
11.2.1 Clinical implications of chapter 5 and 6.....	160
11.2.2 Limitations and future directions of chapters 5 and 6.....	162
11.3. The impact of mental health problems in women experiencing homelessness.....	163
11.3.1 Limitations and future directions in the study of mental health in women experiencing homelessness.....	167
11.4. Is the Unified Protocol a good treatment alternative for women experiencing homelessness?.....	168
11.4.1 Limitations and future directions in the adaptation of the UPHW.....	173
CHAPTER 12: CONCLUSIONS.....	176
REFERENCES.....	178
ANNEXES.....	222
Supplementary Materials - Role of stressful life events among women experiencing homelessness: An intragroup analysis.....	223
Supplementary Materials - Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women.....	232
SCIENTIFIC ARTICLES INCLUDED IN THE DISSERTATION.....	244
FINANCIAL SUPPORT.....	245

Abstract

Introduction

Over the years, empirical evidence suggests that people experiencing homelessness particularly females disproportionately experience Stressful Life Events (SLEs) and mental health problems (Padgett et al., 2012; Phipps et al., 2019). Both SLEs and mental health problems are key factors in understanding the etiology and maintenance of homelessness (Nilsson et al., 2019; Padgett et al., 2012). However, few studies have focused exclusively on these issues with regards to women experiencing homelessness (e.g., Duke & Searby, 2019), and even fewer have done so in Spain. Further, most programs and social policies target structural, rather than psychological, factors contributing to homelessness (e.g., housing, employment reintegration, and legal support; Baxter et al., 2019; Wickham, 2020). Although such programs may indirectly improve psychological symptoms, there is a dearth of evidence-based psychological treatments developed specifically to target mental health problems in this population (Speirs et al., 2013). In addition, the majority of interventions do not adequately consider the problems and needs of women experiencing homelessness, a vulnerable subgroup with idiosyncratic characteristics (Luchenski et al., 2018; Speirs et al., 2013).

Considering the high prevalence of emotional disorders and psychiatric comorbidity in this population, transdiagnostic treatments are postulated as a good way to provide evidence-based interventions to women experiencing homelessness. One of the most widespread and empirically supported transdiagnostic treatments is the Unified Protocol (UP; Barlow et al., 2011). Preliminary results seem to indicate that the UP is a feasible treatment option in community and social settings (Sauer-Zavala et al., 2019), as well as in group format (Bullis et al., 2015; Osma et al., 2018).

Objectives

The main goals of the present dissertation were to (1) examine the mental health problems and the incidence of SLEs in women experiencing homelessness and (2) design an evidence-based, transdiagnostic psychological treatment for this population. As for the specific objectives, the first one was to examine differences between men and women experiencing homelessness in the number and type of SLEs experienced. The second objective was to describe the trajectories to homelessness for women based on their SLEs. The third objective was to explore the differences between women experiencing homelessness at high risk of mental ill-health and those who do not present this risk. Given the high prevalence of mental health problems and SLEs in women experiencing homelessness, as well as their impact on the etiology and maintenance of their homeless situation, the fourth objective was to design an evidence-based psychological treatment for this population, for which we decided to adapt the UP for Homeless Women (UPHW). Finally, we tested the efficacy of the UPHW (fifth objective) and we examined the mediators and moderators of change (sixth objective) when compared to a waitlist control group.

Results

Overall, we found that women in a homeless situation experience a high prevalence of SLEs and mental health problems. Studies 1 and 2 revealed that, among people in a homeless situation, women experience a significantly greater number and type of SLEs than men. Importantly, we divided our female sample into three main clusters based on their traumatic experiences, providing valuable information on the trajectories to homelessness. Moreover, the results of Study 3 indicated that women experiencing homelessness with higher risk of mental ill-health had become homeless at a younger age,

experienced more SLEs, had poorer physical health, felt less happy, had lower social support, and greater loneliness than women who did not present this risk.

Studies 4-6 revealed that the UPHW was a feasible and effective alternative for women experiencing homelessness. Post-treatment, participants reported high levels of satisfaction, perceived usefulness, state mood, and group cohesion. Further, the UPHW significantly improved levels of anxiety, depression and negative affect. Reductions of anxiety and depression were maintained at 3-month, but not at 6-month, follow-up. The inter-session assessment revealed that depression and anxiety decreased in a linear fashion over the course of the treatment. Finally, negative affect significantly mediated the relationship between the UPHW and reductions in both anxiety and depression symptoms, whereas physical functioning significantly moderated the relationship between the UPHW and depression symptoms.

Discussion

The studies included in this dissertation deepen our understanding of the SLEs and mental health problems of women experiencing homelessness and present an evidence-based psychological treatment to target these issues within this population. The transdiagnostic protocols in general, and our UPHW in particular, are postulated as a feasible and effective intervention for women experiencing homelessness. Further, our results highlight the importance of including evidence-based psychological interventions aimed at treating mental health problems in community settings. We encourage future studies to replicate and expand our findings by including a non-homeless general population control group, collecting qualitative data, implementing other transdiagnostic programs (e.g., PsicAP), and exploring the UPHW in an individual format.

Resumen

Introducción

A lo largo de los años, la evidencia empírica sugiere que las personas en situación sin hogar, especialmente las mujeres, experimentan un gran número de Sucesos Vitales Estresantes (SVEs) y problemas de salud mental (Padgett et al., 2012; Phipps et al., 2019). Tanto los SVEs como los problemas de salud mental, son factores claves para entender la etiología y el mantenimiento del sinhogarismo (Nilsson et al., 2019; Padgett et al., 2012). Sin embargo, pocos estudios se han centrado exclusivamente en estos temas en mujeres en situación sin hogar (ej. Duke & Searby, 2019), y aún menos en España. Además, la mayoría de los programas y políticas sociales hasta la fecha se han centrado en los factores estructurales proporcionando alojamiento, reinserción laboral y apoyo legal, en vez de a los factores psicológicos (Baxter et al., 2019; Wickham, 2020). Aunque algunas de esas intervenciones pueden mejorar indirectamente los síntomas psicológicos, existe una falta de tratamientos psicológicos basados en la evidencia desarrollados específicamente para abordar los problemas de salud mental en esta población (Speirs et al., 2013). Además, la mayoría de estas intervenciones no tienen en cuenta de forma más específica, los problemas y necesidades de las mujeres en situación sin hogar, a pesar de ser un subgrupo vulnerable con características idiosincrásicas (Luchenski et al., 2018).

Teniendo en cuenta la alta prevalencia de trastornos emocionales y la comorbilidad psiquiátrica en esta población, los tratamientos transdiagnósticos se postulan como una alternativa viable para proporcionar intervenciones psicológicas empíricamente validadas a las mujeres en situación sin hogar. Uno de los tratamientos transdiagnósticos más extendidos y apoyados empíricamente es el Protocolo Unificado (PU; Barlow et al., 2011). Los resultados preliminares indican que el PU es una opción factible en entornos sociales (Sauer-Zavala et al., 2019) y en formato grupal (Osma et al., 2018).

Objetivos

Los principales objetivos de la presente tesis doctoral fueron: (1) examinar los problemas de salud mental y la incidencia de los SVEs en mujeres en situación sin hogar y (2) diseñar un tratamiento psicológico transdiagnóstico basado en la evidencia dirigido a esta población. En cuanto a los objetivos específicos, el primero fue examinar las diferencias entre hombres y mujeres en situación sin hogar en el número y tipo de SVEs experimentados. El segundo objetivo fue describir las trayectorias de las mujeres en situación sin hogar en función de sus SVEs. El tercer objetivo fue explorar las diferencias entre las mujeres en situación sin hogar con alto riesgo de padecer enfermedades mentales en comparación con las que no presentaban dicho riesgo. Dada la alta prevalencia de problemas de salud mental y SVEs en mujeres en situación sin hogar, así como su impacto en la etiología y mantenimiento de la situación sin hogar, el cuarto objetivo fue diseñar un tratamiento psicológico basado en la evidencia para esta población, para lo cual decidimos adaptar el PU para mujeres en situación de sin hogar (PUMH). Finalmente, comprobamos la eficacia del PUMH (quinto objetivo) y examinamos los mediadores y moderadores del cambio (sexto objetivo) comparándolo con un grupo control en lista de espera.

Resultados

En general, encontramos que las mujeres en situación sin hogar experimentan una alta prevalencia de SVEs y problemas de salud mental. Los estudios 1 y 2 mostraron que, entre las personas en situación sin hogar, las mujeres experimentan un número y una variedad de SVEs significativamente mayor que los hombres. Nosotros dividimos la muestra de mujeres en tres grupos principales en función de sus experiencias traumáticas, lo que proporcionó una valiosa información sobre las trayectorias hacia el sinhogarismo. Además, los resultados del Estudio 3 indicaron que las mujeres en situación sin hogar con

mayor riesgo de padecer enfermedades mentales se habían quedado sin hogar a una edad más temprana, experimentaban más SVEs, tenían peor salud física, se sentían menos felices, tenían menos apoyo social y mayores niveles de soledad que las mujeres que no presentaban este riesgo.

Los estudios 4-6 revelaron que el PUMH fue una alternativa factible y eficaz para las mujeres que se encontraban en situación sin hogar. Tras el tratamiento, las participantes informaron de altos niveles de satisfacción, utilidad percibida, estado de ánimo y cohesión de grupo. Además, el PUMH mejoró significativamente los niveles de ansiedad, depresión y afecto negativo. Las reducciones de ansiedad y depresión se mantuvieron durante un período de seguimiento de 3 meses, pero no a los 6 meses. La evaluación entre sesiones mostró que la depresión y la ansiedad disminuyeron de forma lineal a lo largo del tratamiento. Por último, el afecto negativo medió significativamente la relación entre el PUMH y las reducciones de ansiedad y depresión, mientras que el funcionamiento físico moderó significativamente la relación entre el PUMH y los síntomas de depresión.

Discusión

Los estudios presentados en esta tesis contribuyen a profundizar en el conocimiento de los SVEs y los problemas de salud mental que experimentan las mujeres en situación sin hogar y presentan un tratamiento psicológico basado en la evidencia para abordar estos problemas dentro de esta población. Los protocolos transdiagnósticos en general, y nuestro PUMH en particular, se postulan como una intervención factible y eficaz para las mujeres que se encuentran en situación sin hogar. Animamos a que futuros estudios repliquen y amplíen nuestros resultados incluyendo un grupo de control de población general, recogiendo datos cualitativos, implementando otros programas transdiagnósticos (por ejemplo, PsicAP) y explorando el PUMH en formato individual.

Acronyms

ACT = Assertive Community Treatment

EBT = Evidence Based Treatments

ETHOS = The European Typology of Homelessness and Housing Exclusion

FEANTSA = European Federation of National Organizations working with the homeless

HF = Housing First model

MBIs = Mindfulness-Based Interventions

PTSD = Post-traumatic stress disorder

UP = Unified Protocol for Transdiagnostic Treatment of Emotional Disorders

UPHW = Unified Protocol for Transdiagnostic Treatment of Emotional Disorders
adapted for Homeless Women

SLEs = Stressful Life Events

WLC = Wait-list control group

PREAMBLE AND OUTLINE OF THE DISSERTATION

What comes to mind when you think of a person experiencing homelessness? You probably envision a person sleeping on the street or an overcrowded homeless shelter. But the condition of homelessness is much more than what our eyes can see. Although we often take it for granted, we are able to meet our most basic needs each day: We have food and clean water (i.e., physiological needs), we have access to a warm, safe place to rest (i.e., safety needs), we are in touch with our loved ones, and we develop a feeling of accomplishment when we reach our daily goals (i.e., psychological and self-fulfillment needs).

Now, imagine for a moment that you wake up not knowing if you will be able to cover your most basic needs. That is what homeless individuals experience each morning. Unfortunately, millions of people around the world find themselves in this situation, facing environmental challenges (e.g., facing the brutal winter cold and harsh summer heat), economic problems (e.g., unemployment), social exclusion (due to the stigma associated with homelessness), and personal issues (e.g., stressful life events, health problems, substance abuse).

A typical day of a person experiencing homelessness usually begins very early. People living on the streets awaken first thing in the morning to take advantage of opportunities for hygiene in the nearest public toilets and to stand in line at a soup kitchen for breakfast. People who live in shelters also wake up early, according to the shelter schedules and rules. Contrary to popular belief, homelessness does not always equate to joblessness or lack of interest in looking for a job. After breakfast (if any), many individuals spend a significant amount of time seeking employment, although it is not always easy to find a job if you do not have a permanent address, the appropriate clothing

for a job interview, or a device with internet connection. Some seek money from other sources and informal jobs, such as panhandling, selling tissues at a traffic light, looking through garbage or selling scrap metal. Throughout the day, people experiencing homelessness usually look for a warm place with free Wi-Fi connection, such as libraries and day shelters, where they can attend workshops or watch TV. Many people experiencing homelessness have a regular spot on the street or in a park, where they mingle with other people who are in a similar situation. The day ends by returning to the shelter or the piece of sidewalk to sleep. This routine is repeated day after day, blurring the passage of time until a solution appears.

Homelessness is, on its own, extremely difficult. Now, try to imagine now being homeless as a woman. One day, you wake up and discover that you have just had a period. Menstruation is expensive, and you have to choose between buying menstrual hygiene products or food. Perhaps you find alternative ways to handle your menstruation, by using plastic bags, socks, or napkins. How would you feel about being pregnant without a home? It can be difficult to maintain a nutritious diet for the baby or visit the pediatrician on a regular basis, which increases the risks of complications. You may be thinking: Who would get pregnant being homeless? In truth, living on the streets is dangerous, especially for women, as gender-based violence and physical and sexual abuse are the order of the day. In a situation like this, it seems difficult to have good physical and mental health, especially considering the limited access to health services. Further, discrimination and social exclusion are ubiquitous on a daily basis. Therefore, a woman experiencing homelessness might face difficulties that are neither distinctly due to her living status nor her gender, but to the complex interaction between these two factors. The study of the idiosyncratic characteristics and needs of women experiencing homelessness is the leitmotiv of this doctoral dissertation.

The main goals of the present doctoral dissertation were to (1) examine the mental health problems and the incidence of stressful life events (SLEs) in women experiencing homelessness and (2) design of an evidence-based psychological treatment for those problems. In order to accomplish this general objective, we conducted six studies, each of which accounts for specific objectives.

First, in Chapter 1, we provide a wide overview of the characteristics and situations of people experiencing homeless in general, and women in particular. In Chapter 2, we review the literature of childhood, adolescence, and adulthood SLEs among people experiencing homelessness, and discuss female-specific SLEs (e.g., sexual abuse). In Chapter 3, we examine the mental health, comorbidity rates, and well-being of people experiencing homelessness, analyzing the idiosyncrasies of women experiencing homelessness. In Chapter 4, we introduce the readers to healthcare resources and mental health interventions that are available for people experiencing homelessness, with special emphasis on the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP). Finally, we describe our novel adaptation of the UP for Homeless Women (UPHW).

This doctoral dissertation comprises six empirical articles, which are included in Chapters 5 to 10. We begin by analyzing the incidence of SLEs among people experiencing homelessness (Chapter 5). Evidence suggest that SLEs are a key factor in understanding the etiology and maintenance of homelessness (Padgett et al., 2012). However, the impact of victimization processes on homelessness seem to differ based on gender (Hatch & Dohrenwend, 2007; Zugazaga, 2004). For instance, women in a homeless situation are significantly more likely to experience traumatic events than their male counterparts (Tsai et al., 2014). Thus, the aim of the first study was to examine differences between men and women in a homeless situation in terms of the number and type of SLEs experienced over the course of their lives (i.e., in childhood and adulthood).

Our first study revealed that women in a homeless situation experience a significantly greater number and type of SLEs than do men. Given the elevated vulnerability of women experiencing homelessness, we decided to study the role and impact of SLEs within this subgroup in greater depth. To this end, the aim of our second study was to identify different trajectories to homelessness and subgroup based SLEs, and form subgroups of common trajectories (Chapter 6). Over the years, researchers have used multivariate procedures and cluster analysis to classify the homeless population into different subgroups and identify the specific needs, characteristics, and trajectories of people experiencing homelessness (e.g. Cronley et al., 2018; Waldron et al., 2019). In the second study, we carried out cluster analysis to classify women experiencing homelessness based on their SLEs, and then, we conducted a discriminant analysis to examine the characteristics of each resulting subgroup (i.e., sociodemographic factors, homeless trajectories, physical and mental health, and social support). Developing a deeper understanding of the different trajectories to homelessness is crucial to design policies, social services, and programs that address the specific needs of each subgroup.

In the first two SLE studies, we consistently found that, among women, homelessness led to a variety of mental health problems and negative outcomes (e.g., psychiatric hospitalizations and suicide behaviors). Previous studies have shown that women in a homeless situation experience a high prevalence of mental health problems compared to women who are not homeless (Duke & Searby, 2019), including depression and anxiety, Post-Traumatic Stress Disorder (PTSD), schizophrenia, and substance abuse. Moreover, mental health problems have been linked to the duration and number of episodes of homelessness (Lippert & Lee, 2015). For this reason, our third study explored differences between women experiencing homelessness at high risk of mental ill-health and those who do not present this risk (Chapter 7).

Given the high prevalence of mental health problems and SLEs among women experiencing homelessness, as well as their impact on the etiology and maintenance of the homeless situation, we designed an evidence-based psychological treatment to improve mental health and ability to cope with stress in this population. Most programs to date have targeted structural factors contributing to homelessness, such as housing, employment, and legal support (Baxter et al., 2019; Hwang & Burns, 2014). Although these may indirectly improve psychological symptoms, there is a lack of evidence-based psychological treatments developed specifically to target mental health problems in people experiencing homelessness (Speirs et al., 2013). As emotional disorders and psychiatric comorbidity are endemic in this population, transdiagnostic protocols (i.e., protocols that target common symptoms across mental health conditions) may be cost-effective tools to provide evidence-based treatment to women experiencing homelessness. One of the most widespread and empirically validated transdiagnostic treatments is the UP (Barlow et al., 2011). Preliminary results indicate that the UP is a feasible alternative treatment in community and social settings (Sauer-Zavala et al., 2019) that can be delivered in a group format (Bullis et al., 2015; Osma et al., 2018). As such, we describe our novel adaptation of the UP and discuss its feasibility in our target population (i.e., women experiencing homelessness) in Chapter 8. In Chapter 9, we then analyze the effectiveness of our adapted UPHW in improving mental health outcomes. Finally, in Chapter 10, we examine the mediators and moderators of change in the UPHW. Taken together, this body of work contributes to the development of a practical and effective solution for addressing common mental health problems among women experiencing homelessness that can be feasibly delivered in community settings.

Table 1. Summary of the studies, chapters and objectives of the current doctoral dissertation.

Main goal: To examine the mental health problems and the incidence of stressful life events in women experiencing homelessness, to be followed by the design of an evidence-based psychological treatment for those problems.	
Chapter	Objective
THEORETICAL BACKGROUND	
Chapter 1: Women experiencing homelessness	Definition and characteristics of people in a homeless situation in general, and women in particular.
Chapter 2: Stressful life events among people experiencing homelessness	Review of the literature of childhood, adolescence, and adulthood SLEs among people experiencing homelessness, and SLEs in women in a homeless situation.
Chapter 3: Mental health in people experiencing homelessness	Examines the mental health, comorbidity rates, and well-being of people experiencing homelessness, analyzing the idiosyncrasies of women experiencing homelessness.
Chapter 4: Psychological interventions for people experiencing homelessness	Description of healthcare resources and mental health interventions available for people experiencing homelessness, with an emphasis on transdiagnostic protocols and the Unified Protocol.
CURRENT STUDY AND PUBLICATIONS	
Chapter 5: Differences in stressful life events between men and women experiencing homelessness	Study 1 examines the differences in number and type of SLEs experienced during their lives (i.e., in childhood, adolescence, and adulthood) between men and women experiencing homelessness.
Chapter 6: Role of stressful life events among women experiencing homelessness: An intragroup analysis	Study 2 explores the different trajectories to homelessness, and identifies particular subgroups of such trajectories, based on reported SLEs.
Chapter 7: Risk of mental ill-health among homeless women in Madrid (Spain)	Study 3 explores the differences between women experiencing homelessness at high risk of mental ill-health compared with those who do not present this risk.
Chapter 8: Application of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders among homeless women: A feasibility study.	Study 4 describes our adaptation of the Unified Protocol for Homeless Women (UPHW) and its feasibility.

Chapter 9: Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women

Study 5 analyzes the effectiveness of our adapted UPHW.

Chapter 10: Mediators and moderators of therapeutic change in the Unified Protocol for women experiencing homelessness

Study 6 examines the mediators and moderators of change in our adapted UPHW.

DISCUSSION AND CONCLUSIONS

Chapter 11: Discussion

Summarizes major findings of the present dissertation and connects them to the broader literature on this topic.

Chapter 12: Conclusions

Conclusions and final thoughts regarding the research presented in the dissertation.

CHAPTER 1:

WOMEN EXPERIENCING HOMELESSNESS

1.1. What does homelessness mean?

Finding a definition of homelessness is not a straightforward task. Most existing definitions have been coined in specific contexts and countries, and multiple definitions have been postulated. The European Typology of Homelessness and Housing Exclusion (ETHOS) discerns four conceptual categories of homelessness or poor living situations (Amore et al., 2011): (1) *rooflessness* (people living on the street, or in a night shelter), (2) *houselessness* (shelters and supported accommodation for formerly homeless people), (3) *insecure housing* (temporarily with family/friends, living under threat of violence), and (4) *inadequate housing* (living in extremely overcrowded, unfit housing). Rooflessness and houselessness are broadly classified as “homelessness”, whereas insecure and inadequate housing are usually categorized as “housing exclusion” (Baptista, 2010; Hutchinson et al., 2014). Evidence seems to indicate that “homelessness” (i.e., rooflessness and houselessness) is more common among men, whereas “housing exclusion” (i.e., insecure and inadequate housing) is more common among women (Baptista, 2010). For this reason, ETHOS incorporates a specific subcategory for women within the “homelessness” category: “women’s shelter accommodation”. This typology has been widely used in previous studies in the field (Busch-Geertsema et al., 2010; Pleace & Bretherton, 2013).

People experiencing homelessness are considered one of the most socially excluded groups in high income countries, and suffer major human rights violations. Worldwide, over 100 million people are in a homeless situation, and over 1.6 billion people lack adequate housing (Foundation Homeless World Cup; HWC, 2015).

Approximately four million people in Europe, and three million in the USA, are in a homeless situation (Fazel et al., 2014). In the specific case of Spain, data provided by the European Federation of National Organizations working with the Homeless (FEANTSA) estimates the homeless population to be between 23,000 and 35,000 people (FEANTSA, 2017). In Madrid, the capital of Spain and the city where the studies of this dissertation were carried out, an estimated 2,800 people are living homeless, of which 650 are living on the streets, according to the most recent Homeless People Count (Muñoz et al., 2018)

When we hear the word “homeless”, the image of a poor beggar sitting on the floor comes to mind. But what is really behind these stereotypes? Homeless individuals not only live in extreme poverty, but also endure other hardships, such as difficulties in achieving social and employment reintegration, significant physical and mental health problems, substance abuse, social disengagement, and elevated loneliness levels (Folsom et al., 2005; Olukoju, 2017; Vázquez et al., 2018). These health issues lead to high rates of hospitalization (Chambers et al., 2013; Hwang et al., 2013), although people experiencing homelessness do not always have a proper access to health services (Omerov et al., 2020) or adequate mental health care (Gaebel & Zielasek, 2015). Furthermore, people in a homeless situation are also more likely to become victims of violence and crime (Ellsworth, 2019) and face incarceration at greater rates (Tsai & Rosenheck, 2015). Ultimately, all these negative outcomes also increase the likelihood premature death and mortality (Hewett et al., 2011; O’connell, 2005). The morality rate is nearly eight times higher for men experiencing homelessness, and 12 times higher for women experiencing homelessness, compared to the general population; strikingly, the average age of death is 52 years for individuals experiencing homelessness (Aldridge et al., 2018, 2019).

1.2. Why do people become homeless?

A person can become homeless for many reasons. Examining routes leading to homelessness reveals a powerful interaction between structural and individual factors. Structural factors include conditions that shape an individual's environment and are out of an individual's control; e.g., federal or state-level policies, the availability of low-cost housing, labor market conditions, social deprivation, and immigration laws, all of which are crucial to understand the onset of homelessness (Cabrera, 2009; Cabrera & Rubio, 2008; Fazel et al., 2014; Oudshoorn, 2020; Sánchez Morales, 2010). The historical inequalities of Western societies promote a meritocracy system that tends to blame and criminalize poverty, making people experiencing homelessness responsible for their situation and emptying the responsibility of the state in social changes (Moura et al., 2019). At an individual level, a person's idiosyncratic characteristics may interfere with finding or maintaining accommodation, such as lack of education, family problems, health issues, substance misuse, or even a personal choice to live "rough" (Fazel et al., 2014; Oudshoorn, 2020). According to Busch-Geertsema et al. (2010), risk factors for homelessness can be classified into four categories: (1) structural (e.g., immigration, housing market, and economic processes); (2) institutional (e.g., institutional procedures, allocation mechanisms, available mainstream services, and lack of coordination between existing main services); (3) relationship (e.g., lack of social support, relationship breakdown, and family status); and (4) personal factors (e.g., age/gender, education, disability/long-term illness, and addiction).

Being homeless can happen to anyone, from young children to the elderly, from the rich to the poor, and across genders. Although anyone could become homeless, certain groups of people are at higher risk. Theoretical and empirical models suggest that there are diverse trajectories leading to homelessness. Hassell et al. (2016) found that

trajectories to homelessness in older age vary widely: Some people become homeless as children or young adults and then experience episodes of housing instability throughout their lives, whereas other individuals experience their first episodes of housing instability or homelessness in mid- to late-adulthood. Additionally, some studies have classified the trajectories to homelessness based on crucial variables in this population (e.g., health, work, personal strategies to deal with critical scenarios/events (e.g., begging, rummaging or cooking outdoors, among others)). Aubry et al. (2012) identified four trajectories to homelessness based on different severity levels of health problems: (1) Higher functioning; (2) Substance abuse problems; (3) Comorbidity of mental health and substance abuse problems; and (4) Complex physical and mental health problems. Although socio-structural factors (e.g., institutions and governments policies, the availability of housing, labor market conditions, social rejection, etc.) are the most important predictors of homelessness (Vázquez et al., 2020), the present doctoral dissertation focuses on the impact of homelessness on individual-level variables. Research on this topic usually focused on structural factors and social outcomes, and further work is needed to assess mental health outcomes (Aubry et al., 2020).

Ciapessoni (2016) identified three trajectories to homelessness according to individuals' health, relationships, work, and idiosyncratic strategies to deal with stressful events: (1) For men, common routes to homelessness are characterized by residential and work instability, substance use problems, and sleeping rough for a sustained period of time; (2) For women, routes to homelessness are typically characterized by residential intermittency, abandonment of their home as a result of domestic violence and abuse, little work experience, and sleeping on the street intermittently; and 3) for a mixed group of men and women, a third route to homelessness is characterized by the lowest peaks of

residential intermittency and job insecurity, with neither sustained episodes of sleeping rough nor typical street strategies (e.g., begging).

In order to identify the specific needs, characteristics and trajectories to homelessness (e.g. Cronley et al., 2018; Waldron et al., 2019), researchers have leveraged multivariate procedures and cluster analysis to classify individuals into distinct subgroups. Such work is essential for developing targeted programs that effectively address the needs of each subgroup (Muñoz et al., 2005). Chapter 6 of this doctoral dissertation contributes to this literature base by providing new evidence on the complex trajectories to homelessness based on reported SLEs.

1.3. Women and homelessness

In general, the definition of homelessness has some limitations, especially in the case of women. There is a phenomenon called “hidden homeless” (Baptista, 2010; Mayock & Sheridan, 2012; Watson, et al., 2016), whereby those who lose their homes live with family, friends, or in rooming houses rather than opting for a shelter or the street. Only when these external supports are exhausted (e.g., your family or friends get tired of you living with them) do such individuals become “homeless” – technically speaking – and eligible for homeless services and shelters. Women are much more likely to seek out these ‘hidden’ alternatives than are men, due to the dangerous nature of homelessness, the high risk of physical and sexual violence, and their responsibilities with their children.

The intersectionality theoretical framework (Hankivsky & Christoffersen, 2008) suggests that gender identity would interact with social exclusion and homelessness to create a unique model of discrimination and privilege. Hence, a woman experiencing homelessness might face difficulties that are neither solely due to her living status nor her gender, but due to the complex interaction between these two factors. There is also a

reductionist understanding of gender violence in the trajectories of women living on the streets, based on the process of victimization. Therefore, it is essential to bring the historical inequalities of racism, sexism and misogyny into an intersectional perspective (Zufferey, 2017). In summary, gender is a key factor in understanding paths to homelessness, the experiences during homelessness, and the opportunities to access housing resources (Bretherton, 2020; Johnson et al., 2017; Montgomery et al., 2017). For these reasons, it is crucial to pay attention to the idiosyncratic characteristics and needs of women experiencing homelessness. In fact, the last Comprehensive National Strategy for the Homeless in Spain for 2015-2020 (Spanish Government, 2015) emphasized the need to increase the visibility of, and attend to the specific needs of, women experiencing homelessness. However, the rates of women experiencing homelessness in research are usually under-represented, and the gender dimensions of homelessness are generally under-researched (Bretherton & Mayock, 2016; Pleace, 2016). Very little research has specifically focused on homeless women (Fries et al., 2014), while numerous studies have examined homeless men (Deck & Aggression, 2015; Duffy & Hutchison, 2019; Genuchi, 2019), likely because men are much more likely to become homeless than women. Consequently, women experiencing homelessness have been invisible in both popular and academic portrayals (Bretherton, & Mayock, 2016). The present doctoral dissertation seeks to contribute to the literature in this regard.

Among homeless individuals, females represent a much smaller proportion than males, ranging from 15 to 41% (Busch-Geertsema et al., 2014; Löfstrand & Quilgars, 2017). In Spain, 25% of people living homeless are women (Instituto Nacional de Estadística, 2018), and around 20% in Madrid (Cabrera, 1998; Muñoz et al., 2004; Panadero & Vázquez, 2016). Several authors have studied the phenomenon of gender differences in the homeless population. One of the earliest attempts was the work done

by the Reverend Frank Laubach (1916), in one of the first scientific studies on homelessness phenomena, where he noted that “it is often asked why women do not become vagrants in as great numbers as men” (Laubach, 1916, p. 71). He pointed out three tentative explanations: (1) In many cases, the “label” used to describe homeless women is different, (e.g., such women are referred to as “prostitutes”); (2) Society will not tolerate the kind of vagrancy that men have in women; and (3) Women may not have the same disposition to wander as men do (i.e., historically, men have typically been the explorers, while women have been bound to the home). Although more than a century has passed since this seminal study, some of Laubach’s reflections are still under discussion, while others represent an outdated view of the problem.

Another reason for the gender disparity in homelessness may lie in the places where women in a homeless situation are sought. For instance, institutions other than traditional shelters (e.g., hospices, poorhouses) may provide support for the homeless, but they may not be broadcasted (Broder, 2002). If researchers only collect data via homeless shelters, and do not include women-specific services (e.g., shelters for victims of gender-based violence or for sex workers), then their findings will be skewed towards an over-representation of men (Bloom, 2005). Thus, it is possible that current statistics of homeless individuals by gender underestimate the number of women.

Although there are similar structural causes that lead to homelessness for both genders, women tend to experience more difficulties in the areas of employment, education, and access to adequate housing (Alonso et al., 2020; Cabrera, 2000). Johnson et al. (2017) systematized the main causes and negative outcomes of women experiencing homelessness based on personal vulnerabilities (i.e., individual factors such as mental health issues, substance abuse, or prostitution) and negative life events (i.e., sexual abuse, gender-based violence) which are more prevalent among females. Further, Johnson et al.

(2017) suggested five consequences of being homeless as a woman: (1) Lower and less stable employment; (2) Poorer physical and mental health; (3) Greater physical and sexual abuse; (4) More alcohol and drug problems; and (5) Hunger and food deprivation. Thus, this doctoral dissertation focuses on the study of mental health problems and SLEs.

Prior research, although limited, suggests that women experiencing homelessness face unique barriers and idiosyncratic needs (see Table 1; Ponce et al., 2014). Existing data suggests that the impact of homelessness on women comprises multiple components, as it deteriorates their health, well-being, relationships, and social inclusion (McMaster et al., 2017). Moreover, women experiencing homelessness are more vulnerable to such negative outcomes than their male counterparts (Hatch & Dohrenwend, 2007; Padgett et al., 2012; Zugazaga, 2004): they are greater risk of gender-based violence, physical and sexual violence, and both physical and mental health problems (Alonso et al., 2020; Ponce et al., 2014; Rosa & Brêtas, 2015).

Table 2. Gender differences between homeless women and men.

Compared to homeless men, homeless women show...	
Higher	Lower
Physical health problems (Arangua et al., 2005)	Quality jobs (Cabrera, 1998; Okamoto, 2007)
Mental health problems (Phipps et al., 2019)	Periods of homelessness (Christensen & Vinther, 2005; Johnson et al., 2017)
Use of sedatives (Vázquez, Panadero, et al., 2019)	Episodes of homelessness (Christensen & Vinther, 2005; Johnson et al., 2017)
Barriers to receiving medical care (Gelberg et al., 2004)	Alcohol consumption (Guillén et al., 2020)
Risk of premature mortality (Montgomery et al., 2017)	Risk of living on the street (Byrne et al., 2016; Johnson et al., 2017)
Number of stressful life events (Padgett et al., 2012)	Occasions sleeping on the street (Vázquez, Panadero, et al., 2019)
Rates of victimization (Phipps et al., 2019)	Lack of social connections (Vázquez, Panadero, et al., 2019)

CHAPTER 2

STRESSFUL LIFE EVENTS AMONG PEOPLE

EXPERIENCING HOMELESSNESS

One of the main factors contributing to homelessness is the experience of Stressful Life Events (referred to as SLEs). SLEs are defined as episodes that play a key role in individuals' lives and often cause significant changes (Vázquez et al., 2015). In the context of poverty and social exclusion, the rates of SLEs among people experiencing homelessness are quantitatively greater and qualitatively more severe than in general population (Liu et al., 2021; Vázquez et al., 2010).

Over the past decades, several researchers have explored the relationship between homelessness and SLEs. Individuals who are homeless report high rates of SLEs throughout the lives (Muñoz et al., 1999; Padgett et al., 2012), especially before becoming homeless or during their transition to homelessness (Muñoz et al., 1999; Vázquez, Suarez, et al., 2019). Among people experiencing homelessness, SLEs are associated with a wide variety of physical and mental health problems (Hatch & Dohrenwend, 2007), a reduction in the quality of life (Krug, 2004), an increase in suicide attempts (Panadero et al., 2018), and high rates of substance abuse (Guillén et al., 2020).

SLEs are a key factor in understanding the origin and maintenance of homelessness (Jasinski et al., 2005; Muñoz et al., 1999, 2005; Padgett et al., 2012). Robust evidence indicates that experiencing severe and multiple SLEs is a vulnerability factor for becoming homeless (e.g., Toro & Oko-Riebau, 2015; Zugazaga, 2004) and simultaneously influences the chronicity of homelessness by maintaining the “revolving door to homelessness” (i.e., return to homelessness after access to independent housing; Roca et al., 2019).

The path to homelessness involves a gradual downward spiral, which often begins in childhood. Some researchers have reported an inverse correlation between the number of SLEs experienced and the age at which the person becomes homeless (Brown et al., 2016). Presence of SLEs in early life is a major risk factor for chronic poverty and social exclusion in later life (Stein et al., 2002; Vázquez, 2017). In particular, childhood SLEs are common among people experiencing homelessness (Edalati et al., 2016; Liu et al., 2021; Stein et al., 2002). Early events such as childhood abuse and lack of parental care (Anthony et al., 2018), family disorganization (Shelton et al., 2009), adverse childhood experiences (e.g., physical, sexual, or emotional abuse, incarceration of a family member, parental separation or divorce; Montgomery et al., 2013), and parental substance abuse (Stein et al., 2002) have been associated with homelessness in adulthood. Furthermore, experiencing SLEs in childhood is one of the main predictors of dysfunctional living situations, including physical and/or sexual abuse, substance abuse or mental illness (Padgett et al., 2012; Panadero et al., 2018; Wong & Piliavin, 2001). In addition, it has been found that exposure to adversity during childhood and adolescence is the main trigger for leaving home and early homelessness (Mar et al., 2014). Such experiences may increase the risk of involvement with antisocial partners and dangerous sexual behaviors (Dietz, 2010; Whitbeck et al., 1999), intimate partner violence (Slesnick et al., 2010), involvement in the criminal justice system (Widom & Maxfield, 2001), and suicidal behavior (Dietz, 2010; Panadero et al., 2018).

Nevertheless, the relationship between SLEs and homelessness is bidirectional: being homeless is a stressor in and of itself that increases the likelihood that further SLEs will occur to the individual (Zugazaga, 2004). When individuals become homeless, they are immediately at a higher risk of being victimized (Dice, 2012). For instance, there are more cases of physical and sexual abuse among people experiencing homelessness than in the

domiciled population (Wenzel et al., 2000). Thus, people in a homeless situation also experience high number of SLEs in adulthood (Zugazaga, 2004), including economic hardship (e.g., economic crisis, loss of employment), interpersonal issues (e.g., abandonment by one or both parents, loss of close relatives, breakdown of social networks), health problems (e.g., physical, mental, alcohol or drug abuse, disability, suicide attempts), and other situations of victimization (e.g., assault, physical and sexual violence, legal problems, incarceration; Ayano et al., 2019; Brown et al., 2016; Muñoz et al., 1999; Padgett et al., 2012; Toro & Oko-Riebau, 2015; Zugazaga, 2004).

Taken together, these results emphasize the role of victimization in the processes leading to, and during, conditions of homelessness. To be clear, "victimization" is defined as the process act of being a victim of any aggressive behavior (Hodgins et al., 2009). In the case of homeless individuals, victimization is conceptualized as both a cause and an effect of homelessness (North et al., 1994). Indeed, empirical data suggests that people in a homeless situation experience higher rates of victimization than housed individuals (Goodman et al., 1997; Khandor & Mason, 2007). Among homeless populations, the risk of victimization is even further elevated by mental illness (Lee & Schreck, 2005), alcohol and drug use problems (Hudson et al., 2010; Lee & Schreck, 2005), lack of supportive or protective social networks (Wenzel et al., 2000), and rejection from shelters (Garland et al., 2010).

2.1. SLEs in homeless women's lives

The impact of victimization processes on homelessness seems to differ by gender. International studies have found that men and women in a homeless situation tend to experience different types of SLEs (Hatch & Dohrenwend, 2007; Zugazaga, 2004). In general, data suggest that men are more likely to experience events related to substance abuse and legal problems, while women are more likely to experience some sort of partner

violence abuse (e.g., physical, psychological, and sexual), mental health problems, and psychiatric hospitalization (Hatch & Dohrenwend, 2007; Zugazaga, 2004). Furthermore, whereas men in a homeless situation are at greater risk of physical violence, women are at greater risk of sexual abuse (Tyler et al., 2004; Whitbeck et al., 1999). Several studies suggest that sexual violence is more prevalent among women experiencing homelessness than men (Heslin et al., 2007; Wesely & Wright, 2009). Importantly, experiences of physical and sexual violence among women experiencing homelessness have been associated with poor physical health status and low quality of life (Tinland et al., 2018), mental health problems (Duke & Searby, 2019), substance abuse (Tucker et al., 2005), and suicide attempts (Tinland et al., 2018). In Spain, research focused on women experiencing homelessness is scarce (Cabrera, 2000; Fernández-Rasines & Gámez-Ramos, 2013; Vázquez & Panadero, 2019). As the number of women experiencing homelessness in Spain has increased over the past few years, it is crucial to empirically investigate this issue within the Spanish context (Alonso et al., 2020). This is one of the gaps in the literature that this doctoral dissertation aims to address.

Early traumatic experiences are some of the most important risk factors for homelessness among women (Dice, 2012) and are dominant themes in personal narratives around their journeys to homelessness (Cronley et al., 2019). Some of the aforementioned childhood SLEs (e.g., physical, psychological and/or sexual abuse) are particularly common among women experiencing homelessness (Sundin & Baguley, 2015; Vázquez & Panadero, 2019; Zugazaga, 2004). A meta-analysis found that 32% of women in a homeless situation, while only 10% of men in a homeless situation, experienced child sexual abuse (Sundin & Baguley, 2015). Moreover, child abuse in homeless has been associated with several adverse consequences, including substance use and street victimization (Song et al., 2019; Tyler & Melander, 2015), mental health problems (Stein

et al., 2002), sexual risk-taking in adulthood (Newman et al., 2004; Senn et al., 2006), sexually transmitted infections, and HIV (Ohene et al., 2005).

What are the pathways through which SLEs increase risk of homelessness? Some of the circumstances discussed earlier (e.g., abandonment, abuse, parental mental health problems, and substance use) make it difficult for young girls to develop adaptive problem-solving and decision-making skills. Consequently, they may enter patterns of maladaptive living that lead to and sustain homelessness (Finfgeld-Connett, 2010). In an attempt to avoid victimization, alleviate loneliness, and gain protection, some women experiencing homelessness seek to establish a romantic relationship; paradoxically, however, these intimate partner attachments often result in abuse (Alonso et al., 2020; Cronley et al., 2019), as well as self-destructive behaviors, such as alcohol and substance abuse and criminal activities (Carroll & Loree, 2002; Padgett et al., 2006).

Given the high number of SLEs experienced by women in a homeless situation, the negative consequences derived from them, and the few studies in Spain on this issue, two out of six studies presented in this dissertation analyze the role of SLEs in this population. First, Chapter 5 analyzes the differences between homeless men and women in the number of types of SLEs experienced (in childhood, adolescence, and adulthood). Second, Chapter 6 organizes a sample of homeless into different subgroups on the basis of SLEs experienced, and characterizes such subgroups in terms of sociodemographic characteristics, trajectories to homelessness, physical and mental health, and levels of social support.

CHAPTER 3

MENTAL HEALTH IN PEOPLE EXPERIENCING

HOMELESSNESS

Homelessness is a growing public health concern all over the world (Omerov et al., 2020). People who are homeless face a wide array of health problems (Asibey et al., 2020; Nagy-Borsy et al., 2016) which are associated with unhealthy or dangerous environments, poor self-care, and difficulties accessing health care services (Chambers et al., 2014; Chondraki et al., 2014; Lippert & Lee, 2015; Speirs et al., 2013). Of all the health problems experienced by people in a homeless situation, mental health problems may be most severe (Guenzel et al., 2019; Krausz et al., 2013). The present doctoral dissertation seeks to contribute to the literature on this topic.

The prevalence of mental health disorders among people experiencing homelessness is much higher than in the general population (Pribish et al., 2019), higher than other economically disadvantaged groups (Lebrun-Harris et al., 2013), and higher than poor but domiciled people (Greenberg & Rosenheck, 2010). Within homeless population, the risk of mental health disorders is eight times higher for individuals living in shelters and eleven times higher for individuals sleeping on the street (Habánik, 2018). Around a third of people experiencing homelessness present a serious mental disorder (e.g., schizophrenia or bipolar disorder; Sullivan et al., 2000), while this figure rises to almost 50% when affective disorders (i.e., anxious-depressive symptomatology) are taken into account (Feeney et al., 2000). Meta-analytic evidence suggests that the pooled prevalence rate of mental disorders in homeless population is 77.5% (Schreiter et al., 2017). In the United States, 57.8% of homeless individuals suffer from mental health problems (U.S. Department of Housing and Urban Development, 2015), while only 18.9% do in the

general population (National Institute of Mental Health, 2017). In Europe, the prevalence of mental disorders is around 30% (Mental Health Europe, 2013). Specifically, the data available in Spain suggest that the prevalence of mental health problems among people experiencing homelessness ranges from 25% to 35% (Vázquez & Muñoz, 2001). A systematic review of samples from different countries showed that the prevalence of mental disorders in people experiencing homelessness ranges from 48.4% to 98% (Hodgson et al., 2013). However, according to more conservative estimates, psychiatric disorders affect 30% to 40% of people experiencing homelessness (Lee et al., 2010). Such numerical discrepancies may result from methodological differences across studies, such as the type of homelessness that is evaluated (e.g., sleeping on the streets, using shelters, or staying in facilitated apartments; Meltzer, 2009) as well as cross-cultural and contextual differences (Teesson et al., 2004)

The most prevalent psychological disorders among people experiencing homelessness include affective disorders (especially depression), substance and alcohol abuse, psychotic disorders (especially schizophrenia), personality disorders, and PTSD (Fazel et al., 2008; Hossain et al., 2020). A recent umbrella review among homeless samples (Hossain et al., 2020) showed that the prevalence of depressive disorders ranged from 11.4% to 57.9%, bipolar and other mood disorders ranged from 5.1% to 41.3%, PTSD ranged from 48% to 80.9%, psychotic disorders ranged from 1% to 45%, substance-related disorders ranged from 4.5% to 60.9%, personality disorders ranged from 23.1% to 29.1%, and the prevalence of lifetime suicidal behavior ranged from 28.8% to 41.6%.

3.1. Comorbidity

Individuals experiencing homelessness also present high rates of psychiatric comorbidity, which is an indicator of symptom severity. People experiencing homelessness are four times more likely to meet criteria for more than one psychological disorder at the same time than is the general population (National Institute of Mental Health, 2009). About 50-60% of people living homeless have a dual diagnosis (for instance, major depressive disorder and substance use disorder; Chondraki et al., 2014; Strehlau et al., 2012; Substance Abuse and Mental Health Services Administration, 2011; Urbanoski et al., 2018). Furthermore, homeless individuals with mental health problems experience higher rates of suicide than the rest of the homeless population (Ayano et al., 2019; Dunne et al., 2012).

In the case of women experiencing homelessness, about 58% have a dual diagnosis (Torchalla et al., 2011), with common comorbidities such as depression co-occurring with alcohol abuse. Due to the high levels of morbidity related to substance abuse and untreated medical conditions, women experiencing homeless with mental health problems have a higher risk of mortality than their male counterparts (Caton et al., 2007).

3.2. The role of mental health in the homeless situation

Evidence to date suggests that there is a two-way relationship between homelessness and mental health problems (Duke & Searby, 2019), where mental health problems act as both antecedents and consequences of homelessness (Chambers et al., 2014; Mejia-Lancheros et al., 2020; Pinillo, 2021). On the one hand, people with mental disorders are more likely to become homeless (Nilsson et al., 2019), as such issues may reduce employment opportunities and increase feelings of social isolation. Alternatively, homelessness is a vulnerability factor for both developing new mental health problems

and aggravating preexisting ones (Fitzpatrick et al., 2015; Lippert & Lee, 2015). Stress and traumatic experiences associated with homelessness exacerbate their vulnerability to future mental health problems, distress, and substance-related disorders (Castellow et al., 2015).

Both the duration and number of episodes of homelessness have been linked to mental health problems. The amount of time a person spends homeless is directly related to mental health problems such as anxiety or depression (Nino et al., 2009). At the same time, there is a higher prevalence of mental health problems among people who are chronically or episodically homeless than among people who only recently became homeless (Calvo et al., 2020; Lippert & Lee, 2015). However, becoming homeless is also associated with a significant increase in psychological distress (Scutella & Johnson, 2018). Some studies have also found that the difficulties involved in adapting to homelessness throughout the first months are also associated with several mental health issues (Panadero-Herrero & Muñoz-López, 2014). Once again, there are some gender differences in the relationship between mental health and duration of homelessness (Scutella & Johnson, 2018): Whereas homelessness becomes less stressful over time for men, levels of distress increase over time for women experiencing homelessness. Interestingly, mental health problems also impact the housing processes for people who were once homeless and return to housing (Scutella & Johnson, 2018): Whereas men housed for less than three months had higher levels of psychological distress than men housed for longer periods of time, this distress reduction did not occur in the case of housed women; in other words, a return to stable housing significantly reduced psychological distress for previously homeless men, but not for women (Scutella & Johnson, 2018).

3.3. Mental health & women experiencing homelessness

Two risk factors systematically appear in the literature when the variables that foster mental health problems are examined: socioeconomic status and gender. On the one hand, many common mental disorders are closely linked to social inequalities (Compton & Shim, 2015) and a lack of housing (Chambers et al., 2014). For instance, individuals living in low-income countries with a lower socioeconomic level have greater exposure to SLEs (Vázquez et al., 2015), which in turn increase risk of mental health problems (Lund et al., 2010). In addition, several studies report that women are twice as likely to suffer from mental health problems as men (Kessler et al., 2003), especially anxious-depressive disorders, for which women present more severe and incapacitating symptoms (Freeman & Freeman, 2013). Therefore, the difficulties arising from the interaction between the lack of socio-economic resources and mental health problems are even more pronounced among women experiencing homeless (Chambers et al., 2014; Duke & Searby, 2019; Greenberg & Rosenheck, 2010).

Women in a homeless situation tend to experience more mental health problems than do homeless in a homeless situation (Chondraki et al., 2014; Phipps et al., 2019). In contrast, men experiencing homelessness are more likely to suffer alcohol and substance use (Dietz, 2010; Kershaw et al., 2003). Riley et al. (2014) found that 97% of women experiencing homelessness had at least one psychological disorder: 70% had a mood disorder and 74% had an anxiety disorder. A recent review of mental ill-health in women experiencing homelessness from different countries (Duke & Searby, 2019) revealed a wide variety of mental health problems, including depression and anxiety (up to 40-50%), PTSD (30-40%), schizophrenia (2.5-17%), alcohol dependence (up to 60%), other substance dependence (20-50%), and dual diagnosis (20%). These results are consistent with previous studies in the field (Paula Mayock & Bretherton, 2016). In the case of

Spain, 38% of women experiencing homelessness suffer from a serious mental health problem: of these, 43% had an anxiety disorder, 45% had depression, and 28% had undergone some form of psychiatric hospitalization (Martín et al., 2016). Moreover, women experiencing homelessness are more likely to take psychotropic medication and seek regular psychiatric treatment than their male counterparts.

Homelessness and the accumulation of traumatic experiences can be dangerous for women with mental health problems, as they further impair health by increasing the number of diseases, psychiatric comorbidities, substance abuse problems, and mortality (Bonugli et al., 2013; Caton et al., 2007). Poor mental health not only elevates the likelihood of becoming homeless, but it can also extend the duration of homeless episodes, perpetuating the homelessness cycle and rendering it more difficult for women to achieve housing stability (Welch-Lazoritz et al., 2015). Moreover, other effects of poor mental health, such as low self-esteem and reduced adaptive coping behaviors, may exacerbate negative health and social outcomes (Chambers et al., 2014; Montgomery et al., 2011). In an effort to protect themselves, many women avoid contact with other homeless individuals, which may have unintended consequences such as deepening isolation (Bonugli et al., 2013) and worse mental health (Cherner et al., 2018).

Despite the high prevalence of mental health disorders among people experiencing homelessness, few studies have analyzed the risk of mental health problems among women experiencing homelessness in Spain. In fact, several authors have emphasized the need to investigate situations of women experiencing homelessness in particular geographical locations in order to better address their needs and target their mental health concerns, which can be culture- and context-specific (Duke & Searby, 2019; Toro, 2007; Zugazaga, 2004). Thus, the Chapter 7 of this dissertation aims to examine the differences

between women experiencing homelessness at high risk of mental ill-health and those who do not present this risk.

3.4. Well-being and homelessness

According to the World Health Organization (WHO, 1948), health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." In other words, mental health is not simply the absence of psychopathology; rather, it involves the presence of positive and protective psychological factors. For this reason, it is important to examine self-reported quality of life and subjective well-being of people who are homeless. Homelessness is associated with a poor perceived quality of life (Hubley et al., 2014), low levels of subjective well-being, and greater dissatisfaction with life (Biswas-Diener & Diener, 2006; Sun et al., 2012). Although scarce, scientific evidence suggest that certain factors may lead to better mental health outcomes for people experiencing homeless: being housed improves emotional well-being (Padgett, 2020), owning a pet is related to lower loneliness and depression (Rhoades et al., 2015), and positive social support is linked to lower rates of mental health problems (Fitzpatrick, 2017).

CHAPTER 4

PSYCHOLOGICAL INTERVENTIONS FOR PEOPLE

EXPERIENCING HOMELESSNESS

Two major initiatives in the United Nations Agenda for 2030 for Sustainable Development (United Nations, 2015) are the eradication of poverty and achieving gender equality. To this end, governments around the world are implementing different strategies to address homelessness, which have found greater success in some countries than in others. The perspectives of the homeless individuals are sometimes neglected, and their participation in the development and delivery of services (e.g., health, social) remains low (Busch-Geertsema et al., 2010; Luchenski et al., 2018). Furthermore, it is important to note that systematic research may be difficult to conduct, as individuals experiencing homelessness often experience various barriers to participating in interventions (Crawley et al., 2013).

4.1. Use of healthcare resources in homeless population

The adverse health outcomes of people experiencing homelessness are exacerbated by lack of access to, and knowledge of, appropriate healthcare resources (Oudshoorn et al., 2016; Pribish et al., 2019). People who are homeless are more likely to use emergency services and less likely to use out-patient services than non-homeless patients (Folsom et al., 2005). Moreover, they report lower retention in medical services (Hwang et al., 2011), and report greater unmet health care needs (Baggett et al., 2010).

The lack of access to health care is particularly concerning for homeless individuals with mental health problems, who make up a substantial proportion of those presenting for care in health services (Moulin et al., 2018). Strikingly, less than 15% of people

experiencing homelessness with mental disorders have received psychiatric treatment for those problems (Krausz et al., 2013). Women who are homeless experience specific barriers to accessing mental health services because of their unique and complex life circumstances (David et al., 2015), as well as the common co-occurrence between substance abuse problems and experiences of trauma (Ponce et al., 2014).

4.2. Mental health interventions in people experiencing homelessness

Given the high rates of mental disorders, substance abuse, and trauma among the homeless, there is an urgent need for innovative, sustainable strategies in safety-net settings to treat these individuals (Sauer-Zavala et al., 2019). Some major therapeutic orientations to help individuals experiencing homelessness who struggle with mental health problems are: (1) community-based programs; (2) case management (e.g., Assertive Community Treatment; ACT); (3) housing programs (e.g., Housing first).

In a pioneer study, Morse and colleagues (1992) developed a longitudinal experimental design to compare the effectiveness of three community-based treatment programs for mentally ill homeless people: (1) an outpatient treatment offered by a mental health service, (2) a daytime drop-in center, and (3) a continuous treatment team program (i.e., assertive outreach, a high staff-to-client ratio, and intensive case management). They found that participants in each of the three groups spent fewer days homeless, reported fewer psychiatric symptoms, had earned greater income and showed increased interpersonal adjustment and self-esteem at 12-month follow-up. However, the continuous treatment team was more effective than the other two programs. Some years later, Rosenheck (2000) conducted a review on the cost-effectiveness of services for people experiencing homelessness with a serious mental illness; he found that specialized interventions (i.e., outreach, case management, and housing placement) were associated with significant improvements in housing, mental health and quality of life.

Assertive Community Treatment (ACT) is one of the most established case management interventions for people experiencing homelessness with severe mental disorders (Coldwell & Bender, 2007). The typical ACT model is characterized by a multidisciplinary team (i.e., psychiatrist, psychologist, social workers, nurses, occupational therapists, etc.), 24-hour coverage by the treatment team, low staff caseloads that enable more contact with the client, and a community-based services (Assertive Community Treatment Association, 2007). Although ACT was not originally designed for the homeless population, ACT has shown to be more effective in reducing homelessness and symptom severity than standard case management models for homeless individuals with severe mental disorders (Coldwell & Bender, 2007).

Prior studies have also examined the effectiveness of interventions to improve housing stability. A recent meta-analysis found that a range of housing programs and case management interventions reduced homelessness and improved housing stability at greater rates than did care as usual (Munthe-Kaas et al., 2018). In this regard, one of the best known programs worldwide is Housing First model (HF; Tsemberis, 2010). HF provides permanent housing as an initial step in addressing homelessness without requiring compliance to health or substance use treatments. HF also provides support through Intensive Case Management or Assertive Community Treatment approaches (Padgett et al., 2016). The HF model contrast with the traditional “Treatment First” model which first provides temporary accommodation in services to address health needs (especially substance use) before the client achieves permanent housing. A recent systematic review and meta-analysis of RCT studies (Baxter et al., 2019) found that although HF may improve some aspects of health, its effects on mental health and substance abuse outcomes were no clear.

As homelessness is an interdisciplinary and complex issue, the field of psychology may shed light on paths to mitigate it. A recent systematic review and meta-analysis on the effectiveness of psychological and psychosocial interventions for people experiencing homelessness revealed a significant effects in reducing anxiety and enhancing mental well-being (Hyun et al., 2020). Similar promising results have been found in the context of psychological and psychosocial interventions specifically designed for homeless youth (Altena et al., 2010; Noh, 2018). Intervention protocols incorporating emotional regulation techniques have significantly improved levels of functioning and life satisfaction (de Vicente et al., 2004). Evidence also suggest that Mindfulness-Based Interventions (MBIs) may reduce psychological distress and improve well-being in both economically disadvantaged populations and youth experiencing homelessness (Chavez et al., 2020; Jiga et al., 2019; Lo et al., 2019; Santa Maria et al., 2020). Moreover, mobile phone-based psychological interventions, which may be particularly scalable, have slightly improved mood symptoms and emotion regulation (Schueller et al., 2019) and increased treatment service utilization among homeless adults (Gonzalez et al., 2018). In particular, Calvo & Carbonell (2018) found that the use of Facebook improved social skills, self-esteem, self-efficacy, and satisfaction with life among people experiencing homelessness.

The aforementioned findings, while promising, are preliminary; to date, there is a lack of evidence-based psychological treatments developed specifically to target mental health problems in people experiencing homelessness (Speirs et al., 2013). In addition, most of the interventions reviewed did not specifically focus on specific needs of, and outcomes for, women experiencing homelessness, who are a vulnerable subgroup with idiosyncratic characteristics (Luchenski et al., 2018; Speirs et al., 2013). Many researchers highlight the need for gender-specific homelessness services, policies and

interventions, which focus on the specific concerns of women (Alonso et al., 2020; Baptista, 2010; Hutchinson et al., 2014; Mayock et al., 2015). In recognition of this, Speirs et al. (2013) systematically reviewed the literature evaluating interventions for women experiencing homelessness. They found that psychosocial interventions reduce psychological distress and healthcare use, improve self-esteem and reduce alcohol and drug use among women in a homeless situation. Furthermore, cognitive behavioral therapy, psychoeducation and motivational interviewing have shown to improve different cognitive, emotional and behavioral outcomes among women experiencing homelessness while reducing health-risk behaviors (Castaños-Cervantes, 2019; Rew et al., 2017; Speirs et al., 2013). Evidence suggests different groups of women may benefit from such interventions. For instance, psychological interventions improve mental health and social outcomes for women living in shelters due to intimate partner violence (Jonker et al., 2014; Lako et al., 2013). Trauma-informed and health promotion interventions also enhance wellness and quality of life among young women experiencing homelessness (Reid et al., 2020).

Nevertheless, studies to date show several methodological limitations, including, but not limited to, lack of comparison groups and small sample sizes. Thus, further research is needed to maximize the efficacy of psychological interventions designed for women experiencing homelessness (Speirs et al., 2013).

4.3. Transdiagnostic protocols as a feasible alternative to treat mental health problems among people experiencing homelessness

Considering the widespread prevalence of emotional disorders, high comorbidity rates, and incidence of stressful life events in people experiencing homelessness, transdiagnostic protocols are postulated as a feasible alternative to provide Evidence-Based Treatment (EBTs) for a wide range of psychological symptoms across different diagnoses to this population (Sauer-Zavala et al., 2019).

Over the last years, a growing number of studies have employed a transdiagnostic approach to develop psychological treatments. The transdiagnostic approach is based on the idea that similar psychological processes are involved in the onset and maintenance of various forms of psychopathology, and thus, that targeting common elements across diagnoses can simultaneously alleviate several mental health conditions (Cano-Vindel et al., 2021; Patel et al., 2018). Empirical evidence suggests that transdiagnostic interventions are highly effective treatments for an array of emotional disorders (Newby et al., 2015).

Transdiagnostic approaches arise from three different orientations to treatment development (Sauer-Zavala et al., 2012, 2017). The first is the universal application of therapeutic principles across multiple disorders. The second is a “modular” approach whereby the professional selects among different strategies to generate a treatment that can be applied across multiple disorders, regardless of patient diagnosis. The third orientation is based on the premise that common mechanisms or elements underlying different mental disorders (such as chronic loneliness, negative affect, or emotion regulation deficits) should drive the creation and implementation of treatments. Addressing such foundational processes would enable treatments to be delivered through

one single protocol, which increases the efficacy of the treatment (Newby et al., 2015), reduces the amount of time and effort that is required for adequate clinician training (Barlow et al., 1999; McHugh & Barlow, 2010), and increases patient engagement and retention (Cassidello-Robbins et al., 2020).

The rationale for targeting transdiagnostic factors across emotional disorders is compelling, due to underlying latent structures (Barlow, 2002; Carragher et al., 2015), high rates of comorbidity (Brown et al., 2001), evidence that comorbid disorders can remit during treatment for a primary disorder (Borkovec et al., 1995), and cost-effectiveness in low-resource settings (Martin et al., 2018).

4.4. Unified Protocol for Transdiagnostic Treatment of Emotional Disorders

One of the most well-known and empirically validated transdiagnostic treatments is the pioneering Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011). The UP is a manual-based Cognitive-Behavioral Therapy protocol that addresses the common traits and psychopathological mechanisms that fuel the development and maintenance of different emotional disorders, instead of focusing on each disorder independently. Common features include, but are not limited to, neuroticism, emotional dysregulation, emotional avoidance, intolerance of uncertainty, distress tolerance, negative affect, or anxiety sensitivity, among others. Recent evidence has shown the UP to be effective in reducing symptoms of anxiety and depression and promoting the use of adaptive emotion regulation strategies across different contexts (Cassidello-Robbins et al., 2020; Sakiris & Berle, 2019).

The UP consists of five core modules: (a) mindfulness emotion awareness, (b) cognitive flexibility, (c) identifying and preventing patterns of emotion avoidance and maladaptive emotion-driven behaviors, (d) increasing awareness and tolerance of

emotion-related physical sensations, and (e) interceptive and situation-based emotion focused exposure. These modules are preceded by an initial module focused on motivation enhancement and an introductory module on the adaptive nature of emotions. The UP can be delivered in a group format (Bullis et al., 2015; De Paul & Caver, 2020; Osma et al., 2018; Reinholt et al., 2017), which may be most suitable and cost-effective for community services and shelters serving homeless populations. Employing a group format reduces the time, effort, and resources necessary to train therapists, as only one protocol can be used to treat patients with different disorders (McHugh et al., 2009). Moreover, the group format also allows participants to benefit interpersonally and develop positive relationships, self-acceptance and autonomy (Leichsenring & Salzer, 2014), which may be particularly impaired among people experiencing homelessness.

Although the UP was originally designed and evaluated for outpatient treatment, emerging research suggests its feasibility and moderate efficacy in adaptations for inpatient (see Bentley et al., 2017), residential (Cassello-Robbins et al., 2020), community and social settings (Marín et al., 2021; Sauer-Zavala et al., 2019). One of the mechanisms targeted by the UP is the willingness to experience emotions within everyday life (Sakiris & Berle, 2019). Previous literature suggests that people experiencing homelessness may experience difficulties in this area and could significantly benefit from emotion-regulation interventions (e.g., Barr et al., 2017). To date, two initial studies have evaluated the UP in homeless individuals: one examines the barriers and facilitators (Youn et al., 2019), and the other examines acceptability and feasibility (Sauer-Zavala et al., 2019). However, neither study provides data on the effectiveness of the UP adapted to the homeless population. Youn et al. (2019) evaluated the barriers and facilitators to implementing short-term transdiagnostic mental health treatments in a community health center serving homeless individuals. The results of the focus groups emphasized the

tensions faced by clinicians and community program when integrating the UP in socially excluded populations. Some of the issues detected included attendance problems, engagement with the intervention, certain needs left unaddressed, and organizational problems related to the resources and services where the UP was administered. Despite these potential challenges, however, focus groups with individuals in a homeless situation also emphasized the perceived usefulness of the UP's content, as well as overall positive experiences with the organization and the treating clinicians. In addition, Sauer-Zavala et al. (2019) conducted a pilot study administering the UP at a community-based organization providing care to individuals experiencing homelessness, yielding mixed results in acceptability and feasibility for both therapist and patients. The authors suggested that future research may benefit from exploring the application of the UP for people experiencing homelessness in group format and translation into other languages (e.g., Spanish) to expand its use to other contexts. This doctoral dissertation symbolically picks up this baton by adapting the UP both to a group format and to the needs of women experiencing homelessness in Spain.

4.5. Our adaptation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women (UPHW)

Given the urgent need to develop psychological interventions targeted toward women experiencing homelessness, as well as the promise of the UP to alleviate psychological distress in different contexts, we decided to adapt the UP to a group format for women experiencing homelessness in Madrid (Spain). Chapter 8 describes this adaptation of the UP for women experiencing homelessness (UPWH) and discusses its feasibility. We then examine the effectiveness of (Chapter 9) and mediators and moderators of change (Chapter 10) in our intervention. Together, these three studies aim to contribute to the development of a practical and potentially effective solution for addressing common

mental health problems (e.g., depression and anxiety) in community settings that serve women experiencing homelessness.

The UPHW was delivered in group format (i.e., small groups with 10 or fewer participants) and consisted of weekly 90-minute face-to-face sessions for 12 consecutive weeks. Women experiencing homelessness who participated in this study were assessed pre-intervention, during the intervention (weekly intersession assessment), at the end of treatment, and at 3- and 6-month follow-ups. Participation in the study was voluntary and participants did not receive any economic compensation for their participation.

Study assessments were conducted by independent evaluators who were blind to study condition. Assessments were conducted face-to-face and lasted between 60 and 90 minutes in a private office provided by the shelters. Primary outcome measures were severity of anxiety and depression symptoms, as measured by the Beck Anxiety Inventory (BAI; Beck & Steer, 1993; Magán et al., 2008) and Beck Depression Inventory-II (BDI-II; Beck et al., 1990; Sanz et al., 2003), respectively. Secondary outcomes measures included: (1) Emotional functioning, as measured by assessing the Positive and Negative Affect Scale (PANAS; López-Gómez et al., 2015; Watson et al., 1988); (2) Integrative well-being, as assessed by the Pemberton Happiness Index (PHI; Hervás & Vázquez, 2013); (3) Health status, as measured by the Short Form Health Survey (SF-12; Vilagut et al., 2008; Ware et al., 1996); (4) Social support, as measured by the Social Support Questionnaire (SSQ-6; Martínez-López et al., 2014; Sarason et al., 1987); and (5) weekly changes in the levels of anxiety and depression severity and functional impairment, as measured by the Overall Anxiety Severity and Impairment Scale (OASIS; González-Robles et al., 2018; Norman et al., 2006), and the Overall Depression Severity and Impairment Scale (ODSIS; Bentley et al., 2014; Mira et al., 2019).

This study was conducted as a single-blinded quasi-experimental clinical trial. All procedures were approved by the University Ethics Committee of Complutense of Madrid (Ref. 2017/18-004) and the trial was registered at clinicaltrials.gov as NCT04392856.

PUBLICATIONS

CHAPTER 5:

Differences in stressful life events between men and women experiencing homelessness

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First, we started by analyzing the incidence of stressful life events in people experiencing homelessness. Evidence suggests that SLEs are a key factor in understanding the etiology and maintenance of homelessness (Padgett et al., 2012). According to prior research, experiencing severe and multiple SLEs is a vulnerability factor for becoming homeless (Toro & Oko-Riebau, 2015; Zugazaga, 2004); at the same time, SLEs influence the chronicity of homelessness by pushing the “revolving door to homelessness” (Roca et al., 2019). However, the impact of victimization processes on homelessness seems to be different for men and women (Hatch & Dohrenwend, 2007; Zugazaga, 2004); specifically, women in a homeless situation are more likely to experience traumatic events than their male counterparts (Tsai et al., 2014). Thus, the aim of the first study was to examine the differences between men and women in a homeless situation in terms of the number and type of SLEs experienced during their lives (i.e., across childhood, adolescence, and adulthood).

Differences in stressful life events between men and women experiencing homelessness

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Abstract

People experiencing homelessness are particularly vulnerable to experiencing stressful life events (SLEs) at some point in their lives; these SLEs are crucial for understanding the etiology and maintenance of homelessness. This study analyses the differences between men and women experiencing homelessness in the suffering of SLEs throughout their lives (childhood, adolescence, and adulthood). The sample consisted of a group of 293 people experiencing homelessness in Madrid (Spain): 156 men and 137 women. The results suggest that the number and type of SLEs experienced by men and women are different. In general, women experiencing homelessness suffer more SLEs than men in all periods of their lives. The differences in the level of sexual violence in childhood, sexual abuse in adulthood, and abuse by a spouse or partner are particularly striking. However, men experiencing homelessness score significantly higher than women for alcohol abuse, police complaints, arrest, and imprisonment throughout their lives. These findings have significant implications for the design of interventions and social policies that should be tailored to the specific needs of men and women who are homeless.

KEYWORDS

gender, homelessness, people experiencing homelessness, stressful life events, women experiencing homelessness

1 | INTRODUCTION

Worldwide, over 100 million people are homeless and over 1.6 billion people lack adequate housing (Foundation Homeless World Cup, 2015). Social exclusion has been defined as “the process through which individuals or groups are wholly or partially excluded from full participation in the society in which they live” (Deakin et al., 1995, p. 129). Social exclusion and homelessness are inherently connected, as some of the main characteristics of homelessness (such as the economic problems, lack of housing, and social support) are also core elements of social exclusion (Van Straaten et al., 2018). The lack of contact between people who are socially excluded and the general population has a negative impact on the stereotypes and metastereotypes affecting the stigmatized group, which promotes discriminatory behaviors and further reduces their inclusion (Vázquez, 2019). Therefore, socially excluded people in general, and homeless individuals, in particular, not only live in extreme poverty, but also experience high levels of family and social disengagement, significant physical and mental health problems, and great difficulties in achieving social and employment reintegration (Vázquez et al., 2018).

Stressful life events (henceforth SLEs) are a key factor in understanding the etiology and maintenance of homelessness (Jasinski et al., 2005; Muñoz et al., 2005; Padgett et al., 2012). SLEs are defined as experiences that play a key role in people's lives and that involve significant life changes. According to different studies, experiencing severe and multiple SLEs is a vulnerability factor for becoming homeless (Toro & Oko-Riebau, 2015; Zugazaga, 2004), but at the same time, SLEs influence homelessness chronification by increasing the “revolving door to homelessness” (i.e., the return to homelessness after access to independent housing; Roca et al., 2019).

In the context of poverty and social exclusion, the rates of SLEs are quantitatively more numerous and qualitatively more severe than in the general population (Vázquez et al., 2010). Homeless people experience an extraordinarily large number of SLEs in the course of their lives, largely before or during their transition to homelessness (Muñoz et al., 1999; Vázquez, Suarez, et al., 2019). Furthermore, being homeless is in itself a traumatic experience, increasing the individual's vulnerability to experiencing negative events (Zugazaga, 2004). When individuals become homeless, they are immediately at a higher risk of being victimized (Dice, 2012). For instance, there are more cases of physical and sexual abuse among people experiencing homelessness than in the domiciled population (Wenzel et al., 2000). Moreover, among this population, SLEs are associated with the presence of a wide range of physical and mental health problems (Hatch & Dohrenwend, 2007), a reduction in the quality of life (Krug, 2004), suicide attempts (Panadero et al., 2018), and high rates of substance abuse (Tyler & Melander, 2015).

There is an inverse correlation between the number of events experienced and the age at which the individual becomes homeless (Brown et al., 2016). Thus, particular attention has focused on SLEs occurring during the childhood of people in a situation of homelessness. Experiencing SLEs at an early age is one of the main risk factors for individuals to be chronically subject to situations of poverty and social exclusion (Stein et al., 2002). Several studies have found a high prevalence of childhood SLEs in people experiencing homelessness (Edalati et al., 2016; Stein et al., 2002). Studies conducted on both European and US-based samples have shown that these individuals often present indicators of dysfunctional home backgrounds, with a history of physical and/or sexual abuse in childhood, parental substance abuse or mental illness, running away from home, and institutionalization (Padgett et al., 2012; Panadero et al., 2018; Wong & Piliavin, 2001). In addition, it has been found that exposure to adversity during childhood and adolescence is the main trigger for leaving home and early homelessness (Mar et al., 2014).

Research on women experiencing homelessness indicates that they face unique barriers and idiosyncratic needs (Ponce et al., 2014). However, women have been invisible in both popular and academic portrayals (May et al., 2007), and the lack of research on homelessness through a gender perspective aggravates this issue (Mayock & Bretherton, 2016). According to the intersectionality theoretical framework (Hankivsky & Christoffersen, 2008), gender identity would interact with social exclusion and homelessness to create a unique model of discrimination and privilege. Hence, women experiencing homelessness might face difficulties that are not distinctly due to her living status or her gender, but due to the complex interaction between these two factors. Some authors have

argued that gender could determine experiences of social exclusion, being a crucial factor in understanding the route toward becoming homeless, the experiences during homelessness, and the opportunities to access housing resources (Bretherton, 2017; Johnson et al., 2017; Montgomery et al., 2017).

When the causes of homelessness are analyzed, both men and women share structural causes (e.g., labor market conditions, low-cost housing, etc.), however, personal vulnerabilities (e.g., individual factors such as mental health, substance abuse, etc.) and negative life events (e.g., sexual abuse, gender-based violence, etc.) are more likely in women experiencing homelessness (Johnson et al., 2017). Therefore, the impact of victimization processes on homelessness seems to be different for men and women. The available data suggest that men experiencing homelessness are more likely to experience events related to substance abuse and legal problems, while women are more likely to experience partner violence abuse (physical, psychological, and sexual), mental health problems, and psychiatric hospitalization (Hatch & Dohrenwend, 2007; Zugazaga, 2004). Importantly, all these traumatic experiences among homeless women have been associated with several negative outcomes (Dice, 2012), including poor physical health and low quality of life (Tinland et al., 2018), mental health problems (Duke & Searby, 2019), substance abuse (Phipps et al., 2019), and suicide attempts (Tinland et al., 2018).

Research consistently finds that early traumatic experiences are some of the most important risk factors for homelessness among women (Dice, 2012), being a dominant theme in their narratives around their development trajectories into homelessness (Cronley et al., 2019). A lack of quality care and abusive experiences in childhood (i.e., psychological, physical, and sexual abuse) are particularly common among women experiencing homelessness (Sundin & Baguley, 2015; Vázquez & Panadero, 2019; Zugazaga, 2004). In their systematic review and meta-analysis on childhood abuse among people experiencing homelessness, Sundin and Baguley (2015) found that 32% of women had experienced sexual abuse in childhood, compared with 10% of men. Furthermore, women experiencing homelessness have higher rates of physical and sexual abuse than women in the general population (Jasinski et al., 2005).

Unfortunately, this victimization also appears to continue in these women's adult lives. Several studies conducted on cross-national samples highlight the high prevalence of physical and sexual violence among women experiencing homelessness throughout their lives (Jasinski et al., 2005; Vázquez & Panadero, 2019; Wenzel et al., 2001), specifically gender violence (Bassuk et al., 2006; Johnson et al., 2017). Trying to avoid situations of victimization, reduce loneliness, and gain protection, some women in a homeless situation seek to establish a partner relationship, but paradoxically, these intimate partners often lead to abusive relationships (Cronley et al., 2019), and destructive behaviors such as alcohol and substance abuse or criminal activities (Carroll & Trull, 2001; Padgett et al., 2006). Furthermore, the normalization of all these traumatic experiences usually leads to constrained agency in adulthood and no safety net (Cronley et al., 2019).

Thus, the aim of this study was to examine the differences between men and women in a homeless situation in terms of the number and type of SLEs experienced during their lives (childhood, adolescence, and adulthood). Three main hypotheses were established: (1) women experiencing homelessness would suffer a greater number of SLEs than men experiencing homelessness; (2) women in a homeless situation would experience different types of SLEs than their male counterparts; and (3) these gender differences would be found in different periods of their lives (childhood, adolescence, and adulthood).

2 | METHOD

2.1 | Participants

This study was carried out with a sample of 158 men experiencing homelessness and a sample of 138 women experiencing homelessness in the city of Madrid (Spain). However, three participants were excluded due to presenting missing values in the entire section referring to SLEs, which reduced the final sample in the study from

296 to 293 people experiencing homelessness. Inclusion criteria were being over 18 years old, providing informed consent, and spending the night before the interview in a shelter or other facility for homeless people, on the street or in other places not initially designed for sleeping: abandoned buildings, basements, metro stations, and so forth (Panadero et al., 2018). Exclusion criteria were not being able to understand the interview questions in Spanish or English and serious cognitive impairments or alcohol/drug effects during the interview.

The number of individuals experiencing homelessness in Madrid (Spain) is well documented by the data of the Madrid City Council Count every 2 years (i.e., a central record of individuals who spent the night in shelters and other services for homeless people, or people who spent the night on the street or in other transitory public places frequented by people experiencing homelessness, such as bus/train stations, parks, and streets). In this study, the sample size of homeless men ($n = 156$) was determined a priori, based on the number of individuals experiencing homelessness in Madrid (Panadero & Vázquez, 2016). Men in a homeless situation were selected using a proportional stratified random sampling strategy in (1) all shelters and other accommodations for homeless people (based on the capacity of each facility), and (2) on the streets based on the number of men who were homeless and sleeping on the streets of Madrid (Vázquez et al., 2018). Given the relatively small number of women experiencing homelessness in Madrid (between 15% and 20% of total homeless people; Panadero & Vázquez, 2016), the women experiencing homelessness were selected using a convenience sampling strategy ($n = 137$) in shelters and care facilities for homeless women, and on the street.

2.2 | Materials

A structured interview was used to guarantee the homogeneity of the data collected and to overcome potential problems arising from the participants' literacy levels. An adapted version of the *List of stressful life events for groups in social exclusion* (L-SVE; Panadero et al., 2018) was used. This instrument has been used with various groups in social exclusion in previous research (Guillén et al., 2015; Vázquez & Panadero, 2019). The scale consists of 45 SLEs with dichotomous answers (yes/no). The scale was designed to use each event separately or to aggregate the events into three main factors: "SLEs in childhood/adolescence," "SLEs throughout life," and "total SLEs score" (aggregating all the items). In the current study, the internal consistency was $\alpha = .79$ for "childhood/adolescence" factor, $\alpha = .70$ for "throughout life" factor, and $\alpha = .80$ for the total SLEs score.

2.3 | Procedure

A specialized team of interviewers and coders was trained in the use of structured interview, and in dealing with people in situations of social exclusion. After the interviewee had been selected, the interviewer checked their compliance with the inclusion and exclusion criteria. The objectives of the research and the anonymous and confidential treatment of the data obtained were briefly explained to the interviewee to request their informed consent for participation in the research. To ensure the confidentiality and anonymity of the responses, the interviews were conducted in a private environment: offices loaned by the shelters, places away from crowds, bedrooms, and so forth. Furthermore, the research was approved by a university ethics committee before participant recruitment.

2.4 | Statistical analysis

Following the above hypotheses, the data analysis was divided into two steps: (1) Mann-Whitney U nonparametric contrast was used to analyze the differences in the number of SLEs experienced by men and women experiencing homelessness. Mann-Whitney U was used instead of Student's t test because normality, homoscedasticity, and

independence assumptions were not fulfilled for any of the three SLE scores (i.e., total SLEs in childhood, total SLEs throughout their life, and total SLEs); (2) chi-square test (χ^2) was used to examine the different types of SLEs suffered by men and women experiencing homelessness, using 2 (men/women) \times 2 (yes/no SLEs) contingency tables. The assumption of independent observations and the minimum number of cases per cell (i.e., <20% of the expected frequencies are <5) was confirmed before the analyses. For all the analyses: (a) basic assumptions were tested; (b) effect sizes were calculated: Cohen's d for quantitative variables and the phi (ϕ) and odds ratios (OR) for categorical variables; and (c) power analysis were carried out ($1 - \beta$). SPSS v.22 was used for all analyses.

A multiple imputation procedure was carried out for treating the missing values following the procedure suggested by Hair et al. (2014): (1) the type of missing data was explored, concluding that only item-level data were missing; (2) there were only 1.9% missing values; (3) Little's MCAR test was carried out to diagnose the random pattern of missing data ($\chi^2_{(1563)} = 1812.64$; $p < .05$) concluding that missing data were not completely random and should be imputed (Arias et al., 2015); (4) finally, a sensitivity analysis was carried out comparing the results of completers to the imputed values to ensure that the imputation had not generated biased estimations.

3 | RESULTS

The final sample consisted of 156 men (53.2%) and 137 women (46.8%), with an overall mean age of 46.35 years ($SD = 11.93$), who were mostly Spanish (71.3%) and single (57%). Within the men's group, the mean age was 47.03 years ($SD = 12.37$), 73.5% were Spanish, and 55.1% were single. In terms of the women's group, the mean age was 45.58 ($SD = 11.40$), 68.7% were Spanish, and 59.1% were single. No significant differences between groups were found in age ($t_{(291)} = 1.04$; $p = .30$), nationality ($\chi^2_{(1)} = 0.82$; $p = .37$) or marital status ($\chi^2_{(5)} = 6.27$; $p = .28$).

3.1 | Differences in the number of SLEs experienced by men and women in a homeless situation

Table 1 shows the means and standard deviations of the various SLEs' total scores. In general, and regardless of gender, the homeless people experienced a great deal of SLEs in childhood/adolescence, throughout their lives, and in total. However, when these means are analyzed according to gender, homeless women are found to experience more SLEs in all the categories.

The Mann-Whitney U test showed statistically significant differences between men and women experiencing homelessness for the three SLE scores (see Table 2). The range of means shows that women experienced significantly more SLEs than men in childhood and adolescence, throughout their lives, and in total. Furthermore, large effect sizes were found between men and women for the three SLE scores, with a power analysis of 99% in all cases.

TABLE 1 Means and standard deviations of the number of stressful life events (SLEs)

	Gender	Total mean (SD)	Mean per group (SD)
SLEs in childhood and adolescence	Men	4.62 (3.07)	3.72 (3.05)
	Women		5.64 (4.12)
SLEs throughout life	Men	9.44 (3.81)	8.61 (3.32)
	Women		10.38 (4.12)
Total SLEs	Men	14.06 (6.32)	12.33 (5.15)
	Women		16.02 (6.95)

TABLE 2 Mann-Whitney *U* test results

SLEs	Sex		Sex		$Z_{(293)}$	<i>d</i>	$1 - \beta$
	Men		Women				
	Average range	Range	Average range	Range			
Childhood SLEs	128.62	20,065.00	167.93	23,006.00	-3.98**	0.53	0.99
Life SLEs	130.33	20,332.00	165.98	22,739.00	-3.61**	0.47	0.99
Total SLEs	125.79	19,623.50	171.15	23,447.50	-4.56**	0.60	0.99

Abbreviation: SLE, stressful life event.

** $p < .001$.

3.2 | Differences in experiencing SLEs in childhood and adolescence (before 18 years old) between men and women in a homeless situation

As can be seen in Table 3, although the percentages of experiencing SLEs were quite high among both men and women experiencing homelessness, the χ^2 test showed several SLEs that occurred in childhood and adolescence for which women scored significantly higher than men. The SLEs for which there are significant differences according to the gender were classified according to the effect size (both phi and OR): (1) events such as having experienced significant financial problems in childhood, family members being unemployed for a prolonged period of time, parents having a physically incapacitating health problem, serious fights and arguments with parents or with someone in the family, parental divorce or being thrown out of home have a small effect size, that is, the possibility of presenting these SLEs in childhood and adolescence among women experiencing homelessness is 1.5–2 times higher than among their male counterparts; (2) meanwhile, events such as having parents with serious mental health problems, problems of violence in the family or experiencing abuse in childhood and adolescence have a medium-large effect size, that is, the possibility of presenting these SLEs in childhood and adolescence among homeless women is 2.5–3.5 times greater than among their male counterparts; and (3) the effect size of suffering from sexual violence warrants special mention, as the possibility of suffering from sexual abuse in childhood and adolescence among homeless women is 9.4 times greater than among their male counterparts.

3.3 | Differences in experiencing SLEs at some point in their lives between men and women in a homeless situation

The results of this analysis are shown in Table 4. The χ^2 test showed several SLEs that occurred throughout the individuals' lives in which homeless women scored significantly higher than homeless men. However, unlike the results found when studying SLEs in childhood and adolescence, in this case, a series of SLEs were also observed for which men scored significantly higher than women.

Homeless women experience the following events to a greater extent than their male counterparts: the death of their spouse or partner, unemployment problems and important financial problems, mental health problems and psychiatric hospitalizations, sexual assault in adulthood, abuse by a spouse or partner, physical violence in adulthood, and suicide attempts at some point in their life. Of these events, mental health problems, sexual assault, abuse and physical violence in adulthood have particularly large effect sizes. The differences in sexual assault and abuse by the spouse or partner are particularly striking, as the likelihood of experiencing these SLEs during adult life among women who are homeless is more than 10 times higher than the rate for their male counterparts.

TABLE 3 Differences in experiencing stressful life events in childhood and adolescence between men and women in a homeless situation

Stressful life events experienced before the age of 18	Men (n = 156; %)	Women (n = 137; %)	$\chi^2_{(1)}$	ϕ	OR	95% CI
Major financial problems	25.6	36.5	4.04*	0.12*	1.67	1.01–2.75
Prolonged unemployment of a member of their family	15.4	24.8	4.09*	0.12*	1.82	1.02–3.25
A parent had a physically incapacitating health problem	17.3	28.5	5.21*	0.13*	1.90	1.09–3.32
A parent had a serious mental health problem	4.5	13.9	7.94*	0.17*	3.43	1.39–8.43
A parent had problems with alcohol or drugs	25	35	3.52	0.11	1.61	0.97–2.68
A parent left the family home	17.3	26.3	3.48	0.11	1.70	0.97–2.99
Serious fights and arguments between the parents	25	38.7	6.34*	0.15*	1.89	1.15–3.12
Problems of family violence	21.2	40.9	13.42**	0.21**	2.58	1.54–4.31
One of their parents was in prison	8.3	9.5	0.12	0.02	1.15	0.52–2.581
Serious conflicts between them and your family	21.8	32.8	4.52*	0.12*	1.76	1.04–2.96
Frequent changes of residence	17.3	19.7	0.28	0.03	1.17	0.65–2.12
Suffered abuse	17.9	42.3	20.92**	0.27**	3.36	1.97–5.71
Suffered sexual abuse	4.5	30.7	35.87**	0.35**	9.41	4.06–21.81
Thrown out of home	8.3	19.7	8.01*	0.17*	2.70	1.33–5.47
They were abandoned	7.1	13.9	3.69	0.11	2.12	0.97–4.64
Ran away from home	28.8	34.3	1.01	0.06	1.29	0.79–2.11
Parents divorced or separated	17.3	28.5	5.21*	0.13*	1.90	1.09–3.32
Brought up by people other than their parents	26.3	32.1	1.21	0.06	1.33	0.8–2.2
Housing problems in childhood	7.1	13.9	3.69	0.11	2.12	0.97–4.64
Dropped out of school	39.1	32.1	1.55	–0.07	0.74	0.46–1.19
Expelled from school	17.3	10.2	3.05	–0.10	0.54	0.27–1.09

Abbreviations: CI, confidence interval; OR, odds ratio.

* $p < .05$.

** $p < .001$.

However, homeless men experienced the following events to a greater extent than women: drinking excessively at some point in their life, having been reported to the police, and having been arrested or detained. The differences compared with homeless women have a large effect size for these three events.

4 | DISCUSSION

The aim of this study was to examine the differences between men and women who are homeless in terms of the number and type of SLEs experienced during their lives (childhood, adolescence, and adulthood). The results of this study confirmed our three hypotheses: homeless men and women experience different amounts and types of SLEs, both in childhood and adolescence and throughout their lives. These findings are consistent with the results of other

TABLE 4 Differences in experiencing stressful life events at some point in their lives between men and women in a homeless situation

Stressful life events after the age of 18	Men (<i>n</i> = 156; %)	Women (<i>n</i> = 137; %)	$\chi^2_{(1)}$	ϕ	OR	95% CI
Death of father	66.7	65	0.09	-0.02	0.93	0.57-1.50
Death of mother	51.3	47.4	0.43	-0.04	0.86	0.54-1.36
Death of spouse or partner	10.3	21.2	6.68*	0.15*	2.35	1.21- 4.55
Death of a child	4.5	4.4	0.00	-0.00	0.98	0.32-2.97
Suffered from a serious illness, injury or accident	47.4	52.6	0.77	0.05	1.23	0.78-1.94
Separation or divorce from spouse	57.1	48.2	2.31	-0.09	0.70	0.44-1.11
Suffered from serious unemployment problems	67.3	79.6	5.56*	0.14*	1.89	1.11-3.22
Suffered from major financial problems	66.7	85.4	13.81**	0.22**	2.93	1.64-5.22
Drunk too much at some point in their life	58.3	35.8	14.89**	-0.23**	0.40	0.25-0.64
Abused drugs at some point in their life	34	37.2	0.34	0.03	1.15	0.71-1.86
Been in prison	32.7	24.1	2.64	-0.10	0.65	0.39-1.09
Admitted to a psychiatric hospital	19.2	29.9	4.55*	0.13*	1.79	1.05-3.08
Done work that separated them from their home	41	37.2	0.44	-0.04	0.85	0.53-1.37
Lost their home due to eviction	24.4	19.7	0.91	-0.06	0.76	0.44-1.33
Emigrated from their country of origin	39.7	47.4	1.76	0.08	1.37	0.86-2.18
Left their partner and/or children in their place of origin	15.4	20.4	1.28	0.07	1.41	0.77-2.58
Had a serious mental health problem	18.6	39.4	15.58**	0.23**	2.85	1.68-4.84
Suffered from sexual assault (over 18 years old)	3.8	35	47.20**	0.40**	13.48	5.55-32.78
Suffered from abuse by their spouse or partner	11.5	57.7	70.08**	0.49**	10.44	5.75-18.97
Suffered from physical violence	21.2	54	33.98**	0.34**	4.38	2.63-7.29
Had attempted suicide	30.8	48.9	10.06*	0.19*	2.15	1.34-3.47
Reported to the police	50.6	35	7.23*	-0.16*	0.53	0.33-0.84
Arrested or detained for a crime	51.9	38.7	5.15*	-0.13*	0.58	0.37-0.93
Convicted of a crime	34	25.5	2.47	-0.09	0.67	0.40-1.11

Abbreviations: CI, confidence interval; OR, odds ratio.

* $p < .05$.

** $p < .001$.

studies carried out in US-based samples (Wenzel et al., 2001; Zugazaga, 2004), expanding these results to the idiosyncratic characteristics of the Spanish population, and analyzing the SLEs experienced at different stages of life.

First, the data show differences in the number of SLEs experienced by homeless men and women. As pointed out by Padgett et al. (2012), the results suggest that women experiencing homelessness generally suffer from more SLEs. Unlike the results obtained by Coates and McKenzie-Mohr (2010), the results of this study not only show

that homeless women experience more SLEs, but also that these differences seem to remain constant in childhood and adolescence and throughout their lives. In fact, the data found showed that homeless women experience an average of approximately four more SLEs than their male counterparts in total, and two more in childhood and adolescence.

Second, the results also show differences in the types of SLEs experienced by men and women living in a situation of homelessness. In line with the findings of Hatch and Dohrenwend (2007), the data from our study indicate that homeless men tend to experience more events related to substance abuse and legal problems, while their female counterparts tend to experience more events including abuse (physical, sexual, and psychological), violence by a spouse/partner, and psychiatric hospitalization.

When the SLEs experienced in childhood and adolescence are examined in detail, homeless women are observed to have experienced a much wider variety of events to a greater extent than men experiencing homelessness. As with the results obtained by Hatch and Dohrenwend (2007), homeless women experience childhoods characterized by SLEs within their relationship with their parents to a greater extent than their male counterparts: these events include parents with a physical disability, parents with serious mental health problems, separated or divorced parents, and serious fights and arguments between their parents. These high levels of breakdown in family structures could be the reason behind more women experiencing homelessness having been thrown out of their family home than their male counterparts.

However, events related to problems of violence within the family, abuse and episodes of sexual violence are the events with the most marked differences for homeless men and women during their childhood and adolescence. Several studies conducted on both European and US-based samples have highlighted the high prevalence of physical and/or sexual violence during the childhood of women experiencing homelessness (Coates & McKenzie-Mohr, 2010; Hatch & Dohrenwend, 2007; Sundin & Baguley, 2015; Vázquez & Panadero, 2019; Zugazaga, 2004). The results of this study show that the probability of experiencing this type of event is about three times higher among homeless women than among homeless men. Suffering from sexual violence in childhood and adolescence is particularly noteworthy, as homeless women are 9.4 times more likely to have experienced sexual violence in childhood and adolescence than their male counterparts, with finding being consistent with the results of previous studies (Taylor et al., 2008). This tendency consistently appears in the general population, where women are observed to suffer from abuse in childhood to a greater extent than men (MacMillan et al., 2014).

Third, this study does not find differences between men and women experiencing homelessness in relation to other events such as foster care, which affects a significant percentage of homeless people and has been highlighted by some authors as a risk factor for homelessness (Bassuk et al., 1997). As mentioned above, homeless men do not score higher than women for any SLE occurring in childhood and adolescence.

Fourth, when the different types of SLEs experienced by homeless men and women during their lives are examined, the results were very similar to those reported in previous studies (Hatch & Dohrenwend, 2007; Zugazaga, 2004). Our results show that homeless women experience different SLEs throughout their lives, which can be classified into two main groups: (a) material SLEs: women experiencing homelessness have more significant economic problems and serious unemployment problems to a greater extent than men and (b) interpersonal SLEs: homeless women experience high rates of abuse by a spouse or partner, sexual assault and problems of physical violence after age 18, and these rates are higher than those for men in the same situation in all cases. The issue of gender violence among women experiencing homelessness has been the focus of particular interest, and has been highlighted on many occasions as a risk factor for homelessness itself (Bassuk et al., 1997, 2006; Johnson et al., 2017; Lehmann et al., 2007). More than half of the women participating in this study had experienced abuse from their spouse or partner.

Many studies have focused on various aspects of the relationship between homelessness and health (the state of physical and mental health of individuals experiencing homelessness, their subjective perception of health, mortality, access to health resources, habits related to health, etc.) and have shown that homeless people have significant difficulties in this area (Aldridge et al., 2018; Frankish et al., 2005). Although the health of women experiencing homelessness has been studied to a lesser extent, some of the data available seem to suggest that

homelessness is strongly linked to these women's poor health and inadequate use of resources (Arangua et al., 2005). In this study, the data indicate a significant degree of health problems among the participants in both groups. In general, no differences were found between men and women in terms of experiencing illness, injury, or serious accidents, which affected approximately half of the male and female participants.

However, these results suggest that there are clear differences between men and women experiencing homelessness in mental health outcomes. More specifically, women reported higher rates of serious mental health problems and psychiatric hospitalizations than men. Some studies conducted in the United States have identified a strong relationship between serious mental health problems and homelessness in women (Roll et al., 1999; Tsai et al., 2014), which could be even further accentuated among women who literally spend the night on the street (Nyamathi et al., 2000). Meanwhile, a closer relationship between disorders related to substance use and homelessness has been identified among men (Tsai et al., 2014; Zugazaga, 2004). Indeed, this study shows a greater frequency of problems related to alcohol consumption among men experiencing homelessness, although this is not the case with consumption of other substances, unlike other studies, in which men experiencing homelessness present more problems related to drug use than their female counterparts (Hatch & Dohrenwend, 2007; Tsai et al., 2014; Zugazaga, 2004). These differences could indicate differences between men and women in risk factors for homelessness, and different needs in both preventing and dealing with homelessness.

In addition, as well as more problems related to alcohol consumption, men who are homeless experience more complaints to the police and arrests than women. These findings are consistent with the data reported by Hatch and Dohrenwend (2007) and Zugazaga (2004). The study by Zugazaga (2004) also found that homeless men experienced imprisonment, conviction, accidents, physical injuries, and loss of employment to a greater extent than homeless women, although these differences are not reflected in this study.

Some authors have indicated that the risk of suicide seems to increase very significantly among individuals experiencing homelessness, and that it could be six times higher than among the general population (Hwang et al., 2009). The data from this study are very worrying in relation to suicidal behavior among people experiencing homelessness, and in relation to suicide attempts in particular. Nearly one in three men and one in two women participating in the study had attempted suicide at some point in their lives. Some studies indicate that the largest proportion of suicide attempts among homeless women could be related to experiencing various SLEs, such as childhood abuse or mental disorders (Dietz, 2010; McHolm et al., 2014; Vázquez & Panadero, 2019). These gender differences are also observed in the general population, as although women attempt suicide to a greater extent than men, men have higher rates of completed suicides (Bertolote & Fleischmann, 2015). This is consistent with the results of the study by Barak et al. (2004), who found a higher number of completed suicides among men experiencing homelessness, although other authors have suggested that mortality rates due to suicide among women experiencing homelessness could be higher than those among men in the same situation (Hwang et al., 2009).

However, bearing the limitations of the study in mind, the results should be considered with some degree of caution. Despite the extensive range of the events studied, some areas may require more in-depth analysis (e.g., mental illness, consumption problems, and suicide), which could help to clarify some of the results. Future studies should combine quantitative and qualitative research to provide greater insights into the lives of men and women experiencing homelessness (e.g., Cronley et al., 2020). Moreover, the study was conducted in a single community-based sample in Madrid (Spain), so we must be careful not to generalize these results. The available information seems to suggest that there are important differences in gender-based services (Montgomery & Byrne, 2014), so future studies should explore cross-sectional samples to analyze those differences. Furthermore, results are not compared with a control group and only cross-sectional data were included in the study. Future studies should include longitudinal data to better understand the relationship between SLEs and homelessness. Despite its methodological advantages (e.g., similar sample size and well-represented women characteristics), the use of two sampling methods for men and women could introduce some potential biases in the results. Knowing whether events occurred before or after the homeless situation would improve our knowledge of the relationship between these variables. Given the narrow scope of bivariate inferential analyses, future studies should also investigate how differences in SLEs predict different outcomes for men

and women within the context of homelessness. Furthermore, the multiple simultaneous statistical tests carried out in our study could produce a multiple comparison problem, so future studies should take on a more confirmatory approach based on our exploratory results, reducing the huge number of events relevant for this population. Unfortunately, transgender experiences were not evaluated in his study. Future research should adopt a nonbinary gender identity framework, analyzing the experience of transgender individuals compared with cisgender male and female experiences (e.g., Begun & Kattari, 2016).

5 | CONCLUSIONS

In-depth knowledge of the gender differences among individuals experiencing homelessness in terms of suffering from SLEs might be a key factor in designing social services and policies that correspond to their specific characteristics and needs (Tsai et al., 2014). Given the results of our study, policymakers should promote the development of specific interventions sensitive to these traumatic experiences to protect women experiencing homelessness, a particularly vulnerable subgroup where gender and social inclusion factors interact to create a unique model of discrimination and privilege (Hankivsky & Christoffersen, 2008). In fact, the last Comprehensive National Strategy for the Homeless in Spain for 2015–2020 (CNSH, 2015) emphasizes the need to make women experiencing homelessness visible and to try to specifically respond to their needs. Interventions aimed at reducing the negative outcomes of the interaction between gender, social exclusion, and traumatic experiences may be classified into two main groups.

First, preventive-based interventions should focus on these early traumatic experiences as one of the most important risk factors for homelessness among women. Thus, it is crucial to improve early detection by developing reliable screening measures to assess the long-term homelessness risk according to childhood victimization processes (Cronley et al., 2019). These screening measures should pay particular attention to high-risk groups, such as orphanages, foster/adoptive homes, children with mothers in prison or in prostitution, and, of course, those girls who are victims of psychological, physical, and sexual abuse. Those cases detected should be placed under protection and receive psychological treatment to mitigate the traumatic effects (Cook et al., 2017). Significantly, these prevention efforts might ultimately reduce the long-term homeless community cost (Cronley et al., 2019).

Second, palliative-based interventions should promote the social inclusion of people experiencing homelessness. From this perspective, homelessness should be considered as a traumatic situation in itself, increasing vulnerability to experiencing more SLEs (especially in the case of women). These interventions should reduce the barriers to inclusion produced by vicious cycles of victimization. Our results suggest that interventions targeting homeless men should include addiction and justice-involved services, whereas interventions targeting women should provide trauma-informed care for psychological, physical, and sexual abuse, as well as psychological interventions for the emotional consequences that could lead to psychiatric hospitalizations. For instance, those women in a homeless situation experiencing gender-based violence must be protected in housing programs or with women-specific resources, enhancing their safety social support nets and offering psychological treatment to deal with the emotional consequences. For instance, Housing First models have shown to be a cost-effective alternative to traditional emergency shelters and housing progression (Tsemberis, 2010). However, these programs have been found to be more effective when they are designed considering the specific needs and characteristics of women experiencing homelessness (Oudshoorn et al., 2018).

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DATA AVAILABILITY STATEMENT

Data can be provided under formal request to the corresponding author.

ETHICS STATEMENT

The research was approved by the Alcalá de Henares University ethics committee before participant recruitment. All the participants provided informed consent before starting to participate in the research.

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CHAPTER 6:

Role of stressful life events among women experiencing

homelessness: An intragroup analysis

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The first study showed that women in a homeless situation experience a significantly greater number and type of SLEs than do men in a homeless situation (Chapter 5). We decided to conduct a more thorough investigation of the role of SLEs within this particularly vulnerable subgroup. In our second study, we examine how these SLEs relate to patterns of, and trajectories to, homelessness among women using cluster and discriminant analyses. Such analytic techniques have been used in prior research to classify the homeless population into different subgroups and identify their specific needs and characteristics (e.g., Cronley et al., 2018; Waldron et al., 2019). In this article, we organized our sample of women experiencing homelessness into three different subgroups on the basis on their SLEs.

The Role of Stressful Life Events among Women Experiencing Homelessness: An Intragroup Analysis

Sara Rodriguez-Moreno,¹  Sonia Panadero,¹  and José Juan Vázquez² 

Highlights

- Homeless women are especially vulnerable to stressful life events (SLEs).
- The Cluster A was characterized by low levels of SLEs.
- The Cluster B was characterized by childhood and adolescence SLEs.
- The Cluster C was characterized by typically adulthood- and women-specific SLEs.
- Initiatives to help homeless women should be sensitive to these subgroup differences.

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Abstract The aim of this study is to examine stressful life events (SLEs) among homeless women and how SLEs were related to patterns and trajectories of homelessness. Specifically, the study aimed to replicate and build upon by Muñoz et al. (American Journal of Community Psychology, 2005) by using cluster and discriminant analysis in a sample of 116 homeless women. The sample was classified based on SLEs, and the relationship between the resulting subgroups and sociodemographic characteristics, homeless trajectories, physical and mental health, and social support was examined. The results suggest that the three-cluster solution was theoretically and structurally meaningful: (a) the “Shorter homelessness trajectories and best health and mental health” subgroup was characterized by low levels of SLEs, a shorter homeless trajectory, lower prevalence of physical and mental health problems, and lower rates of alcohol and substances consumption; (b) the “Early onset of homelessness and poorer health and poorer mental health” subgroup was characterized by a higher prevalence of childhood and adolescence SLEs, an early onset of homelessness and greater chronification, mental health problems, and alcohol consumption; and (c) the “Chronic homelessness and poorest health and mental

health” subgroup was mainly characterized by a higher prevalence of typically adulthood SLEs, as well as some SLEs that may be unique to women, a greater number of periods of homelessness, physical health problems, disabilities, and substance misuse. Increased knowledge about the different subgroups and trajectories of homeless women, as well as their specific characteristics and needs, will help us design social services and policies sensitive to all these differences.

Keywords Homelessness · Homeless women · Stressful life events · Cluster analysis · Subgroups

Introduction

The first of the United Nations Sustainable Development Goals (SDGs) aims to end poverty in all its forms everywhere. Homelessness is the extreme form of poverty and social exclusion in developed countries (Mayock & Bretherton, 2016). In order to better understand this phenomenon, several studies have analyzed the individual factors that contribute to homelessness, including mental disorder, substance misuse, disabilities, health problems, income shocks, social support, and lack of economic resources, among others (Blow, McCarthy, Valenstein, Austin, & Gillon, 2004; Susser, Lin, & Conover, 1991).

One of the main factors that places women at risk for homelessness is stressful life events (SLEs), or, episodes that plays a key role in one’s life and that frequently mean significant changes to the person involved

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(Vázquez, Panadero, & Martín, 2015). Over the decades, different studies have examined this relationship and reported high SLE rates throughout the lives of homeless people (Muñoz, Vázquez, Bermejo, & Vázquez, 1999; Padgett, Smith, Henwood, & Tiderington, 2012; Rodríguez-Moreno et al., in press). Furthermore, these events play a fundamental role in originating and maintaining homelessness (Muñoz et al., 1999; Vázquez, Suarez, Berríos, & Panadero, 2019).

Several studies to date have found a high prevalence of SLEs in childhood (Stein, Leslie, & Nyamathi, 2002; Tam, Zlotnick, & Robertson, 2003). Examples of SLEs in childhood might include parents struggling with substance use concerns, having mothers abused by partners, experiences of child abuse, running away from home, and dropping out of school. Furthermore, some childhood events such as dysfunctional family processes (including abuse; Shelton, Taylor, Bonner, & Den Van Bree, 2009), lack of parental care (Herman, Susser, Struening, & Link, 1997), adverse childhood experiences (Montgomery, Cutuli, Evans-Chase, Treglia, & Culhane, 2013), and parental substance use (Bassuk et al., 1997) are associated with homelessness in adulthood. In addition, homeless people also experience a high number of SLEs in adulthood, including physical or sexual violence, jail sentences, assault, or robbery (Stein et al., 2002; Vázquez & Muñoz, 2001), emigration from their country of origin, serious illness, injury or accident, and mental illness, among others (Rodríguez-Moreno et al., in press).

There is a close relationship between homelessness and mental illness (Chambers et al., 2014). Epidemiological data show mental health problems are more prevalent among homeless people than the general population (Lebrun-Harris et al., 2013). But homelessness is not only related to mental health problems, but also to other risk factors such as social isolation and substance misuse (D'Amore, Hung, Chiang, & Goldfrank, 2001). In addition, traumatic events and the stress associated with experiences of homelessness may aggravate mental health problems, thereby increasing the vulnerability of homeless individuals and leading to the emergence of other risk factors (Castellow, Kloos, & Townley, 2015; Rayburn et al., 2005). Other research has also highlighted the role that substance misuse, social support, and physical health play in SLEs among homeless individuals (Muñoz, Panadero, Santos, & Quiroga, 2005). As far as homeless trajectories are concerned, Roca, Panadero, Rodríguez-Moreno, Martín, and Vázquez (2019) also found that experiencing SLEs has a direct impact on the effect on chronic homelessness (the so-called “revolving door to homelessness”), while Brown et al. (2016) found that there is a negative correlation between the age at which the individual becomes homeless and the number of events experienced.

Current evidence suggests that homeless women are especially vulnerable to mental health concerns and SLEs

(Duke & Searby, 2019; Vázquez & Panadero, 2019). First, homeless women experience different types of SLEs than homeless men: Men tend to suffer more SLEs related to legal problems and substance misuse, while women tend to experience more abuse (sexual, physical, and psychological), partner violence, and psychiatric hospitalization (Hatch & Dohrenwend, 2007; Rodríguez-Moreno et al., in press; Zugazaga, 2004). Furthermore, family and financial pressures related to domestic violence make complicate women's experiences of homelessness (Kirkman, Keys, Bodzak, & Turner, 2015). Second, researchers in the field have shown that homeless women are more liable to processes of victimization and idiosyncratic mental health problems than homeless (Tsai, Weiser, Dilworth, Shumway, & Riley, 2015). For instance, homeless women have shown a higher likelihood of experiencing traumatic events and higher rates of post-traumatic stress symptoms than their male counterparts (Tsai, Kaspro, & Kane, 2014). In view of all these findings, as authors have highlighted, there is a need to conduct specific research into the plight and needs of homeless women (Duke & Searby, 2019; Zugazaga, 2004), paying special attention to the role of SLEs in the equation.

Multivariate procedures and cluster analysis to classify the homeless population into different subgroups have been used to identify the specific needs, characteristics, and trajectories of people who are homeless (e.g., Cronley, Nordberg, Murphy, & Twis, 2018; Waldron, O'Donoghue-Hynes, & Redmond, 2019), which is essential for planning programs addressing the specific needs of each subgroup. In a pioneering study in Madrid (Spain), Muñoz et al. (2005) used multivariate analyses to examine the individual differences in SLEs in a representative sample of homeless people. This representative sample was achieved by including a comprehensive list of all homeless shelters in the city together with a “S-night” survey to identify those homeless individuals who were excluded from the multicenter sampling (e.g., homeless sleeping on the street and not using the shelters). They found that the homeless sample could be organized into three subgroups or clusters based on their SLEs: the first subgroup was characterized by economic problems (48.82%); the second by health problems, alcohol misuse, and the death of their parents (31.50%); and the third by a greater number of childhood SLEs and alcohol abuse (19.68%).

Taking into account the high vulnerability of homeless women and the substantial quantitative and qualitative differences observed between homeless men and women in terms of SLEs (Rodríguez-Moreno et al., in press), we decided to carry out a similar study focused exclusively on homeless women. Furthermore, the Muñoz et al. (2005) study included a proportion of homeless women smaller than men. In fact, the latest Comprehensive

National Strategy for Homeless People in Spain emphasizes the need to make experiences of homeless women more visible, to try to respond specifically to their needs (Ministry of health, social services, & equality, 2015). Moreover, given the ongoing replication crisis in psychological science (Maxwell, Lau, & Howard, 2015), replication studies are necessary to develop a cumulative science of the homeless characteristics and needs, which in turn is crucial for the design of interventions and social policies based on the empirical. The current study aimed to build on this original research by replicating the field-based methods, but engaging in a population-specific approach focused on women.

The present study has three main objectives: (a) to organize the sample of homeless women into different subgroups on the basis of their SLEs; (b) to analyze whether there are significant differences among the homeless women in the different SLE clusters in terms of sociodemographic, homeless trajectory, physical and mental health, and social support variables; and (c) to examine whether the emerging clusters replicate these results with the three subgroups identified by Muñoz et al. (2005).

Method

Participants

A sample of 136 homeless women in Madrid participated in this study; complete data for the study variables were available for 116 women. Only the complete cases were used in the analysis. All the participants were adults and had spent the night before the interview in a shelter or supervised accommodations for the homeless, in the street, or in other places not initially designed for sleeping (e.g., abandoned buildings, basements). The inclusion criteria were as follows: (a) being a cisgender woman; (b) 18 years or older; (c) providing informed consent; and (d) being able to speak Spanish or English. The exclusion criterion was not being able to complete the evaluation due to cognitive impairments or the effects of drugs or alcohol during the interview.

The sample size was determined by using a classical sample size formula, including information on the population size, the confidence level, population variance, and sampling error. According to the homeless people count, there were around 400 homeless women in Madrid (Panadero & Vázquez, 2016), so our sample represents approximately 34% of homeless women living in Madrid.

The participants' mean age was 45.5 ($SD = 11.37$). They were majority Spanish (65.4%), single (60.3%), some (21.3%) had not completed primary education, and almost all (90.4%) were unemployed. Missing values

analysis showed that there was only 1.8% of overall missing values at item level. Due to the traumatic content of the items which measured SLEs, the answer option "Don't know/No reply" was offered for ethical reasons, which gave rise to the missing values because "Don't know/No reply" was coded as missing. A diagnosis of the random pattern of the missing data carried out using the Little MCAR test ($\chi^2_{(914)} = 999.45$, $p > .01$) concluded that the missing data were completely at random. Furthermore, no significant differences between completers and missing cases were found in age ($t_{(134)} = -1.74$, $p > .05$), nationality ($\chi^2_{(2)} = 2.23$, $p > .05$), education ($\chi^2_{(5)} = 6.65$, $p > .05$), marital status ($\chi^2_{(4)} = 7.45$, $p > .05$), employment ($\chi^2_{(1)} = .01$, $p > .05$), and total time spent homeless ($t_{(20,5)} = .86$, $p > .05$).

Measures

In order to guarantee the homogeneity of the data collected and to overcome any possible problems derived from the reading and writing skills of the sample (sometimes due to language problems), a structured interview was carried out. The full structured interview lasted between 45 and 60 min. Information was gathered for a wide range of variables: sociodemographic factors, living conditions, stressful life events, physical and mental health, well-being, and social support.

Sociodemographic Factors and Trajectories of Homelessness

The interview contained some questions about trajectories of homelessness, including the age that each participant first became homeless, total time spent homeless, and the number of times that each participant was homeless. A question examining experiences of aporophobia (or, experiences of discrimination due to homeless status) was also included: "Since you have been homeless, have you felt discriminated against for this reason?"

Stressful Life Events

An adapted version of the *List of stressful life events for groups in social exclusion* (L-SVE; Panadero, Martín, & Vázquez, 2018) was used consisting of a list of 47 dichotomous items (with response options yes or no) in childhood/adolescence and lifelong events. For this study, we added five items assessing for experiences which disproportionately impact women (e.g., SLEs related to maternity, abortion, or being a single mother). Therefore, there were a total of 52 items. A detailed list of the L-SVE used in this study is attached in Supplementary Materials (Tables S1 and S2).

Health

Our study used the Spanish validation of the short version of the General Health Questionnaire (GHQ-28; Goldberg & Hillier, 1979; Lobo, Pérez-Echeverría, & Artal, 1986). GHQ-28 is a widely used self-reporting measure for assessing psychiatric morbidity during the last month and is made up of four factors: somatic symptoms, anxiety symptoms (including insomnia), social dysfunction, and depression symptoms. Furthermore, other questions about previous health problems, disabilities (physical, sensory, and mental), hospitalizations, mental health problems, and subjective health perceptions were included.

Alcohol and Substance Consumption

The Alcohol Use Disorders Identification Test (AUDIT) was used to assess excessive alcohol consumption (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993; Spanish adaptation, Rubio, Bermejo, Caballero, & Santo Domingo, 1998). AUDIT consists of 10 items about alcohol consumption, symptoms of dependence, and alcohol-related consequences. We also applied the Drug Abuse Screening Test (DAST-10) to analyze substance consumption (Skinner, 1982; Spanish adaptation, Pérez, García, De Vicente, Oliveras, & Lahoz, 2010). DAST-10 is a 10 item self-reporting measure with dichotomous response items (with response options yes or no). Furthermore, a question about polydrug use was included to analyze the number of substances consumed in the last month.

Social Support

Inspired by the Course of Homelessness Study Questionnaire (Koegel, Melamid, & Burnam, 1995) and the Social Support Questionnaire (SSQ; Sarason, Sarason, Shearin, & Pierce, 1987), nine questions about social support were included in the interview relating to: the existence of significant relationships (family members, friends, and partner), satisfaction levels, and the presence of feelings of loneliness and abandonment.

Procedure

Participants were recruited through homeless shelters, in other facilities providing care for this group (e.g., temporary resources for the winter), and on the street. The structured interview was carried out by a specialized team of interviewers trained in speaking with people who experience social exclusion. After the aims and the confidentiality of the study were explained (i.e., all the interviews were conducted voluntarily, and anonymously), the participants were asked for their informed consent and the

interviewer confirmed their compliance with the inclusion and exclusion criteria. In order to ensure confidentiality and anonymity, the interviews were conducted in private places: offices lent by the shelters, places away from crowds in the street, bedrooms, etc.

Data Analysis

Following the procedure of Muñoz et al. (2005) and Hair, Black, Babin, and Anderson (2014) recommendations, the analyses were conducted in three successive steps.

First, a nonhierarchical cluster analysis (i.e., k-means) was carried out to classify the homeless women on the basis of their SLEs and to test whether the 3-cluster structure found in Muñoz et al. (2005) was replicated in our sample of women. The different SLEs were used as dummy variables in the analysis (i.e., SLE absence, 0, or presence, 1), employing a maximum of ten iterations and zero as convergence criteria. Three criteria were used to validate whether the right number of clusters had been extracted, (a) the achievement of stability between clusters before ten iterations; (b) the classification of a sufficient number of cases in each cluster; and (c) the performance of a one-way ANOVA using the cluster membership variable to analyze the post hoc matching between clusters for each SLE in the model.

Second, discriminant analysis was conducted to estimate the probability of cluster membership based on SLEs as predictor variables with a view, trying to answer the question: How well do SLEs predict which cluster the homeless women are from? Discriminant analysis was carried out on those SLEs that were significant in the previous cluster analysis. Stepwise method and Mahalanobis distance (i.e., entry criteria, $F = 3.84$, and removal criteria, $F = 2.71$) were used to choose the SLEs in successive steps.

Finally, one-way ANOVAs (for continuous variables) and chi-square tests (for categorical variables) were performed to analyze the characteristics distinguishing the three SLE clusters, including sociodemographic factors, homelessness trajectory, physical and mental health, and social support variables. For all the analyses: (a) Power analysis and effect sizes were calculated using partial eta-squared (μ_p^2) for quantitative variables and Gamma test (G) for qualitative data; and (b) pairwise Bonferroni-corrected comparisons were used for post hoc analysis. All the analyses were carried out using SPSS v.25.

Results

Cluster Analysis Results

The k-means cluster analysis revealed that the three-cluster solution was theoretically and structurally meaningful.

The model converged at five iterations (i.e., no changes were found between Clusters A, B, and C after the fifth iteration), indicating that this three-cluster model was stable. Table 1 shows the final cluster center values (i.e., the relative amplitude of the center of each cluster) and the ANOVA F cluster analysis scores (i.e., relative weight given to a particular SLE) for all the significant SLEs included in the three resulting clusters. Both measures were used to determine which Cluster a SLE was allocated to. The F value was very high for most of the SLEs included in the model, suggesting that most SLEs had a significant impact on determining which Cluster a homeless woman would belong to. According to the ANOVA analysis, the following SLEs were not significant in forming the clusters: father's and/or mother's death, divorce, unemployment problems, economic problems, relocating because of work, loss of housing due to eviction/

demolition, emigration from country or origin, left partner and/or children in their place of origin, and being a single mother.

Table 1 shows the main characteristics of the three-cluster solution found in the analysis (see also Figure S1 for a visual representation and Table S4 for a subgroup characterization). The interpretation of the differences between clusters was complemented by the Bonferroni-corrected post hoc test between clusters for each SLE after a one-way ANOVA using the cluster membership variable. Thus, the final cluster characterization was as follows:

Cluster A profile “Shorter homelessness periods and best health and mental health”: This cluster consisted of 56 homeless women (48.3% of the sample) and was distinguished from the other two clusters by the low levels of SLEs, both childhood/adolescence and throughout life.

Table 1 Final cluster centers and ANOVA cluster analysis for the SLEs included in the three resulting clusters

SLEs	Cluster A	Cluster B	Cluster C	$F_{(2, 113)}$
Economic problems	0.16	0.67	0.33	14.39***
Unemployment problems	0.16	0.42	0.15	5.03**
Parental physical/mental disability	0.21	0.52	0.37	4.53*
Parental drug/alcohol use	0.09	0.73	0.26	29.64***
A parent left family home	0.13	0.64	0.15	19.76***
Parental fights/argument	0.07	0.94	0.30	79.73***
Mother's abuse by partner	0.09	0.91	0.04	113.66***
Family violence problems	0.16	0.82	0.26	30.13***
Conflicts between her and family	0.16	0.61	0.22	12.20***
Changes of residence	0.07	0.30	0.22	4.42*
Away from home	0.04	0.67	0.15	38.23***
Ran away from home	0.16	0.48	0.44	6.88**
Parents divorced	0.16	0.61	0.11	15.84***
Brought up by other people	0.14	0.55	0.41	9.54***
Out of school (dropped out or expelled)	0.23	0.55	0.37	4.73*
Abuse before age 18	0.18	0.79	0.33	22.38***
Sexual abuse before age 18	0.05	0.55	0.41	18.14***
Illness or injury	0.38	0.58	0.67	3.77*
Alcohol use	0.16	0.52	0.52	9.20***
Drug use	0.04	0.58	0.74	42.20***
Served jail sentence	0.05	0.30	0.44	10.76***
Admitted psychiatric hospital	0.20	0.52	0.19	6.56**
Mental health problem	0.25	0.55	0.41	4.17*
Sexual violence after age 18	0.13	0.58	0.44	12.73***
Abuse by partner	0.39	0.73	0.78	8.58***
Physical violence after age 18	0.29	0.73	0.85	19.56***
Suicide attempt	0.11	0.73	0.85	49.73***
Reported to the police	0.09	0.52	0.70	24.79***
Arrested for a crime	0.05	0.52	0.78	38.60***
Convicted of a crime	0.05	0.39	0.41	11.40***
Unwanted pregnancy	0.30	0.52	0.78	9.53***
Had an abortion	0.25	0.33	0.59	5.00**
Miscarriage	0.16	0.24	0.41	3.11*
Separation from a child	0.13	0.52	0.63	15.98***

SLEs= stressful life events.

* $p < .05$

** $p < .01$

*** $p < .001$

Cluster B profile “Early onset of homelessness and poorer health and poorer mental health”: This cluster consisted of 33 homeless women (28.4% of the sample) and was characterized by a higher prevalence of childhood and adolescence SLEs than the other two clusters, specifically events related to economic problems during childhood, problems of family violence (including being abused before the age of 18, parental fights and arguments, maternal abuse by the partner and conflicts with their family), parental divorce, a parent leaving the family home, away from home (abandonment or expulsion), and parental drug and/or alcohol use.

Cluster C profile “Chronic homelessness and poorest health and mental health”: The third cluster consisted of 27 homeless women (23.3% of the sample) and was characterized by a higher prevalence of typically adulthood SLEs, such as being arrested for a crime, being reported to the police, having served a jail sentence, and drug use. Furthermore, Cluster C was also characterized by women-specific SLEs, such as undesired pregnancy, abortion or miscarriage, or separation from a child.

When SLE sums were analyzed, it was found that there were significant differences between the three clusters in the number of childhood SLEs ($F_{(2, 113)} = 119.61$; $p < .05$; $\mu_p^2 = .68$; $1-\beta = 1.00$), in the number of lifelong SLEs ($F_{(2, 113)} = 50.35$; $p < .05$; $\mu_p^2 = .47$; $1-\beta = 1.00$), in the total number of SLEs ($F_{(2, 113)} = 114.99$; $p < .05$; $\mu_p^2 = .67$; $1-\beta = 1.00$), and in the number of SLEs before becoming homeless ($F_{(2, 113)} = 9.52$; $p < .05$; $\mu_p^2 = .14$; $1-\beta = .98$). Bonferroni-corrected post hoc analysis indicated that Cluster B had a significantly greater number of childhood SLEs and a higher total number of SLEs, whereas Cluster C had a significantly greater number of lifelong SLEs. Furthermore, Clusters B and C had a significantly greater number of SLEs before becoming homeless than Cluster A, but no significant differences were found between Clusters B and C.

Discriminant Analysis Results

In order to estimate membership probability and to identify the best SLE predictors for each cluster, a discriminant analysis was carried out on those SLEs that were significant in the previous cluster analysis together with three sociodemographic variables: age, duration of

homelessness, and nationality. These sociodemographic variables were coded in line with the categories of Muñoz et al. (2005) in order to replicate the same model. Testing of the basic assumptions of the discriminant analysis showed that the multivariate normality assumption was not met (Box’s $M = 165.65$; $p < .01$). However, the logarithms of the determinant values for the three clusters were quite close and all tolerance values were greater than .80, indicating that the variables were not multicollinear (i.e., overlapping in their ability to predict which homeless woman is grouped in each cluster).

The ANOVA group mean equality test revealed that there were significant differences for all SLEs except miscarriage. However, age and nationality were not significant while only duration of homelessness was a significant predictor in the model. Mahalanobis distance (D^2) showed that twelve steps were necessary to determine the variables included in the final predictive model. Wilk’s lambda yielded two significant functions, summarized in Table 2. Function 1 had a higher eigenvalue and greater canonical correlation, which indicated a better data fit to the Function 1 model. Moreover, Table S3 shows the structure matrix for each discriminant function. Loadings >0.30 in absolute value were taken to be significant predictors for each function.

Figure 1 represents the canonical discriminant functions and shows that the three cluster’s centers are quite separated and to visualize how different each homeless woman is from the rest, in terms of her SLEs. An average of 92.2% of homeless women was correctly classified into the three clusters with the aid of these two functions: Cluster A classified 92.9 % of the homeless women correctly on the basis of their SLEs, Cluster B 97% and Cluster C 85.2%; thus, the highest percentage of correct classification was in Cluster B and the lowest in Cluster C. Furthermore, the classification results were substantially different from random classification, showing a 25% improvement: random prediction was 49.5% for Cluster A, 27.1% for Cluster B, and 23.4% for Cluster C.

Subgroup Characterization

Finally, in order to characterize the differences between the resulting clusters, ANOVA and chi-square tests were performed to compare sociodemographic, homeless

Table 2 Summary of canonical discriminant functions

	Wilk’s lambda	Eigenvalue	$R_{\text{canonical}}$	$R^2_{\text{canonical}}$	Centroid groups for each function		
					Cluster A	Cluster B	Cluster C
Function 1	.07*	4.43	.90	.81	−1.68	3.27	−0.23
Function 2	.36*	1.78	.80	.64	−0.79	−0.60	2.38

* $p < .001$

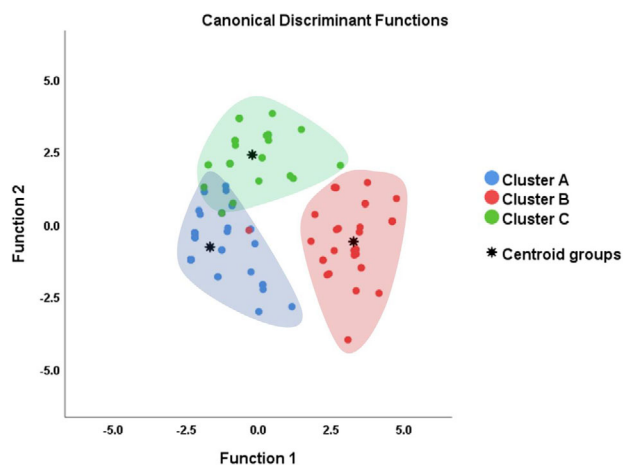


Fig. 1 Canonical discriminant functions

trajectory, physical and mental health, and social support variables among the three clusters.

Sociodemographic and Homelessness Trajectory

Firstly, the sociodemographic and homeless trajectory variables were analyzed. No significant differences were found among the three clusters for mean age ($F_{(2, 113)} = 2.54$; $p > .05$) and nationality ($\chi^2_{(4)} = .29$; $p > .05$). However, significant differences among the three clusters were found for all the homeless trajectory variables:

1. Age when first homeless ($F_{(2, 107)} = 7.73$; $p < .05$; $\mu_p^2 = .13$; $1-\beta = .94$). Bonferroni-corrected post hoc analysis indicated that Cluster A ($M = 43.50$ years old; $SD = 14.94$) became homeless significantly later than Clusters B ($M = 32.48$ years old; $SD = 14.32$) and C ($M = 34.19$ years old; $SD = 9.98$). No significant differences were found between Clusters B and C.
2. Total time homeless ($F_{(2, 104)} = 7.06$; $p < .05$; $\mu_p^2 = .12$; $1-\beta = .92$). Bonferroni-corrected post hoc analysis indicated that Cluster A ($M = 42.70$ months; $SD = 56.21$) had been homeless for $M = 42.70$ months; $SD = 56.21$ significantly less time than Clusters B ($M = 97.00$ months; $SD = 103.38$) and C ($M = 101.04$ months; $SD = 81.59$). No significant differences were found between Clusters B and C.
3. Number of times homeless ($\chi^2_{(4)} = 13.74$; $p < .05$; $G = .42$): The percentage of women with one period of homelessness was higher in Cluster A, while the percentage for more than five periods of homelessness episodes was higher in Cluster C. However, no significant differences were found between clusters in feeling discriminated against because of homelessness ($\chi^2_{(6)} = 3.98$; $p > .05$).

General Health

Secondly, general health variables were analyzed. Significant differences between the three clusters were found in the perception of general health ($\chi^2_{(4)} = 10.83$; $p < .05$; $G = .12$) where the percentages of women with “bad or very bad” health was higher in Cluster B (34.4%). However, Cluster C showed a significantly higher prevalence (70.4%) of serious or chronic illness ($\chi^2_{(4)} = 8.47$; $p < .05$; $G = .44$) and a higher percentage (96.3%) of physical pain or discomfort ($\chi^2_{(4)} = 16.11$; $p < .05$; $G = .67$).

The analysis of reported physical illness showed that Cluster C members were in a poorer state of health: asthma (44.4%; $\chi^2_{(2)} = 12.87$; $p < .05$; $G = .54$), rheumatoid arthritis (29.6%; $\chi^2_{(2)} = 6.20$; $p < .05$; $G = .39$), chronic back pain (55.6%; $\chi^2_{(2)} = 6.65$; $p < .05$; $G = .39$), injuries due to accidents (55.6%; $\chi^2_{(2)} = 13.61$; $p < .05$; $G = .53$), and HIV/AIDS (33.3%; $\chi^2_{(2)} = 13.10$; $p < .05$; $G = .64$). Furthermore, there was also a significantly higher percentage of disabilities (63%; $\chi^2_{(2)} = 13.84$; $p < .05$; $G = .55$) in Cluster C.

Mental Health

Coinciding with the data reported in the SLEs section, Cluster B members were found to have significantly more mental health problems. There was a higher prevalence of anxiety (78.1%; $\chi^2_{(2)} = 12.12$; $p < .05$; $G = .37$), depression (71.9%; $\chi^2_{(2)} = 9.65$; $p < .05$; $G = .30$), and other mental health problems (40.6%; $\chi^2_{(2)} = 19.49$; $p < .05$; $G = .49$). The GHQ-28 scores were also analyzed to evaluate the differences between the three clusters in psychiatric morbidity over the preceding month. There were significant differences between clusters for somatic symptoms ($F_{(2, 101)} = 4.22$; $p < .05$; $\mu_p^2 = 0.08$; $1-\beta = 0.73$), anxiety symptoms ($F_{(2, 101)} = 44.36$; $p < .05$; $\mu_p^2 = 0.08$; $1-\beta = 0.74$), depression symptoms ($F_{(2, 101)} = 8.20$; $p < .05$; $\mu_p^2 = 0.14$; $1-\beta = 0.96$), and the total score ($F_{(2, 101)} = 6.60$; $p < .05$; $\mu_p^2 = 0.12$; $1-\beta = 0.90$). However, no differences were found for social dysfunction symptoms ($F_{(2, 101)} = 2.22$; $p > .05$). Bonferroni-corrected post hoc analysis indicated that Cluster B and C had significantly higher psychiatric symptoms in all the GHQ factors than Cluster A, but no significant differences were found between Clusters B and C. In general, Cluster A was found to have a significantly lower prevalence of physical and mental health problems.

Alcohol and Substance Consumption

Total scores for the AUDIT and DAST scales were used to analyze the differences between the three clusters in

relation to alcohol and substance consumption. Firstly, significant differences between clusters were found in alcohol consumption ($F_{(2, 79)} = 3.67$; $p < .05$; $\mu_p^2 = 0.09$; $1-\beta = .76$): Cluster B had the highest scores for alcohol consumption. Bonferroni-corrected post hoc analysis indicated that Cluster B was significantly higher than Cluster A, but no significant differences were found between Clusters B and C. Secondly, significant differences between the clusters were also found for substance consumption ($F_{(2, 79)} = 7.60$; $p < .05$; $\mu_p^2 = 0.16$; $1-\beta = .94$): Cluster C had the highest score for substance consumption. Bonferroni-corrected post hoc analysis indicated that Cluster C was significantly higher than Cluster A, but no significant differences were found between Clusters B and C. Finally, there were also significant differences between clusters in relation to polydrug use ($F_{(2, 79)} = 7.18$; $p < .05$; $\mu_p^2 = 0.15$; $1-\beta = .93$). Bonferroni-corrected post hoc analysis indicated that Clusters B and C were significantly higher than Cluster A, but no significant differences were found between Clusters B and C.

Social Support

As for social support variables, no significant differences between the clusters were found for “currently have family” ($\chi^2_{(2)} = 2.28$; $p > .05$), “currently have non-homeless friends” ($\chi^2_{(2)} = 0.68$; $p > .05$), and “currently have homeless friends” ($\chi^2_{(2)} = 0.03$; $p > .05$). However, Cluster C members had significantly more “currently have spouse/partner/significant other” than the other two clusters (63%; $\chi^2_{(2)} = 8.74$; $p < .05$; $G = .38$). Furthermore, no significant differences between clusters were found for the degree of satisfaction with their relationship with their partner, family, and friends. On the other hand, no significant differences between clusters were found for “feel alone or abandoned” ($\chi^2_{(6)} = 8.64$; $p > .05$), “have someone to talk to in case you are sad or overwhelmed” ($\chi^2_{(6)} = 4.94$; $p > .05$), or “have someone to count on in case of hardship or need” ($\chi^2_{(6)} = 0.46$; $p > .05$).

Discussion

Taking into account the fact that homeless women experience different types and numbers of SLEs than their male counterparts (Rodriguez-Moreno et al., in press), as well as their idiosyncratic characteristics (Duke & Searby, 2019), the general aim of this study was to examine the individual differences in SLEs in a sample of homeless women in Madrid, Spain.

The first aim of the study was to use cluster analysis to organize the sample of homeless women into different subgroups on the basis of their SLEs. The k-means cluster

analysis showed that the three-cluster solution was theoretically and structurally meaningful. Our sample of homeless women could be organized into three clusters based on their SLE. One cluster (Cluster A = 48.3%) was characterized by low levels of SLEs, both in childhood/adolescence and in adulthood. A second cluster (Cluster B = 28.4%) was characterized by a higher prevalence of childhood and adolescence SLEs than the other two clusters, specifically those events related to economic problems during childhood, problems of family violence problems (including being abused before the age of 18, parental fights and arguments, maternal abuse at the hands of their partner, and conflicts with their family), divorced parents, a parent leaving the family home, being away from home (abandonment or expulsion), and parents with drug or alcohol problems. Furthermore, Cluster B was also characterized by SLEs related to mental health such as mental health problems and psychiatric hospital admissions. A third cluster (Cluster C = 23.3%) was characterized by a higher prevalence of SLEs experienced in adulthood, such as being arrested for a crime, being reported to the police, having served a jail sentence, and drug use. Moreover, Cluster C also yielded a higher percentage of SLEs which disproportionately impact women, such as undesired pregnancy, abortion and miscarriage, or separation from a child.

Secondly, discriminant analysis was carried out to examine whether the different SLEs could be used to predict the group membership. The results revealed that there were significant differences for almost all the SLEs; however, age and nationality were not significant and only duration of homelessness was a significant predictor in the model. The canonical discriminant function showed that the three-cluster centers were quite separate, with an average of 92.2% of homeless women being correctly classified into the three clusters with these two functions: Cluster A would be right 92.9% of the times you classified a homeless woman based on hers SLEs, Cluster B would be right 97% of the times, and Cluster C would be right 85.2% of the times. The highest percentage of correct classification was in Cluster B and the lowest in Cluster C. Furthermore, the classification results were substantially different from those for random classification.

Finally, the third objective was to characterize the differences between the resulting clusters and analyze whether there were significant differences between the three resulting clusters in sociodemographic, homeless trajectory, physical and mental health, and social support variables.

Both typologically and in percentage terms, the results of this study are very similar to those obtained by Muñoz et al. (2005), who found that a general sample of

homeless people (87% were men) could also be organized into very similar subgroups based on their SLE.

Cluster A in this study also resembles Cluster A in Muñoz et al. (2005). Cluster A would be the “Shorter homelessness periods and best health and mental health” subgroup, characterized by low levels of SLEs, a shorter homeless trajectory, a reduced prevalence of physical and mental health problems, and lower rates of alcohol and substance consumption. This cluster also coincides with some subgroups found in previous studies (Humphreys & Rosenheck, 1998; Morse, 1992; Mowbray, Bybee, & Cohen, 1993), the results of which can thus be extended to homeless women. Interestingly, Cluster A was the largest subgroup in the study, demystifying the stereotype that all homeless people have mental health problems and substance abuse consumption (Vázquez, Panadero, & Zúñiga, 2017).

Cluster B in this study is similar to Cluster C in Muñoz et al. (2005). Cluster B would be the “Early onset of homelessness and poorer health and poorer mental health” subgroup, characterized by a large number of SLEs, with particular concentrations in childhood and a greater number of SLEs before the onset of homelessness. This concentration of SLEs in childhood was related to an early onset of homelessness and a greater chronification of homelessness. Furthermore, Cluster B members reported significantly more mental health problems and the highest levels of alcohol consumption and polydrug use. This cluster also has several features in common with the “multi-problem group” in Humphreys and Rosenheck (1998) and with previous studies which formed subgroups characterized by mental illness (Mowbray et al., 1993). These results corroborate the suggestion of previous studies that there is a relation between childhood SLEs, mental health problems, alcohol consumption, and homelessness (Chambers et al., 2014; Rodriguez-Moreno et al., in press).

Finally, Cluster C in our study resembles Cluster B in Muñoz et al. (2005). Cluster C would be the “Chronic homelessness and poorest health and mental health” subgroup, mainly characterized by a higher prevalence of typically adulthood SLEs as well as some SLEs which disproportionately impact women. Cluster C also has an early onset of homelessness and a greater chronification of homelessness, but Cluster C members had been homeless a significantly greater number of times than their counterparts in the other two clusters, which is an indicator of the “revolving door to homelessness” (Roca, Panadero, et al., 2019). Whereas Cluster B was characterized by mental health problems and alcohol consumption, Cluster C was characterized by physical health problems, disabilities, and substance consumption. Previous studies have also suggested the relation between SLEs, physical

health problems, substance consumption, and homelessness (Muñoz et al., 2005). Furthermore, in this cluster there were higher rates for spouse/partner/significant other than in the other two clusters.

This study also confirms the key role of SLEs in originating and maintaining of homelessness (Muñoz et al., 1999; Roca, Panadero, et al., 2019) and the differences between childhood and adulthood SLE patterns (Rodriguez-Moreno et al., in press) as reflected in differences between the three clusters in the age at which homelessness begins, the total homelessness time, and in the number of times homeless in relation to the situation between the three clusters depending on the type of SLEs experienced.

However, there were two discrepancies with respect to the study of Muñoz et al. (2005), which included homeless men (86.9%) and women (13.1%). First, in our study of homeless women, we found no significant age differences between the clusters, while they found that Cluster B was significantly older than the other two clusters. Secondly, with regard to the relationship between health problems and substance consumption in the different clusters, our study found that the “Early onset of homelessness and poorer health and poorer mental health” subgroup (Cluster B) was characterized by mental health problems and alcohol consumption, while the “Chronic homelessness and poorest health and mental health” subgroup (Cluster C) was characterized by physical health problems, disabilities (including physical, sensory, and mental), and substances consumption. Our study’s clearly differentiated pattern in homeless women seems to be more diffuse than in Muñoz et al. (2005), who found no differences between Clusters B and C in terms of alcohol-related problems.

These results have several practical implications. By enhancing our knowledge of the characteristics and needs of the different subgroups of homeless women on the basis of their SLEs, there could be improvements in the design of psychological interventions and social services sensitive to the different profiles (Tsai et al., 2014). More specifically, according to our findings, interventions targeting Cluster A members should take into account that as general functioning is preserved, homelessness and employment should be the main targets of the social and community-based programs. However, interventions targeting Cluster B members should tackle childhood victimization, mental health problems, and alcohol consumption, which may lead to the early onset of homelessness and the subsequent chronicity. Although housing needs should be the main response to homelessness (regardless of the cluster in which they are classified), the empirical evidence seems to indicate that housing programs are especially important in early stages of homelessness to prevent the subsequent chronicity. For

instance, Housing First programs have shown to be a cost-effective alternative to the traditional emergency shelters and transitional housing progression (Tsemberis, 2010). Importantly, such programs have shown to be more effective when are designed considering the specific needs and characteristics of homeless women (Oudshoorn, Forchuk, Hall, Smith-Carrier, & Van Berkum, 2018). Finally, interventions targeting Cluster C members should take into account SLEs which disproportionately impact women, lack of stability due to multiple entrances and exits from homelessness, physical health problems, disabilities, and substance consumption, which means sanitary and health care should be foregrounded. Regarding the housing needs of Cluster C members, it would be crucial to improve the “housing stabilization,” enhancing the factors that have fostered the social integration of the individual and analyzing the role of physical health problems, disabilities, and substance abuse in the revolving door to homelessness (Roca, Panadero, et al., 2019).

Accordingly, interventions designed for one subgroup may not be efficient for another subgroup. For instance, it would be ineffective to allocate time and resources to dealing with alcohol and substance consumption among Cluster A members, or to set as a primary objective the reintegration in the labor market of Cluster B members, whose problems of mental health and alcohol consumption might need to be well addressed before pursuing other goals of social inclusion. For instance, in the last few years, transdiagnostic protocols for homeless people have been developed to address the high rates of mental health problems and comorbidity in this population (Sauer-Zavala et al., 2019).

Homeless women are a particularly vulnerable subgroup where gender and social inclusion factors interact to create a unique level of discrimination (Hankivsky & Christoffersen, 2008). Therefore, despite the key role of SLEs in understanding the etiology and maintenance of homelessness, future research should explore the role of other factors for profiling these complexities. Future studies should examine the complex interaction between structural factors (e.g., country policy, the availability of low-cost housing, or the labor market conditions), institutional factors (e.g., allocation mechanisms, availability of services, or the coordination between the existing services), relational factors (e.g., lack of social support, partner relationships, or maternity), and individual-level factors (e.g., physical and psychological health problems, and substance misuse; Busch-Geertsema, Edgar, O’Sullivan, & Pleace, 2010; Oudshoorn, 2020). However, traditional univariate analyses are not able to properly capture the complex interaction between all these factors, so future studies should explore novel analytic approaches, such as machine learning (Dwyer, Falkai, & Koutsouleris, 2018),

and network analysis (Roca, Diez, Diez, Castellanos, & Vazquez, 2019), which would allow a better representation of the complexity interaction between the factors contributing to homelessness.

This study has some methodological limitations which should be considered when interpreting the results. Although our sample represents around 34% of the homeless women in the Madrid census, the sample size could be limited for the purposes of the multivariate analyses used in the study (Hair et al., 2014, p. 429). Even so, the analyses seem to be robust (e.g., the three-cluster model was stable and converged at five iterations) and echo findings from previous studies in the field. Secondly, finite mixture models in general, and latent class analysis (LCA) in particular, have gained popularity in the last years because of its many methodological strengths when classifying individuals into clusters (Haughton, Legrand, & Woolford, 2009). Despite the common use of LCA in approaches to classification, we finally decided to use k-means approach because we wanted to approximate the same analytic approach taken in the earlier analysis (Muñoz et al., 2005). Furthermore, k-means is still a robust method for clustering dichotomous data (Brusco, Shireman, & Steinley, 2017). However, future studies should explore the potential use of LCA for identifying homeless population subgroups. Third, despite the wide range of SLEs included in the study, some areas may benefit from deeper analysis in the future, such as events which disproportionately impact women or mental illness events. Future studies should also consider the experiences of transgender people and gender differences through a nonbinary paradigm. Finally, only cross-sectional data were included in the study; future studies should include longitudinal information to clarify how these subgroups change over time as a consequence of homelessness.

Conclusions

The results of this study provide empirical evidence of the huge diversity in the homeless population, replicating previous studies in the field about the existence of different subgroups within homeless population, and extending these results to homeless women. Increases in our knowledge about the different subgroups profiles within homeless population in general, and within homeless women in particular, as well as their specific characteristics and needs, will help us design social services and policies sensitive to all these differences.

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Conflicts of interest

None of the authors have any conflict of interest.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

CHAPTER 7:

Risk of mental ill-health among homeless women in Madrid (Spain)

Chapter 7 corresponds to the published article with the following reference:

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The two previous studies revealed that homelessness led to an array of negative mental health outcomes (e.g., suicide behaviors and psychiatric hospitalizations) for women. Previous studies in the field have shown that women in a homeless situation experience a high rate of mental health problems (Duke & Searby, 2019), including depression, anxiety, PTSD, schizophrenia, and substance abuse. The study of mental health problems among people experiencing homelessness is also particularly important for understanding the role these problems play in initiating, and maintaining, homelessness (Castellow et al., 2015; Nilsson et al., 2019). For instance, mental health problems have been linked to the number of episodes and duration of homelessness (Lippert & Lee, 2015). For this reason, our third study aimed to explore the differences between women experiencing homelessness at high risk of mental ill-health compared with those who do not present this risk.



Risk of mental ill-health among homeless women in Madrid (Spain)

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Abstract

Several studies have revealed that homeless people suffering from mental health problems are more vulnerable than homeless without those mental health problems. Nevertheless, there is a lack of evidence describing the real circumstances of homeless women. This paper explores the differences between homeless women at high risk of mental ill-health compared with those who do not present this risk. The sample consisted of a group of 120 homeless women in Madrid (Spain). For this study, we collected data on background information (trajectory of homelessness and stressful life events experienced) and current aspects (living conditions, physical health, and social support). The risk of mental ill-health has been measured by the short version of the General Health Questionnaire (GHQ-28). The results showed that homeless women with higher risk of mental ill-health had become homeless at a younger age, had experienced more stressful life events in their lives, had a poorer physical health, felt less happy, had less social support, and a greater feeling of loneliness when compared with homeless women who did not present risk of mental ill-health. Improving knowledge about the risk of mental ill-health among homeless women is essential for the design of specific psychological interventions within this population.

Keywords Homelessness · Homeless women · Mental health · GHQ

Introduction

In more economically developed societies, homeless people are on the lowest rung of social exclusion. They not only live in extreme poverty but also suffer from high levels of family and social disengagement, have great difficulty in achieving social/employment reintegration, and suffer from significant mental and physical health problems (Panadero and Vázquez 2016). A lack of housing is a significant determinant factor in health (Angel and Bittschi 2019). Several studies have reported that homeless people are in poorer physical health than the general population (Lebrun-Harris et al. 2013). This poorer

state of health leads directly to an increased risk of mortality, twice as high as the general population (Hwang et al. 2009).

However, the relationship between homelessness and health not only manifests itself in physical health problems but is also apparent in mental health problems (Chambers et al. 2014). Epidemiological data suggest a much higher prevalence of mental disorders among homeless people than in the general population, and indeed, higher than other economically disadvantaged groups (Lebrun-Harris et al. 2013). Specifically, the data indicate that around a third of homeless people present serious mental illnesses such as schizophrenia, bipolar disorder, or serious depression (Sullivan et al. 2000), and this prevalence rises to almost 50% when disorders related to anxious-depressive symptomatology are taken into account (Feeney et al. 2000). Homeless people suffering from mental health problems experience higher rates of unemployment and suicide than other members of the homeless population (Dunne et al. 2012). The data for suicide rates are particularly shocking, as approximately one in three homeless people has attempted suicide at some point in their lives (Vázquez and Panadero 2019).

The study of mental health problems among homeless people is particularly important for understanding the role these problems play in how people become and remain homeless.

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The study by Nilsson et al. (2019) found that the mental health problems appeared before becoming homeless. However, other studies have also reported that homelessness in turn increases the likelihood of an individual developing mental health problems. Accordingly, prior research (Castellow et al. 2015; Rayburn et al. 2005) point out that the stress and traumatic experiences related to homelessness aggravate symptoms, increase vulnerability, and lead to the appearance of other risk factors. In fact, previous studies have found that experiencing stressful life events (SLEs), such as problems of family violence in childhood/adolescence, being abandoned, arrested or detained for a crime, and among other list of stressful life events for people in social exclusion (Panadero et al. 2018), has a direct effect on the chronification of homelessness, or as it has been reported, it is the “revolving door to homelessness” (Roca et al. 2019).

Mental health problems have also been linked to the duration and number of episodes of homelessness. Lippert and Lee (2015) found a higher prevalence of mental health problems with chronic and episodic events, compared with those who had just become homeless. As a general rule, the length of time a person has spent being homeless is directly correlated to suffering from anxiety, depression, and adaptive disorders (Nino et al. 2009). Furthermore, the prevalence of comorbid disorders among homeless people is 39% in those with three or more episodes of homelessness and 35% among those who have been living homeless for more than a year (National Alliance to End Homelessness 2007). However, the data obtained by Panadero-Herrero and Muñoz-López (2014) contradict the above findings, as they showed that the people who had spent less than 1 year time homeless had worse scores for anxiety, insomnia, and social dysfunction than people in the same situation for more than 5 years.

Another crucial variable for understanding the relationship between mental health and homelessness is the role played by social support networks. Homelessness is characterized by high levels of loneliness and major difficulties with establishing adequate social support networks (Bower 2018; Kidd and Shahar 2008). The research carried out by Hwang et al. (2009) found that social support was associated with lower rates of mental health problems, lower levels of suicidal ideation, and lower levels of substance abuse.

Although the situation of homeless women has been studied at much less extent, the data suggest that these women present some significant vulnerability factors, such as SLEs, mental health problems, risk behaviors, and lifestyles (Bonugli et al. 2013; Duke and Searby 2019). Previous studies have shown that women in a situation of major social exclusion have special needs that are different from those of their male counterparts, they suffer from more acute processes of victimization, and they present idiosyncratic mental health problems (Tsai et al. 2015). The difficulties resulting from the interaction between socioeconomic level and mental

health problems appear to be more outstanding among pregnant women (van Heyningen et al. 2017) and homeless women (Greenberg and Rosenheck 2010). Accordingly, Riley et al. (2014) found that 97% of homeless women had at least one psychiatric disorder: 85% met the criteria for substance abuse disorder, 70% presented mood disorders, and 74% had anxiety disorders.

We therefore aim with this study to examine the differences between homeless women with a high risk of mental ill-health (HW-MI) and homeless women who do not have this risk with regard to various associated variables such as sociodemographic characteristics, living conditions, SLEs, health, well-being, and social support. The main hypothesis was that HW-MI would show worse living conditions, a greater chronicity of the homeless situation, more SLEs, more comorbidity with other health conditions, lower well-being levels, and worse social support networks than homeless women who are not at risk. The results of this study ultimately seek to assess the situation of homeless women in depth and identify factors related to mental health problems.

Method

Participants

The study was carried out on a sample of 138 homeless women in Madrid (Spain). After removing 18 participants with missing data in the short version of the GHQ-28, data analysis was conducted in the remaining a samples of 120 women. The data were collected during January 2014–January 2018. A strict definition was used for homeless women: a woman *who had spent the night before being contacted by the interviewer in a shelter for the homeless, on the street or other places not initially designed for sleeping (cars, underground railway stations, abandoned buildings, etc.)* (Toro 1998). Inclusion criteria were participants were 18 years old or above (i.e., of legal age in Spain). Exclusion criteria were (1) not being able to understand the interview questions in Spanish or English and (2) to show any serious cognitive impairments or alcohol/drug effects during the interview.

Procedure

In this cross-sectional study, the homeless women were contacted on the street, in shelters, or in other facilities that provide care for this group, by a group of interviewers which had been previously trained to conduct structured interview and in dealing with people in situations of social exclusion. After the objectives of the research were explained to the participants, they were asked to sign an informed consent. The interviews were conducted voluntarily and anonymously, and the duration ranged between 45 and 80 min. All

procedures were approved by the University Ethics Committee of Complutense of Madrid (Ref. 2017/18-004) and followed the 1964 Helsinki declaration for outstanding ethical standards.

In this study, the short version of the General Health Questionnaire was used (GHQ-28; Goldberg and Hillier 1979); specifically, the validated Spanish adaptation done by Lobo et al. (1986). This questionnaire comprises four subscales that measure somatic symptoms, anxiety and insomnia, social dysfunction, and depression. The scores went from 0 to 100 with higher scores meaning better health status. The General Health Questionnaire (GHQ; Goldberg 1972) is a widely used self-report measure for assessing psychiatric morbidity (Rocha et al. 2011). The most restrictive cut-off point (CP = 6/7) was used to dichotomize the total GHQ-28 score, dividing the sample of homeless women into two subgroups; of the 120 homeless women who participated in this study, 58% ($n = 70$) were at high risk of mental ill-health (GHQ-28 ≥ 7), while the remaining 42% ($n = 50$) did not present this risk (GHQ-28 < 7). This cut-off point has shown adequate psychometric properties in the Spanish validation, with a correct identification percentage in 85% of cases, a sensitivity of over 70%, and a specificity between 85 and 90% (Lobo et al. 1986; Muñoz et al. 1995).

Statistical analysis

Chi-Square for categorical variables and Student *t* for continuous variables were performed to analyze the differences between HW-MI and homeless women without mental ill-health risk. For all the analyses basic assumptions were tested and effect sizes were carried out using Cohen *d* (for continuous variables), odds ratio (for dichotomous variables), and Gamma Test (for ordinal variables). SPSS 22 for Windows was used for all analyses, employing G*Power software (v. 3.1) for Cohen *d* calculation. Analysis were conducted in a per protocol basis.

Results

The mean age of participants was 45.52 years ($SD = 11.38$), they were mainly from Spain (65.2%), 60.8% of them had kids, 61% were single, and 22.5% had not completed primary education (i.e., 12 years old). No significant differences were found between the participants who scored higher than 7 on the GHQ-28, than those with lower scores for the main sociodemographic variables as follows: age ($t_{(118)} = 1.71$, $p > .05$), nationality ($\chi^2_{(1)} = .06$, $p > .05$), or level of education ($\chi^2_{(3)} = 6.51$, $p > .05$).

Table 1 shows the differences between the two groups for the different variables related to living conditions (housing situation, homelessness, economic situation, and work). The

results indicated that the odds of sleeping on the street was five times higher among HW-MI ($OR = 5.05$) than in women not at risk. As for homelessness, statistically significant differences were observed for the age at which the women became homeless for the first time. Participants who scored > 7 on the GHQ-28 had become homeless at earlier ages than the participants who scored below that level, with a medium-large effect size ($d = 0.51$). However, no differences between the groups in terms of the time spent homeless or the number of episodes of homelessness were observed. Finally, for the variables related to working, the HW-MI had worked for significantly fewer months in their lives ($d = .47$), although no differences between groups were found for the other occupational variables.

Table 2 presents the data referring to SLEs. The complete list of the SLEs evaluated is attached in the Supplementary Material (Supplementary Table 1 and Table 2). For both events, in childhood and adolescence and life-long events, significant differences were observed between groups. The percentage of HW-MI was significantly higher than in the other group. In childhood and adolescence SLEs, the odds of having been abandoned or of having housing problems was almost five times higher among HW-MI than among those who presented a lower risk. Furthermore, the odds of having parents with drug abuse problems and of having suffered sexual abuse in their childhood/adolescence was around four times higher among HW-MI. Meanwhile, for life-long SLEs, the data showed that the odds of having experienced economic problems was 8.8 times higher among HW-MI. Those who had suffered from an illness, injury, serious accident, or unemployment problems had 4.2 times more probability of presenting a mental health problem compared with those without risk. Finally, the odds of having attempted suicide throughout their life was 3.6 times greater among the participants with scores higher than 7 in the GHQ-28.

Table 3 shows the results of the comparison for various health-related incidences between homeless women with scores higher or lower than 7 in the GHQ-28. Homeless women with possible mental health problems perceived their health as “bad” or “very bad” to a greater extent (with a medium effect size; $\Gamma = .50$). Furthermore, this data was accentuated when the participants are asked to rate their current state of health using a visual analog scale (a “feeling thermometer” scale, on which the woman is asked to rate their health from 0 to 100; with 100 being the best health that the person can imagine and 0 the worst health), which showed significant differences between groups with a very large effect size ($d = .99$). The odds of suffering from a serious or chronic disease was 2.5 times higher among HW-MI, while the odds of having suffered from pain or physical discomfort was 4.4 times higher. However, no differences were observed in terms of the number of homeless women suffering from a disability.

Table 1 Living conditions among homeless women according to the risk of suffering from mental health problems

	Score GHQ-28 total		χ^2 / t	Effect Size	95% CI
	≥ 7 (n = 70)	< 7 (n = 50)			
Have slept on the street at some point during the month before the interview	17.4%	4%	5.0*	5.05	(1.08, 23.70)
Homelessness					
Age at which they had housing problems for the first time (Mean (SD))	33.05 (15.70)	40.33 (12.79)	2.60*	0.51	(-0.87, -0.13]
Time in a homeless situation (Mean (SD))	78.16 (95.08)	59.28 (71.70)	-1.14	-	-
Number of episodes of homelessness			4.47	-	-
Once	36.4%	55.3%			
1 to 5 times	30.3%	17%			
More than 5 times	33.3%	27.7%			
Work					
Have engaged in some economic activity that has provided her with income during the last month	21.4%	20%	0.036	-	-
Have tried to find work during the last week	46.3%	44.7%	0.028	-	-
Time spent working during her life (Mean (SD))	125.40 (113.22)	189.84 (155.39)	2.60*	0.47	[-0.85, -0.12]

* $p < 0.05$

The differences between homeless women with higher and lower risks of suffering mental health problems in their perceived levels of happiness provided another interesting piece of data (Table 4). The results indicated that participants scoring higher than 7 in the GHQ-28 perceived themselves as

significantly unhappier than the comparison group, with a large effect size ($d = -.58$). In addition, HW-MI felt significantly lonelier than homeless women without this risk ($d = .56$), and they had significantly fewer people to talk to when they are sad, overwhelmed, or upset ($OR = 0.24$).

Table 2 Stressful life events among homeless women according to the risk of suffering from mental health problems

	Score GHQ-28 total		χ^2	OR	95% CI
	≥ 7 (n = 70)	< 7 (n = 50)			
Childhood and adolescence (before 18 Years Old)					
A parent had problems with drugs	15.7%	4.1%	4.01*	4.38	(0.93, 20.74)
Serious fights and arguments between the parents	42.9%	24.5%	4.26*	2.31	(1.03, 5.17)
Be abandoned	17.4%	4.1%	4.85*	4.95	(1.05, 23.22)
Housing problems in childhood	17.4%	4.1%	4.85*	4.95	(1.05, 23.22)
Suffered from sexual abuse	39.1%	14.3%	8.62*	3.86	(1.51, 9.82)
Throughout life					
Suffered from a serious illness, injury or accident	65.2%	30.6%	13.73**	4.25	(1.94, 9.30)
Suffered from serious unemployment problems	91.3%	71.4%	8.04*	4.20	(1.48, 11.90)
Suffered from major financial problems	95.7%	71.4%	13.63**	8.80	(2.37, 32.70)
Drunk too much at some point in her life	46.4%	20.4%	8.43*	3.37	(1.46, 7.82)
Abused drugs at some point in her life	44.9%	22.4%	6.32*	2.82	(1.24, 6.41)
Done work that separated her from her home	47.8%	28.6%	4.43*	2.29	(1.05, 5.00)
Suffered from sexual assault (over 18 years old)	41.2%	22.4%	4.50*	2.42	(1.06, 5.53)
Had attempted suicide	59.4%	28.6%	10.96**	3.66	(1.67, 8.02)
Has been reported to the police	43.5%	22.4%	5.59*	2.66	(1.17, 6.05)
Suffered from a miscarriage	31.9%	14.6%	4.55*	2.74	(1.06, 7.08)
Separation from a child (adoption, abandoned)	40.6%	22.4%	4.26*	2.36	(1.03, 5.39)

*** $p < 0.05$; $p < 0.001$

Table 3 Health status among homeless women according to the risk of suffering from mental health problems

	Score GHQ-28 total		χ^2 / t (gl)	Effect size	95% CI
	≥ 7 (n = 70)	< 7 (n = 50)			
Perceived health			14.46*	0.50	(0.39, 0.61)
Very good	8.6%	26%			
Good	22.9%	34%			
Fair	32.9%	28%			
Poor	20%	10%			
Very bad	15.7%	2%			
A doctor has told her that you have a serious or chronic illness	61.4%	38%	6.41*	2.60	(1.23, 5.48)
Have suffered from some sort of pain or physical discomfort (last month)	81.4%	50%	13.31**	4.39	(1.93, 9.94)
Have a disability	41.4%	34%	0.68	-	-
State of health today (0–100) (Mean (SD))	50.71 (26.75)	74.50 (20.51)	5.28**	0.99	(-1.35, -0.59)

*** $p < 0.05$; $p < 0.001$

Discussion and conclusions

Mental health is a key variable for understanding the etiology and maintenance of homelessness, particularly in the case of homeless women. The current study has demonstrated that women with a high risk of mental ill-health have poorer living conditions, are more vulnerable, are at a higher risk of sleeping on the street, and are in poorer physical and mental health status. This is consistent with the results of other international studies, which have highlighted a more marked deterioration in mental health among women who literally sleep on the street (Nyamathi et al. 2000). In the case of Spain, available data also suggest that homeless women have a high

prevalence of mental health problems, and even higher than other European countries (Moss 2018).

Differences were also observed in these women's trajectory of homelessness. Concretely, HW-MI had become homeless at an earlier age. However, no significant differences were observed for the duration of homelessness between groups. The studies carried out to date have found contradictory results. Some studies have found that the time a person has been living homeless correlates positively with the presence of a mental health problem (Nino et al. 2009). However, other studies have found precisely the opposite: people who have spent less time living homeless have worse scores for anxiety, insomnia, and social dysfunction (Panadero-Herrero and

Table 4 Well-being and social support among homeless women according to the risk of suffering from mental health problems

	Score GHQ-28 total		χ^2	Effect size	95% CI
	≥ 7 (n = 70)	< 7 (n = 50)			
Perceived overall happiness			23.95**	-0.58	(-0.50, -0.68)
Very unhappy	15.9%	2%			
Quite unhappy	14.5%	0%			
A little unhappy	14.5%	6%			
Neither happy nor unhappy	21.7%	24%			
A little happy	21.7%	32%			
Quite happy	5.8%	16%			
Very happy	5.8%	20%			
Feeling lonely or abandoned			19.15**	0.56	(0.45–0.69)
Not at all	19.4%	50%			
Not much	14.9%	25%			
Quite a lot	25.4%	10.4%			
A lot	40.3%	14.6%			
Do you have someone to talk to when you feel sad, overwhelmed, or upset?	63.8%	88%	8.84*	0.24	(0.09–0.64)

*** $p < 0.05$; $p < 0.001$

Muñoz-López 2014). As for the number of episodes of homelessness that the women have experienced, a study carried out by Lippert and Lee (2015) observed that the number of these episodes affects their mental health, but these differences between the two groups were not observed in this study.

In other words, mental health appears to be related to the age when the person became homeless, but not to the time spent homeless or the number of episodes of homelessness. This result could be interpreted in various ways: on one hand, it could be due to a ceiling effect, i.e., the rates of chronicity among homeless women in Spain are generally so high that mental health is not significant to make a distinction among groups; however, it could also be due to the fact that HW-MI have access to specific resources for this group (e.g., employment programs for people with mental health problems), which could reduce its long-term chronification (despite their situation being more serious at the beginning of their homelessness). Finally, although no differences were found between the groups with regard to engagement in economic activities during the previous month or attempts to obtain employment, the results showed that women at risk of suffering from mental health problems had worked less during their lifetime. This result is consistent with Dunne et al. (2012). This finding is crucial for designing social policies focusing on employment reintegration by means of jobs adapted to this population.

The large number of SLEs that homeless women have experienced both in childhood/adolescence and throughout their lives is particularly important. As observed in previous studies (Chambers et al. 2014), the number of SLEs increases among HW-MI. This result could be an important aspect for understanding how people in this subgroup become and remain homeless, as well as their increased vulnerability. These factors must be taken into account when designing specific interventions that are sensitive to the processes of victimization that these women have experienced (Patel et al. 2019).

Physical health problems have been an extensively studied issue related to homeless people and have been highlighted as a risk factor for homeless women (Johnson et al. 2017). The overall examination of physical and mental health problems in this study showed that the perceived health of HW-MI was much worse for all the outcomes assessed; they considered themselves to be in poorer health and suffer from chronic diseases and pain to a greater extent. However, no significant differences were found between the groups in terms of suffering from/reporting a disability. As for outcomes of well-being, the research carried out by Sun et al. (2012) found lower rates of subjective well-being in homeless people. Likewise, the results of this study showed that HW-MI were unhappier than those with a lower risk.

Finally, our results also suggested that the rates of loneliness and the lack of social support were higher for women who are more likely to suffer from mental health problems,

replicating previous studies that have highlighted the high levels of loneliness experienced by homeless people and their difficulties in establishing social relationships (Bower 2018; Kidd and Shahar 2008). Phipps et al. (2019) highlighted the role that the social support and life satisfaction play in maintaining and exiting homelessness. The need to increase the quantity and quality of social relationships appears to be a key factor in reducing the feeling of loneliness, and this in turn would have a positive impact on the mental health of these women.

This study has a number of limitations. The results discussed are based on a cross-sectional study of women that were not formally diagnosed with mental illness, and as such, it is impossible to determine their causality. Future studies should include longitudinal information to determine whether mental health problems are the reason for other risk factors, or whether on the contrary, the accumulation of other vulnerability factors lead to an increased risk of developing mental health problems among homeless people (Guillén et al. 2020). Furthermore, this research has no comparison group of women who are not homeless or of homeless men, which would help to determine whether the relations observed are due to the individual concerned being homeless, being a woman, or an interaction of both. It is important to take into account that these results come from urban areas in Spain, and future studies should analyze the replicability of these findings in other contexts (e.g., rural areas and other countries), as well as the transcultural differences in such processes.

In summary, the data obtained suggest that mental health problems are a fundamental variable in homeless women, both because of its high level of prevalence and because of its relationship with other vulnerability factors. Programs and interventions aimed at this population generally have a primarily social focus. However, these results highlight the importance of including empirically validated psychological interventions aimed at treating mental health problems and other associated factors. Cost-effective psychological interventions would possibly reduce the unnecessary public expenditure arising from the secondary consequences of the lack of psychological treatments.

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Authors' contributions All authors contributed to the study conception and design. Testing and data collection were performed by S. Rodríguez-Moreno. Data analysis and interpretation were performed by S. Rodríguez-Moreno under the supervision of S. Panadero and JJ. Vázquez. S. Rodríguez-Moreno, S. Panadero, and JJ. Vázquez drafted the manuscript. All the authors approved the final version of the manuscript for submission.

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Data availability Data will be provided under formal request to the corresponding author.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures were approved by the University Ethics Committee of Complutense of Madrid (Ref. 2017/18-004) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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CHAPTER 8:

Application of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders among homeless women: A feasibility study

Chapter 8 corresponds to the published article with the following reference:

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In our previous studies (Chapter 5 to 7), we observed high rates of SLEs and mental health problems among women experiencing homelessness. Considering the high prevalence of emotional disorders and comorbidity in this population, transdiagnostic protocols are postulated as a cost-effective alternative to provide empirically supported treatment to women experiencing homelessness. One of the most widespread and empirically supported transdiagnostic treatments is the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011). Moreover, the literature showed that there is a lack of evidence-based psychological treatments developed to specifically target mental health problems in people experiencing homelessness (Speirs et al., 2013). For all these reasons, we decided to adapt the UP among homeless women (UPHW) to improve both their mental health and ability to cope with stress. Thus, this study examined the feasibility of our UPHW by quantitatively examining levels of participant attendance, satisfaction, usefulness, emotional states, and group cohesion.

BRIEF REPORT





Application of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders Among Homeless Women: A Feasibility Study

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Despite the high prevalence of emotional disorders and comorbidity among homeless women, there is a shortage of studies focused on interventions targeted at this population. This study aims to examine the feasibility of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders among homeless women, in relation to its quantitative effects on attendance, satisfaction, usefulness, emotional state, and group cohesion. The trial was registered at clinicaltrials.gov as NCT04392856. We use a one-group pretest–posttest design. The program consisted of 12 group sessions of approximately 90 min each. Treatment was provided to 54 homeless women, who were recruited from four different shelters in Madrid (Spain). The average attendance rate was 69.44%. Participants reported high levels of satisfaction ($M = 8.97$, $SD = 1.45$; out of 10), perceived usefulness ($M = 9.10$, $SD = 1.42$; out of 10), mood state ($M = 6.11$, $SD = 1.02$; out of 7), and group cohesion ($M = 6.34$, $SD = 0.86$; out of 7). There was a significant increase in the total score across these four variables following treatment. These findings suggest that the Unified Protocol is a feasible intervention for homeless women and may be beneficial; however, further studies that include a control group and a larger sample are on progress to test its effectiveness.

Clinical Impact Statement

Question: What is the applied clinical practice question this article is hoping to address? This article hopes to address the feasibility of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders among homeless women, in relation to attendance, satisfaction, usefulness, emotional state, and group cohesion. **Findings:** How would clinicians meaningfully use the primary findings of this article in their applied practice? This article describes several challenges faced in the application of the Unified Protocol to homeless women and practical tips to adapt it to different realities and needs. **Meaning:** What are the key conclusions and implications for future clinical practice and research? The Unified Protocol seems a feasible intervention for homeless women and could be a good option for treating emotional disorders in community settings. **Next Steps:** Based on the primary findings and limitations of this article, what are the future directions to be explored in clinical practice and research? Further studies that include a control group and a larger sample are needed to test the effectiveness of the Unified Protocol among homeless women.

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Panadero served as lead for funding acquisition, investigation, project administration, resources, supervision, and served in a supporting role for writing. Todd Farchione served in a supporting role for writing – original draft, review, and editing. Carolina Marín, Ana I. Guillén, and Sonia Panadero contributed to conceptualization equally. Carolina Marín, Ana I. Guillén, and Sonia Panadero contributed to data curation equally. Carolina Marín, Ana I. Guillén, and Sonia Panadero contributed to formal analysis equally. Carolina Marín, Ana I. Guillén, Sara Rodríguez-Moreno, and Sonia Diéguez contributed to investigation in a supporting role. Carolina Marín, Ana I. Guillén, and Sonia Panadero contributed to methodology equally. Carolina Marín, Ana I. Guillén, Sara Rodríguez-Moreno, Sonia Diéguez, and Sonia Panadero contributed to validation equally.

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Keywords: homeless women, transdiagnostic treatment, unified protocol, feasibility

Homeless women account for an increasing proportion of the homeless population (Mayock & Bretherton, 2016) and represent a particularly vulnerable subgroup (Vázquez & Panadero, 2019). Recent literature has noted a very high prevalence of mental disorders among homeless women, ranging from anxiety and depression disorders to other more severe and chronic diagnoses, such as borderline personality disorder, schizophrenia or posttraumatic stress disorder (Duke & Searby, 2019), elevated rates of abuse of alcohol and other substances (Guillén et al., 2020), and a high risk of premature mortality (Montgomery et al., 2017). Diagnosis-specific treatments have proven to reduce anxiety and depression symptoms in homeless women (Castaños-Cervantes, 2019; Speirs et al., 2013). However, the tendency to have more than one disorder (Torchalla et al., 2014; Vázquez & Panadero, 2019) and the unstable living conditions of these women (Johnson et al., 2018; Vázquez et al., 2019) suggest there could be value in brief interventions which cover comorbidity and a wide range of psychological problems.

In recent years, increasing attention has been paid to examining the efficacy of transdiagnostic programs. Transdiagnostic programs address a putative common mechanism for different diagnoses, thereby applying the same underlying interventions across different mental disorders, without tailoring these to diagnosis-specific treatments (Pearl & Norton, 2017). Several meta-analytic studies have supported the efficacy of transdiagnostic treatments for depression and anxiety symptoms in adults, children, and adolescents (Andersen et al., 2016; García-Escalera et al., 2016).

Among transdiagnostic programs, the pioneer Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011) has been widely applied in several countries, in both clinical and subclinical populations (Cassello-Robbins et al., 2020). It has been shown to be an effective tool in both the individual (Barlow et al., 2011) and group format (Bullis et al., 2015; Osma et al., 2015). Its efficacy for anxiety and depression disorders may be comparable to that of disorder-specific programs and possibly with less attrition (Barlow et al., 2017). Two recent systematic reviews and meta-analyses of the UP (Cassello-Robbins et al., 2020; Sakiris & Berle, 2019) have shown a moderate to large effect in terms of reductions across the symptoms of depression, generalized anxiety, panic disorders, social anxiety, obsessive-compulsive disorder, and borderline personality disorder. Moreover, the results suggest that the UP has predominantly been tested among female populations.

One of the mechanisms targeted by the UP is the willingness to experience emotions within everyday life (Sakiris & Berle, 2019). Research suggests that homeless people may have difficulties in this area and thus could benefit from emotion-regulation interventions (e.g., Barr et al., 2017). To date, only two studies have examined the application of the UP to a homeless population, both as part of the same project implementing the UP in a community-based service providing care to homeless individuals (Sauer-Zavala et al., 2019; Youn et al., 2019). It seems to be a suitable program with several advantages for low-resource settings due to its multiproblem, modular, and flexible approach (Martin et al.,

2018). However, it must be noted that the majority of the participants in those two studies were male. Therefore, this field of research is still limited, and currently there are no specific data on its application among homeless women, despite literature suggest gender differences between homeless men and women. For instance, it seems that psychopathology may be more frequent among homeless women, especially anxiety and depression (Phipps et al., 2019).

This study aims to examine the feasibility of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders Among Homeless Women (UPHW) in Madrid (Spain), in relation to its quantitative effects on attendance, satisfaction, usefulness, emotional state and group cohesion. This feasibility trial was conducted in advance of a clinical trial to evaluate the effectiveness of the UPHW on primary mental health outcomes, well-being, health, and quality of life (Rodríguez-Moreno et al., in press).

Method

Participants

The inclusion criteria were as follows: (a) female, (b) over 18 years old, (c) having a sufficient level of Spanish fluency to allow participation in the intervention, (d) in accommodation for homeless people (living for short to medium intervals in shelters for the homeless, temporary accommodation or temporary support accommodation), or in housing programs for homeless people. The exclusion criteria were as follows: (a) not presenting severe cognitive impairment and (b) not having a serious mental disorder in an active phase that hinders participation in the program.

The treatment was provided to 54 homeless women, who were recruited from four different shelters and other homeless housing programs in Madrid. Their mean age was 49.57 years old ($SD = 10.78$), and they were mainly of Spanish nationality (57.4%). Of the participants, 44.4% were single, 37.0% were separated/divorced, and 16.7% were married/in a stable relationship. Although 70.4% of the women had children, none of them were living with their children at the time of the interview. The mean time spent being homeless by the women interviewed was 89.16 months ($SD = 115.18$ months).

Measures

This study examined the feasibility of UPHW in relation to attrition and attendance, as well as satisfaction with the sessions, perceived usefulness, emotional state and group cohesion, as reported by the participants. In relation to attrition and attendance, the therapists recorded weekly attendance.

The Participant Feedback Session Survey was developed ad hoc and was completed anonymously after each session. It consisted of four items that measured the following: (a) satisfaction with the session: participants answered the question “How much did you like this session?” using a 10-point Likert scale; (b) perceived usefulness of the session: participants answered the question “How

useful do you find the information given in this session?" using a 10-point Likert scale; (c) mood and emotional state: participants answered the question "How do you feel in this moment?" using a visual analog scale with responses ranging from 0 to 7; (d) group cohesion: participants answered the question "How did you feel with the group?" using a visual analog scale with responses ranging from 0 to 7.

Procedure

Studying the feasibility of UP for homeless women meant undertaking a two-step study. Step 1 involved the adaptation of the original UP to the characteristics of the population and the ongoing challenges associated with a homeless situation. Step 2 was a feasibility study using a one group pretest posttest design, as we compared changes between the first and last session.

Step 1: Development of the Intervention

The intervention was delivered in group format; the number and length of sessions was consistent with previous UP group format applications (Bullis et al., 2015; Osmá et al., 2015). Intervention was based on the original protocol by Barlow et al. (2011), although some adaptations were made to meet the characteristics and needs of homeless women. Those adaptations were based on previous research conducted among homeless women in Spain (Guillén et al., 2020; Vázquez et al., 2019) and in line with the principles that can enhance the delivery of therapeutic interventions for homeless women (Berzoff, 2013;

David et al., 2015). These principles emphasize the use of peer support, provision of flexible resources in a low demand environment, supportive program leadership, and treatment delivered for and by women.

The most important challenges and modifications to the original protocol are presented in Table 1. Nevertheless, each session and module retained the objectives of the original UP.

The first important challenge in the application of UPHW related to the *therapeutic alliance*. Homeless women must cope with survival situations each day and they have negative conditioning to their living place due to interpersonal conflicts. This reality led us to set the establishment of a positive and safe place to work as a primary need. It was also essential to work on preexisting and ongoing conflicts among participants. Moreover, we introduced some positive activities to create a pleasant setting.

Second, there was the big challenge of *adapting the group dynamics and contents* to make them simpler and more accessible, due to the possible existence of some cognitive impairment and/or substance misuse. As a result, we structured the sessions to make them as accessible as possible, while maintaining the objectives and content of the original protocol. The use of audiovisual resources and stories was also extremely helpful.

Another challenge was the *definition and achievement of the objectives* when running the intervention, as homeless women often find it difficult to define specific objectives, due mainly to the many stressful events that have occurred in their lives. In this sense, supportive program leadership by the therapist was key, and

Table 1

Challenges Faced and Main Modifications Made to the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders When Applying It to Homeless Women

Issue addressed	Challenge faced	Modification made to the UPHW
Therapeutic alliance	Daily survival difficulties Frequent interpersonal conflicts Negative conditioning to the shelter where the workshop took place Overwhelming perception due to several workshops. Attrition due to several health problems (e.g., hospitalization)	Emphasis on the establishment of a positive and safe place Working on preexisting conflicts among participants Positive dynamic group activities and coffee break at the end of session Flexible resources in a low demand environment Taking into account the women's feedback Reinforcing group cohesion and a feeling of belonging
Group dynamics	Reading comprehension, diverse learning styles, and attention difficulties High rates of substance misuse	Structuring sessions to make them simpler and more accessible (e.g., slower pace of exercises) Adapting the educational content to improve understanding, including simple exercises to illustrate psychological concepts Summary of the previous session at the beginning of each session. Extensive use of audiovisual resources, metaphors and stories to improve understanding
Definition and achievement of therapeutic objectives	Difficulties following the steps to reach the final objective (e.g., due to cognitive impairment or treatment attendance difficulties)	Setting only one or two objectives Setting objectives related to everyday conflicts and pre-existing conflicts with members of the group Supportive leadership by the therapist Avoidance of objectives related to traumatic events, but working on them in individual sessions (if necessary).
Terminology and examples	Reading comprehension, diverse learning styles, and attention difficulties Examples not applicable to their current life circumstances	Changes in some concepts (e.g. "homework") Easy language Examples adapted to the circumstances of homeless women

Note. UPHW = Unified Protocol for Transdiagnostic Treatment of Emotional Disorders Among Homeless Women.

she tried to work with relevant objectives related to the daily lives of the women.

A final challenge was using *terminology and examples adapted* from the original protocol to fit with the day experiences and needs of homeless women. Our previous experience in working with homeless women allowed us to select terms and examples that better reflected their lives.

Step 2: Application of the Intervention

The project was conducted in four different shelters in the public network for homeless people in the city of Madrid. Members of the research team organized a first meeting to explain the purpose of the program to the stakeholders (shelter directors, psychologists and social workers) at each center. After this initial meeting, an open information session was held with individuals from the target population. After this open session, the women voluntarily completed a form if they were interested in receiving UPHW treatment.

Six workshops, each composed of between six and nine homeless women, were finally run by two therapists who actively worked on adapting the protocol. The program consisted of 12 weekly sessions of approximately 90 min each. The program was delivered by two clinical psychologists (the therapist and the cotherapist), with previous experience with this population.

Ethical Considerations

It should be noted that participation was voluntary, and a written informed consent form was signed by the participant before the workshop began. Any data were treated as confidential. In addition, the objectives of the investigation, phases and necessary involvement were explained to the participants. The participants were informed of their right to withdraw from the project at any time. All procedures were approved by the Complutense University of Madrid Ethics Committee (Ref. 2017/18–004), and the trial was registered at clinicaltrials.gov as NCT04392856.

Data Analysis

The statistical analyses and data management for this study were conducted using SPSS v.23 for Windows. First, descriptive statistics were produced to identify the main sociodemographic characteristics of the sample, as well as the satisfaction scores, perceived usefulness, emotional state and group cohesion. We assessed the normality of the distribution of scores, examining skewness and kurtosis and performing the Shapiro–Wilk and Kolmogorov–Smirnov procedures.

Next, nonparametric testing was conducted since the scores did not meet parametric assumptions. Spearman's rank correlation coefficient was calculated to analyze correlations between satisfaction and perceived usefulness, emotional state and group cohesion. Mann–Whitney *U* tests were performed to test for differences between the scores from Sessions 1 and 12, as participants' questionnaires were anonymous and answers could not be paired. The value of *z* was used to calculate effect size estimates ($r = z/\text{square root of } N$, where $N = \text{total number of cases}$).

Results

Attendance ranged from a maximum of 90.74% in Sessions 1 and 2 (49 women attended each of those sessions) to a minimum

Table 2
Descriptive Data on Participant Satisfaction, Perceived Usefulness, Emotional State, and Group Cohesion

Session	N	Satisfaction (0–10) ^a		Usefulness (0–10) ^a		Emotional state (1–7) ^b		Group cohesion (1–7) ^b	
		M	SD	M	SD	M	SD	M	SD
1	49	8.57	1.56	8.84	1.64	5.63	1.10	5.92	1.20
2	49	8.41	1.89	8.43	1.90	5.73	1.29	6.02	1.22
3	37	9.11	1.22	9.24	0.93	6.16	1.09	6.32	0.75
4	46	8.96	1.25	9.24	1.39	6.00	0.97	6.24	0.79
5	43	8.93	1.40	8.98	1.41	6.26	0.90	6.28	0.88
6	41	8.93	1.37	9.12	1.12	6.12	0.93	6.32	0.79
7	34	8.88	1.61	9.17	1.27	6.20	0.90	6.34	0.73
8	32	8.81	1.99	9.06	1.98	6.28	0.77	6.63	0.55
9	30	9.33	1.03	9.40	0.93	6.13	0.73	6.40	0.68
10	32	9.31	1.09	8.97	1.47	6.19	0.97	6.56	0.56
11	28	9.54	0.69	9.52	0.89	6.57	0.57	6.68	0.48
12	29	9.59	1.15	9.79	0.56	6.55	1.30	6.93	0.26

^a Scores ranging from 0 to 10 (higher scores indicate higher satisfaction/usefulness). ^b Scores ranging from 1 to 7 (higher scores indicate higher emotional state/group cohesion).

of 51.85% in Session 11 (28 women). The average attendance rate for the whole program was 69.44%.

Overall, participants reported high total levels of satisfaction ($M = 8.97$, $SD = 1.45$), perceived usefulness ($M = 9.10$, $SD = 1.42$), emotional state ($M = 6.11$, $SD = 1.02$), and group cohesion ($M = 6.34$, $SD = 0.86$). Correlational analysis using Spearman's ρ coefficient showed strong positive relationships between satisfaction and perceived usefulness, $r = .717$, $p < .000$, emotional state, $r = .592$, $p < .000$, and group cohesion, $r = .556$, $p < .000$. Table 2 provides the mean scores for these four parameters for each session. These mean scores were consistently in the upper ranges throughout the treatment.

The results of the Mann–Whitney *U* tests revealed significant increases in participant satisfaction ($U = 417.00$, $p < .001$), perceived usefulness ($U = 468.50$, $p < .003$), emotional state ($U = 272.00$, $p < .000$), and group cohesion ($U = 322.00$, $p < .000$) between Session 1 and 12. Effect sizes for these four variables ranged from medium to large ($r = .4$, $r = .3$, $r = .5$, $r = .5$, respectively).

Discussion

Despite the significant presence of mental health issues and comorbidity in homeless people, and particularly in homeless women (Duke & Searby, 2019), there is a gap in the implementation and dissemination of evidence-based treatments in this population (Youn et al., 2019). Interventions through disorder-specific programs have shown themselves to be effective (Castaños-Cervantes, 2019; Speirs et al., 2013). Nevertheless, the high comorbidity among psychological disorders observed in homeless women, together with their difficult living circumstances, led us to test the feasibility of the UP to encompass several emotional disorders.

We found acceptable attendance rates during the treatment. We must note that participants often had to deal with complex life circumstances that interfered with attendance or even led to attri-

tion (competing priorities, such as meeting their basic needs for food or clothes; illness, medical appointments and hospitalizations, etc.). This is consistent with Youn et al. (2019), who identified these difficulties as being one of the main barriers to implementing the UP for homeless people in community health settings.

In addition, participants reported high and increasing satisfaction and perceived usefulness over the course of treatment, as well as high scores related to emotional state and group cohesion. One could argue that the adaptations made to meet the circumstances and needs of homeless women might have led to these positive outcomes. These results are particularly interesting if we consider that even high satisfaction and perceived usefulness over the course of treatment among homeless people, may lead to mixed results related to effectiveness (Sauer-Zavala et al., 2019).

The findings suggest that the UPHW could therefore be a good option for treating emotional disorders in community settings and it offers several advantages. First, transdiagnostic treatments are a cost and time-efficient approach (Barlow et al., 2017), as the common symptomatology and functioning mechanisms of emotional disorders are treated at the same time. In addition, clinicians in community settings are limited in the amount of time they can dedicate to applying specific evidence-based treatments for particular disorders. Clinicians trained in UPHW would be in an ideal position to simultaneously address the treatment targets that are usual across different disorders (Farchione et al., 2012). Addressing the core-underlying factors contributing to the development and continuance of emotional disorders could have a “domino effect,” thus improving other areas not directly targeted, such as self-esteem or prosocial behaviors.

These results must be considered in light of certain limitations. First, this is a preliminary work focusing on the adaptation and feasibility of the UPHW and it does not present data about its effectiveness. Second, we used an ad hoc survey composed by a single item for each variable (satisfaction, usefulness, emotional state and group cohesion). Our findings therefore need to be interpreted with caution because of the potential methodological and psychometric limitations of this measure. Finally, although there was an acceptable attendance ratio, one of the main constraints of the study was the discontinuity in attendance of the participants owing to their complex life circumstances.

In summary, our results show that the UP is a feasible intervention for homeless women. Because they often experience a high number of stressful life events and emotional disorders (Phipps et al., 2018), a key policy priority should therefore be to plan interventions targeted at this population. This study suggests that the UPHW might contribute to the provision of evidence-based treatment in public community settings. However, further studies that include a control group are required to test the efficacy of the UPHW.

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CHAPTER 9:

Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women

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After describing our adaptation of the UPWH and testing its feasibility (Chapter 8), we evaluated its effectiveness. The UP, one of the most widespread and empirically validated transdiagnostic treatments, has proven effective in reducing symptoms of anxiety and depression and improving the use of adaptative emotion regulation strategies across different contexts and countries, and in both clinical and subclinical populations (Cassello-Robbins et al., 2020; Sakiris & Berle, 2019). In addition, preliminary results suggest that the UP can be feasibly delivered in community and social settings (Sauer-Zavala et al., 2019) and in group format (Bullis et al., 2015; Osma et al., 2018). To date, only two studies have examined the application of the UP to people experiencing homelessness (Sauer-Zavala et al., 2019; Youn et al., 2019); however, neither study reported the effectiveness of the UP for this population. Thus, the aim of this study was to evaluate the effectiveness of a group format adaptation of the UP for Spanish women experiencing homelessness.

Initial Effectiveness Evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for Homeless Women

Behavior Modification

1–23

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Abstract

The purpose of this study is to evaluate the effectiveness of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders adapted for homeless women (UPHW). Eighty-one homeless women participated in this single-blinded quasi-experimental clinical trial, involving up to 12 sessions of group treatment, and 3-and 6-month follow-ups. The participants received either immediate treatment with the UPHW ($n=46$) or delayed treatment, following a 12-week wait-list control period (WLC; $n=35$). Primary outcomes included depression and anxiety. Secondary measures comprised positive and negative affect, psychological well-being, health perception, and social support. The UPHW resulted in significant improvement on measures of anxiety, depression and negative affect. Improvements in anxiety and depression were maintained over a 3-month follow-up period, but not at

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6-month. The reliability of the clinical changes showed significant differences between UPHW and WLC for depression. Moreover, the inter-session assessment in the UPHW group showed a linear trend reduction for depression and anxiety scores along the 12 sessions. The clinical implications on the UPHW in social settings are also discussed.

Keywords

homelessness, homeless women, mental health, transdiagnostic treatment, unified protocol

Introduction

Homelessness is characterized by extreme poverty and social exclusion in high income countries. It is a significant social issue that affect millions of people worldwide each year (Fransham & Dorling, 2018). The economic development in high-income countries is in sharp contrast with the exponential growth of homelessness that has occurred worldwide during the last three decades: around four million people are in a homeless situation each year in Europe and around three million in the USA (Fazel et al., 2014). In the case of Spain (country where the study was conducted), according to the National Institute of Statistics (2018), 18,001 people were housed on a daily basis in homeless care centers.

Finding a definition of homelessness is not a straightforward task. Most homelessness definitions have been coined in specific contexts and countries, and multiple definitions have been proposed. The European Typology of Homelessness and Housing Exclusion (ETHOS) define that a homeless person can be found in the following categories (Amore et al., 2011): (1) rooflessness (people sleeping rough, in a night shelter), (2) houselessness (shelters and supported accommodation for formerly homeless people), (3) insecure housing (people living under threat of violence and move temporarily with family/friends), and (4) inadequate housing (living in extreme overcrowded conditions, unfit housing). Furthermore, attention should be paid to the “hidden homeless” phenomenon (Mayock & Sheridan, 2012; Watson et al., 2016), referred to those people who lose their apartments or houses, and instead of going directly to a shelter or the street, they may live temporarily with their family, friends or sleep in rooming houses.

Research to date consistently demonstrates that mental health problems are a key factor of homelessness. A two-way relationship between mental health and homelessness has been found (Duke & Searby, 2019), where

mental health problems act as a vulnerability factor and as a consequence of homelessness (Chambers et al., 2014). First, some studies suggest that mental health problems are one of the main risk factors for becoming and remaining homeless (Nilsson et al., 2019). For example, it has been found that people with mental health problems are twice as likely to experience homelessness at some point in their lives as people without mental health problems (Australian Bureau of Statistics, 2016), probably because mental health problems can lead to significant impairments in functioning that can contribute to homelessness (Llerena et al., 2018). Second, homeless people suffer a higher prevalence of mental health problems than the general population (Fazel et al., 2008), which may be even greater when considering the high prevalence of stressful life events and its effects on mental health (Lund et al., 2010). Meta-analytic evidence suggests that the pooled prevalence rate of mental disorders in homeless population is 77.5% (Schreiter et al., 2017). According to the geographical location, the prevalence of mental health problems in homeless people the USA is 57.8% (U.S. Department of Housing and Urban Development, 2015), in contrast to the 18.9% in the general population (National Institute of Mental Health, 2017). Data in Spain suggest that the prevalence of mental health problems among homeless people ranges from 25 to 35% (Vázquez & Muñoz, 2001). The discrepancy and variability in the prevalence of mental health problems between different studies may be related to methodological differences between studies, such as the type of homeless condition being evaluated (e.g., sleeping on the streets, using shelters, etc), the inclusion criterion in the definition of mental disorder (e.g., including or not substance abuse), as well as cross-cultural and context differences.

The most prevalent mental disorders among homeless people are affective disorders, substance and alcohol abuse, psychotic disorders, personality disorders, and post traumatic disorder (Fazel et al., 2008; Hossain et al., 2020). Furthermore, comorbidity rates between different mental health problems are very high in the homeless population (Urbanoski et al., 2018). Homeless people are four times more likely to present more than one psychological disorder at the same time than the general population (National Institute of Mental Health, 2009), possibly indicating greater clinical severity. Although homeless women make up an increasing portion of the homeless population, a growing body of research suggest that homeless women present more mental health problems than their male counterparts and even more than general population women (Muñoz et al., 2005; Welch-Lazoritz et al., 2015). However, research on homelessness have been marked by an androcentric vision (Mayock & Bretherton, 2016), which has limited our understanding of women in this situation. The difficulties arising from the interaction between

the lack of socioeconomic resources and the mental health problems appears to be even more prominent in homeless women (Chambers et al., 2014), which makes them a particularly vulnerable subgroup.

To date, there has been a lack of evidence-based psychological treatments developed to specifically target mental health problems in people experiencing homelessness (Speirs et al., 2013). Most studies have focused on structural factors contributing to homelessness (Hwang & Burns, 2014) and systemic support interventions providing housing, employment and legal support (Baxter et al., 2019). Although some of these interventions may indirectly improve psychological symptoms, mental health issues are not targeted directly. Speirs et al. (2013) conducted a systematic review analyzing existing psychosocial interventions for homeless women. They found that these treatments, which often contained psychoeducation and motivational interviewing, led to reduced distress and alcohol/drug use while improving self-esteem and healthcare use. Furthermore, psychological interventions have also been shown to improve mental health and social outcomes among women in shelters due to intimate partner violence (Lako et al., 2013). Despite this, existing studies show several limitations (such as the lack of comparison groups and small sample size) and further research is needed to ensure the effectiveness of psychological interventions for homeless women (Speirs et al., 2013).

Considering the high prevalence of emotional disorders and comorbidity in this population, transdiagnostic protocols may offer a more effective alternative to provide empirically supported treatment to homeless women. One of the most widespread, empirically supported, transdiagnostic treatments for anxiety and depressive disorders is the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011). The UP is a manual-based cognitive behavioral therapy focused on psychopathological mechanisms contributing to the development and maintenance of different emotional disorders, namely, frequent and intense negative emotions (i.e., neuroticism), negative reactions to these emotions, and a tendency to avoid or suppress them (Barlow et al., 2014), instead of focusing on each single disorder separately. This allows the application of the protocol to a variety of disorders simultaneously, hence reducing the comorbidity among disorders.. The UP has demonstrated large, and stable, symptom reductions across measures of depression, generalized anxiety, panic disorder, social anxiety, obsessive compulsive disorder, post-traumatic stress disorder, and borderline personality across different internalizing disorders (Sakiris & Berle, 2019). To date, two initial studies have examined the UP for homeless persons, one examining the barriers and facilitators (Youn et al., 2019), and the other evaluating the acceptability and feasibility (Sauer-Zavala et al., 2019). On the one

hand, Youn et al. (2019) found that some of the main barriers when adapting the UP to the homeless population, were the engagement with the intervention, attendance problems, some important needs not addressed by the protocol and lack of resources to apply. Two important facilitators were the perception of utility and all the contents addressed by the program. On the other hand, Sauer-Zavala et al. (2019) found mixed results in acceptability and feasibility for both the patients and the therapist. However, neither of these studies provide data on the effectiveness of the UP adapted to the homeless population.

Therefore, the primary aim of this study is to evaluate the effectiveness of a group format adaptation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women. The UP was originally designed for individual application although it has been successfully delivered in groups (Bullis et al., 2015; Osma et al., 2018; Reinholt et al., 2017). Using the UP in this way offers the potential to efficiently treat patients with different disorders in a single group (McHugh et al., 2009). This seems to fit especially well with the structure and needs of community health centers and shelters for the homeless population and has the potential to reduce the burden associated with providing care in these settings. In this study, homeless women were provided the adapted UP (herein referred to as the UPHW) across four different homeless shelters. Primary outcomes included depression and anxiety, whereas secondary measures comprised positive and negative affect, psychological well-being, health perception and social support. We hypothesized that the UPHW would be effective in reducing anxiety and depression symptoms, decreasing negative affect and increasing psychological well-being, positive affect and perceived health of homeless women. This study is expected to contribute to the development of a practical and potentially effective solution for addressing common mental health problems, such as anxiety and depression, in community settings that serve homeless women.

Method

Study Design

All procedures were approved by the University Ethics Committee of Complutense of Madrid (Ref. 2017/18-004) and the trial was registered at clinicaltrials.gov as NCT04392856. The study was conducted across four centers in Madrid and surroundings areas. The study was originally planned as a randomized controlled trial and was presented to study participants as such; however, the number of homeless women in some shelters was

insufficient to permit adequate randomization. Therefore, randomization 1:1 was conducted only in those shelters where the number of homeless women was large enough to generate two groups. Thus, in the end, the study was conducted as a single-blinded quasi-experimental clinical trial.

The design included two conditions: The Unified Protocol experimental group (UPHW) and a Waitlist control condition (WLC). Participants in both conditions, UPHW and waitlist, received psychological and pharmacological Treatment-As-Usual (TAU): women in both groups were allowed to continue to attend the usual shelter services, including individual session with the shelter psychologists, group occupational therapy sessions and employability workshops. Participants assigned to immediate treatment with the UPHW adaptation ($n=46$) were assessed before and during the intervention (intersession assessment), at the end of treatment, and after a 3 and 6-month follow-up period. Participants assigned to WLC did not immediately receive the intervention for 3 months ($n=35$), after which they received the same treatment as those in the UPHW condition. Participants in the WLC were assessed at the beginning and after the 3-month waitlist period. Following the post-wait-list assessment, these women were assigned to the UPHW treatment and the assessments were then conducted at the end of the intervention and at 3 and 6-month post-intervention. Participation in the study was voluntary and participants did not receive any economic compensation for their participation.

Participants

A total sample of 81 homeless women from different public shelters in Madrid (Spain) participated in the study. Participants were eligible for the study if they were (1) female gender identity (although all were biologically female); (2) 18 years or older; (3) fluent in Spanish; (4) provided an informed consent; (5) had access to the shelters where the intervention was carried out, (6) able to attend the evaluation and treatment sessions; and (7) to be in the categories 1, 2, or 3 of the ETHOS typology (Amore et al., 2011), contemplated in the proposal made by FEANTSA. Therefore, participants were women in one of the following living situations: (1) women who lived outdoors (on streets, public space, or outside); (2) women in emergency accommodation (without habitual place of residence that make night use of shelters); or (3) women in accommodation for homeless people (they live with short to medium intervals in shelters for the homeless, temporary accommodation or temporary supportive accommodation). Furthermore, only women who had attended at least 6 of the 12 sessions were included in the analyses (i.e., minimal treatment exposure), consistent with other studies in this population (Jiga et al., 2019; Santa Maria et al., 2020). Homeless women were excluded if (1)

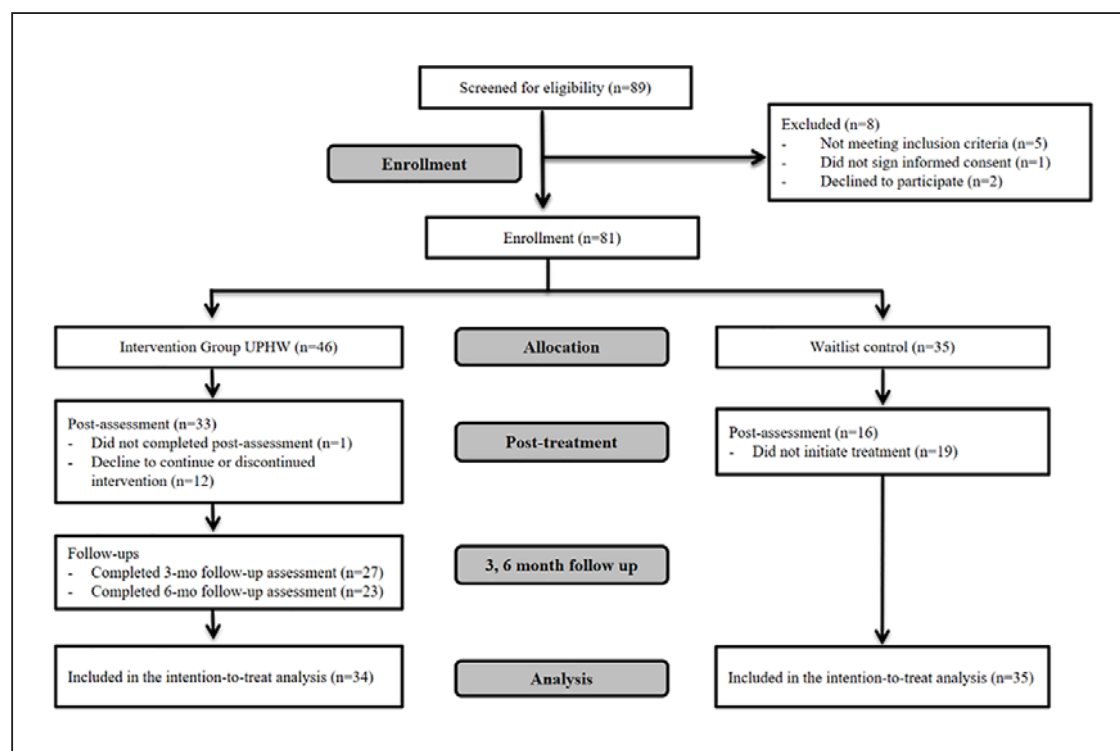


Figure 1. Study CONSORT diagram.

UPHW indicates unified protocol for transdiagnostic treatment of emotional disorders adapted for homeless women.

were diagnosed with a severe mental disorder in active phase (i.e., schizophrenia, bipolar disorder, or an organic mental disorder); (2) were diagnosed with severe cognitive impairment; or (3) were under the influence of alcohol or other substances determined within the assessment instrument and by the trained interviewers at pre-assessment.

The CONSORT diagram is presented in Figure 1. Eight of 89 homeless women assessed for eligibility were excluded from the trial. Of these, five participants failed to meet inclusion criteria, one woman did not sign the informed consent and two participants declined to participate. Of the 81 homeless women who consented to treatment and participated in the study, 33 (71.7%) completed the post assessment in the UPHW group and 16 (45.7%) in the WLC condition. These dropout rates are similar to those found in previous studies (Coldwell & Bender, 2007). Sixty-nine homeless women were included in the analysis: 34 in UPHW and 35 in WLC. Participants' mean age was 49.45 ($SD=9.76$), 47.8% were Spaniards, 40.6% were single, 23.1% had a high education level and 92.8% were unemployed. Regarding homelessness variables, the average age of arrival to a homeless situation was 40 to 45 years ($SD=14.34$), the average total time in a homeless situation was 7.24 years ($SD=9.10$) and the average number of times in a homeless

situation was 1.83 times ($SD=0.69$). No significant differences between UPHW and WLC were found in age ($t_{(67)}=-0.04, p=.97$), nationality ($\chi^2_{(2)}=1.22, p=.54$), education ($\chi^2_{(5)}=3.33, p=.65$), marital status ($\chi^2_{(1)}=2.01, p=.16$), and employment ($\chi^2_{(1)}=0.25, p=.62$). Furthermore, no significant differences between groups were found in the age of arrival to a homeless situation ($t_{(64)}=0.55, p=.59$), in the total time in a homeless situation ($t_{(64)}=0.36, p=.72$), and in the number of times in a homeless situation ($t_{(64)}=0.18, p=.86$). Sample size calculation was conducted a priori using G*Power (v. 3.1). With a medium effect size of 0.40, based on previous studies of the UP in Spain (Osma et al., 2015) and an alpha of 0.05, it was determined that a total sample size of at least 52 participants would be needed to detect significant effects at 95% power.

Treatment

UPHW was an adaptation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011). Consistent with the original protocol, UPHW consists of five core modules: (a) mindfulness emotion awareness, (b) cognitive flexibility, (c) identifying and preventing patterns of emotion avoidance and maladaptive emotion-driven behaviors, (d) increasing awareness and tolerance of emotion-related physical sensations, and (e) interceptive and situation-based emotion focused exposure. These modules are preceded by an initial module focused on enhancing motivation and an introductory module on the adaptive nature of emotions. Treatment content, by session, is shown in Supplemental Table 1.

In this study, UPHW was delivered in group format (small groups of maximum 10 participants) and consisted of 12 weekly face-to-face sessions lasting 1.5 hours, at a rate of one session per week. In general, some modifications related to the structure, activities and contents of the sessions were carried out to fit homeless women needs living in shelters (Marín et al., in press). Information about the therapist and the treatment integrity is provided in Supplemental Table 1.

Assessment

Study assessments were conducted by independent evaluators who were blind to study condition. Assessments were conducted face-to-face and lasted between 60 and 90 minutes in a private office provided by the shelters. Primary outcome measures were severity of anxiety and depression symptoms, as measured by the Beck Anxiety Inventory (BAI) and Beck Depression Inventory-II (BDI-II) respectively. Secondary outcomes measures included:

(1) Emotional functioning was measured by assessing the Positive and Negative Affect Scale (PANAS); (2) Integrative well-being was assessed by the Pemberton Happiness Index (PHI); (3) Health status was measured by the Short Form Health Survey (SF-12); (4) Social support was measured by the Social Support Questionnaire (SSQ6); and (5) Anxiety and depression severity and functional impairment, measured with the Overall Anxiety Severity and Impairment Scale (OASIS) and the Overall Depression Severity and Impairment Scale (ODSIS). A detailed description of the instruments is included in Supplemental Table 1.

Data Analysis

Student *t* and chi-square test were used to analyze baseline differences between groups. Following CONSORT guidelines (Moher et al., 2012), data imputation was performed following Newman's suggestions (2014), using Maximum Likelihood estimation (ML) via Expectation Maximization imputation (EM). The data analysis plan was conducted with SPSS v. 25 following four successive steps. Firstly, analyses of covariance (ANCOVA) were carried out to examine the pre-post intervention effects, using baseline scores as covariates. Secondly, in order to test whether the post-intervention changes remain stable over time, repeated measure ANOVAs were computed for the follow ups (i.e., post intervention, 3-months, and 6-months follow up). Thirdly, repeated measure ANOVA was performed to test post-module changes in depression (ODSIS) and anxiety (OASIS) variables. Finally, in order to improve individual-level analysis and the detection of potential adverse effects of the intervention, the Reliable Change Index was computed using the Jacobson and Truax's index (RCI; Jacobson & Truax, 1991) for the main outcome measures. See Supplemental Table 1 for a detailed description of data imputation, the data analysis procedure, and basic assumptions testing.

Results

Basic Assumptions

The normality assumption was fulfilled only for BDI, PANAS and SF-12 (Kolmogorov-Smirnov >0.05). Homoscedasticity assumption (Levene's test >0.05) and independent assumption (Runs test >0.05) were fulfilled for all the measures. Given that the assumption of normality was only violated for some measures, analyze of variance methods (i.e., ANOVAs and ANCOVAs) remain sufficiently robust and reliable (Schminder et al., 2010).

Pre to post intervention effects

Primary outcome measures (BDI and BAI). ANCOVAs analyses on the baseline-corrected post-intervention scores showed a significant group effect for both depression ($F_{(1, 66)} = 16.90, p < .001, \eta^2_p = 0.20; 1-\beta = 0.98$) and anxiety ($F_{(1, 66)} = 4.79, p = .03, \eta^2_p = 0.07; 1-\beta = 0.58$). Pairwise Bonferroni corrected comparisons indicated that depression and anxiety scores were significantly lower in UPHW than WLC at post intervention (see Table 1).

Secondary outcome measures (PANAS, PHI, SF-12 and SSQ). ANCOVAs analyses on the baseline-corrected post-intervention scores showed a significant group effect for negative affect ($F_{(1, 66)} = 5.18, p = .03, \eta^2_p = 0.07; 1-\beta = 0.61$). Pairwise Bonferroni corrected comparisons indicated that negative affect was significantly lower in UPHW than in WLC at post intervention (see Table 1). However, ANCOVA analyses did not show significant group effect for positive affect ($F_{(1, 66)} = 0.03, p = .88$), psychological well-being ($F_{(1, 66)} = 1.19, p = .28$), physical health ($F_{(1, 66)} = 0.01, p = .92$), mental health ($F_{(1, 66)} = 0.97, p = .33$), general health ($F_{(1, 66)} = 0.41, p = .52$), perceived number of social support ($F_{(1, 66)} = 2.03, p = .16$), and satisfaction with social support ($F_{(1, 66)} = 3.06, p = .09$).

Follow up effects of the UP adaptation for homeless women. Repeated measure ANOVAs were computed to test whether the post changes remain stable over time (i.e., 3-month and 6-month follow up). ANOVAs showed a significant time effect for both depression ($F_{(1.57, 51.90)} = 4.01, p = .033, \eta^2_p = 0.11; 1-\beta = 0.62$) and anxiety ($F_{(2, 66)} = 10.73, p < .001, \eta^2_p = 0.25; 1-\beta = 0.99$). Pairwise Bonferroni corrected comparisons indicated that depression and anxiety reductions after the intervention remained in the 3-month follow up (post to 3-month < 0.05), however, these differences were no longer present at the 6-month follow up (post to 6-month > 0.05) (see Table 1). Regarding negative affect, repeated measure ANOVA also showed a significant time effect ($F_{(2, 66)} = 15.60, p < .001, \eta^2_p = 0.32; 1-\beta = 0.99$), however, pairwise Bonferroni corrected comparisons indicated that negative affect reduction after the intervention vanished in the 3-months and 6-months follow up ($p > .05$).

Post module changes (ODSIS and OASIS). Inter-session means for anxiety (OASIS) and depression (ODSIS) are displayed in Figure 2. Repeated-measures ANOVA showed a significant time effect for both anxiety ($F_{(11, 363)} = 2.30, p = .01, \eta^2_p = 0.07; 1-\beta = 0.95$) and depression ($F_{(11, 363)} = 2.35, p = .008, \eta^2_p = 0.07; 1-\beta = 0.95$). Additionally, polynomial contrasts revealed evidence

Table 1. Presents the Means, Standard Deviations, Effect Sizes, and Coefficient Intervals for Changes from Pre, Post, and Follow Ups Intervention According to Condition ($n = 69$).

	Pre mean (SD)	Post mean (SD)	Pre-post within- group effect size d [95% CI]	Pre-post between- group effect size d [95% CI]	3-month FU mean (SD)	6-month FU mean (SD)	Pre-3 FU within- group effect size d [95% CI]	Pre-6 FU within- group effect size d [95% CI]
<i>Primary outcomes</i>								
BDI	UPHW 20.82 (12.63)	12.83 (9.57)	0.62 [0.93, 0.30]	-0.65 [-1.14, -0.17]	15.56 (11.85)	17.99 (12.03)	0.41 [0.72, 0.10]	0.22 [0.57, -0.14]
	WLC 18.31 (13.87)	20.04 (12.14)	-0.12 [0.18, -0.42]		NA	NA	NA	NA
BAI	UPHW 20.97 (13.39)	12.72 (10.83)	0.60 [0.95, 0.26]	-0.30 [-0.78, 0.17]	14.80 (13.24)	21.11 (12.32)	0.45 [0.76, 0.14]	-0.01 [0.25, -0.27]
	WLC 18.09 (14.07)	15.89 (9.72)	0.15 [0.45, -0.15]		NA	NA	NA	NA
<i>Secondary outcomes</i>								
PA	UPHW 29.65 (11.62)	30.75 (10.18)	-0.09 [0.18, -0.37]	-0.15 [-0.62, 0.33]	33.48 (13.92)	29.45 (11.26)	-0.32 [0.10, -0.74]	0.02 [0.44, -0.41]
	WLC 32.19 (10.52)	32.27 (10.24)	-0.01 [0.38, -0.39]		NA	NA	NA	NA
NA	UPHW 22.47 (9.60)	18.47 (9.12)	0.41 [0.68, 0.13]	-0.46 [-0.94, 0.02]	22.68 (8.95)	25.46 (7.91)	-0.02 [0.25, -0.30]	-0.30 [0.02, -0.63]
	WLC 22.87 (9.12)	23.02 (10.37)	-0.02 [0.31, -0.35]		NA	NA	NA	NA
PHI	UPHW 6.20 (2.24)	6.43 (1.91)	-0.10 [0.14, -0.35]	-0.30 [-0.77, 0.18]	6.16 (1.46)	5.79 (1.93)	0.02 [0.33, -0.30]	0.18 [0.46, -0.11]
	WLC 6.54 (2.10)	7.00 (1.89)	-0.22 [0.08, -0.51]		NA	NA	NA	NA
SF-12	UPHW 52.57 (26.30)	60.77 (28.13)	-0.30 [0.10, -0.70]	-0.19 [-0.67, 0.28]	61.61 (32.67)	63.13 (25.57)	-0.34 [0.03, -0.71]	-0.39 [-0.10, -0.68]
	WLC 64.46 (26.03)	65.60 (20.99)	-0.04 [0.31, -0.40]		NA	NA	NA	NA
SF-12	UPHW 53.64 (28.80)	62.31 (25.93)	-0.29 [0.08, -0.67]	0.03 [-0.44, 0.50]	64.36 (23.64)	55.68 (27.69)	-0.36 [0.08, -0.81]	-0.07 [0.25, -0.39]
	WLC 62.95 (25.82)	61.69 (23.15)	0.05 [0.31, -0.22]		NA	NA	NA	NA
SF-12	UPHW 53.11 (24.07)	61.54 (24.20)	-0.34 [0.03, -0.71]	-0.10 [-0.57, 0.37]	63.09 (24.25)	59.41 (24.50)	-0.41 [0.01, -0.82]	-0.26 [0.03, -0.54]
	WLC 63.71 (20.02)	63.64 (17.22)	0.00 [0.30, -0.29]		NA	NA	NA	NA
SSQ-N	UPHW 1.40 (0.93)	1.39 (1.80)	0.02 [0.33, -0.30]	-0.32 [-0.79, 0.15]	1.19 (1.46)	1.23 (1.96)	0.22 [0.54, -0.10]	0.18 [0.66, -0.30]
	WLC 1.52 (1.16)	2.11 (2.57)	-0.49 [-0.25, -0.73]		NA	NA	NA	NA
SSQ-S	UPHW 4.52 (1.44)	4.12 (1.71)	0.27 [0.63, -0.09]	-0.52 [-1.00, -0.04]	3.97 (2.13)	3.69 (2.47)	0.37 [0.74, -0.00]	0.56 [0.99, 0.13]
	WLC 4.93 (1.26)	5.01 (1.68)	-0.06 [0.22, -0.35]		NA	NA	NA	NA

Values marked in bold indicate significant effect sizes based on the confidence intervals (CI), which do not include zero. BDI = depression; BAI = anxiety; PA = positive affect; NA = negative affect; PHI = well-being; SF-12 PH = physical health; SF-12 MH = mental health; SF-12 GH = general health; SSQ-N = social support number; SSQ-S = social support satisfaction.

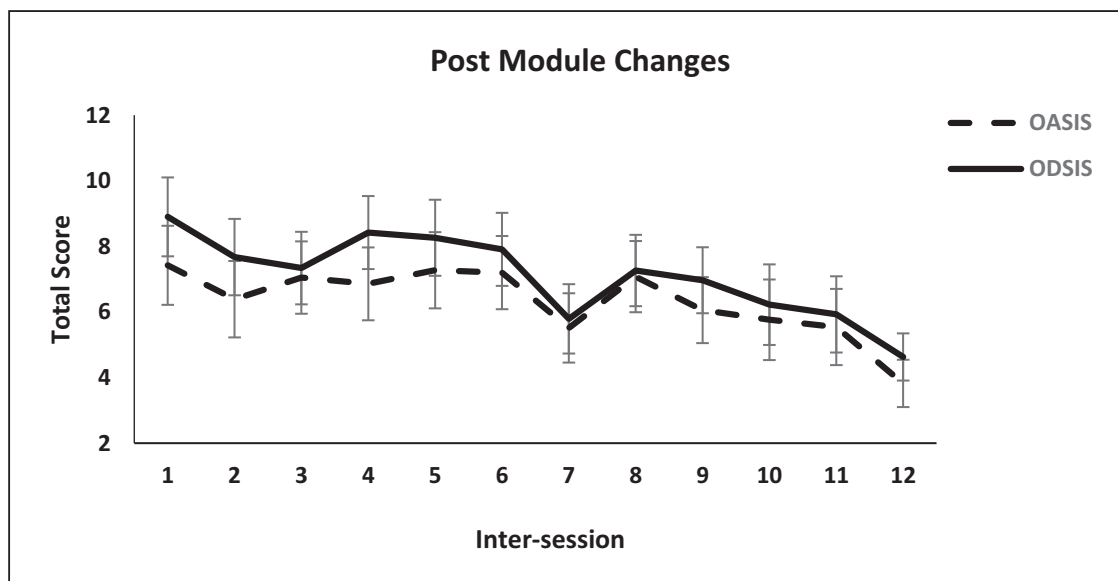


Figure 2. Inter-session means for anxiety (OASIS) and depression (ODSIS). The error bars represent the standard error for each 95% confidence interval.

for a linear trend on both anxiety ($F_{(1,33)} = 11.54, p = .002, \eta^2_p = 0.26; 1-\beta = 0.91$) and depression ($F_{(1,33)} = 13.62, p = .001, \eta^2_p = 0.29; 1-\beta = 0.95$).

Reliability of the clinical changes

Changes in depression (RCI for BDI). The RCI analyses indicated that there were significant differences between groups in the proportion of participants achieving a functional change on depression ($\chi^2_{(1)} = 6.02, p = .01$), showing that the percentage of participants in UPHW group achieving functional changes (78.8%) was larger than in WLC (43.8%). Secondly, significant differences between group were also found in the reliability of change in depression ($\chi^2_{(2)} = 7.68, p = .02$), revealing that the percentage of participants achieving reliable changes in depression was larger in UPHW (48.5%) than in WLC (18.8%). Furthermore, the percentage of participants deteriorated after the intervention was significantly larger in WLC (25%) than in UPHW (3%). Finally, Figure 3 shows that there were significant differences between UPHW and WLC in clinical change in depression ($\chi^2_{(3)} = 8.48, p = .03$), where UPHW showed a higher number of participants recovered whereas WLC showed a higher number of no change and deteriorated participants.

Changes in anxiety (RCI for BAI). Unlike depression, the RCI analyses indicated that the groups did not differ in the proportion of participants achieving a functional change on anxiety ($\chi^2_{(1)} = 0.003, p = .95$). Similarly, no significant differences between UPHW and WLC were found in the reliability of

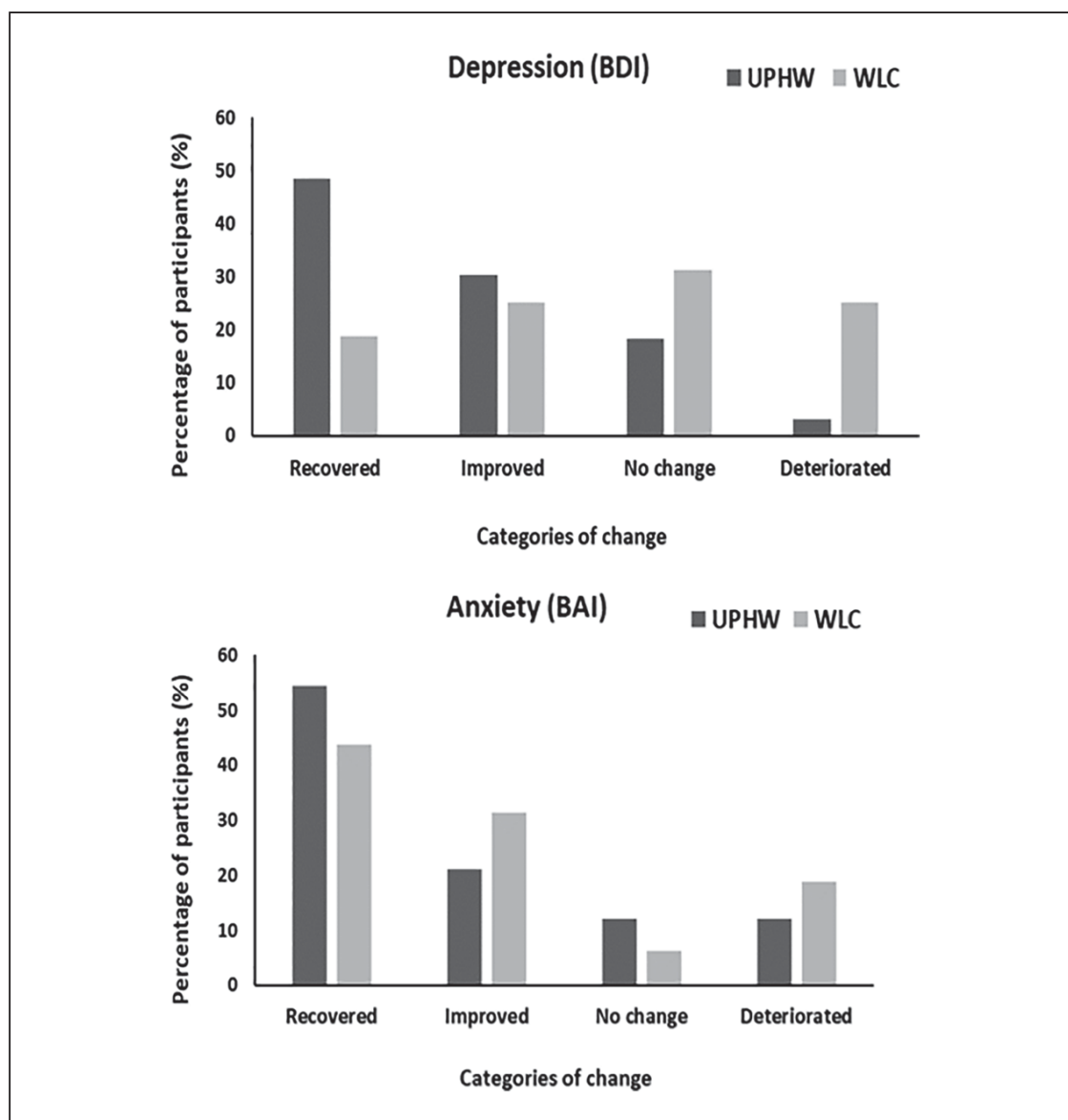


Figure 3. Reliable change index for primary outcomes measures. UPHW = unified protocol for homeless women; WLC = wait-list control period.

change in anxiety ($\chi^2_{(2)}=0.63, p=.73$). Finally, Figure 3 shows that no significant differences between groups was found in clinical change in anxiety ($\chi^2_{(3)}=1.39, p=.71$).

Discussion

Despite high rates of mental health problems and comorbidity in homeless people, there is a lack of evidence-based treatments adapted to specifically address the idiosyncratic characteristics of this population. Thus, the aim of this study was to evaluate the effectiveness of a group format adaptation of

the Unified Protocol for homeless women. Transdiagnostic treatments in general, and the UP in particular, have supported this, as an effective alternative to traditional psychological treatments to address the difficulties arising from the interaction between the mental health problems and the lack of socioeconomic resources.

As predicted, the results of this study provide initial support for the use of UPHW adaptation for homeless women as an effective treatment to reduce psychological distress in this population. Homeless women receiving the UPHW demonstrated significant reductions of anxiety and depression symptoms when compared to WLC, as well as significant reductions in negative affect. Furthermore, effect size estimations suggest that the magnitude of treatment improvements were medium range ($d_{\text{negative affect}} = 0.4$; $d_{\text{anxiety}} = 0.60$; and $d_{\text{depression}} = 0.62$ symptoms). Interestingly, the reliability of the clinical changes showed significant differences between UPHW and WLC for depression; participants receiving the UPHW evidenced greater recovery (almost 50% of the cases) whereas participants in the WLC were more likely to show no change (31%) or deterioration (25%). However, no significant group differences were found in anxiety symptoms.

In terms of anxiety symptoms, the results found in our study are similar to those obtained in group format UP (Bullis et al., 2015; Osma et al., 2015) and individual UP (de Ornelas, et al., 2013; Farchione et al., 2012). We also found similar effect sizes in terms of depression (Osma et al., 2015) and negative affect (Farchione et al., 2012). In contrast with a previous study, where the effects of interventions for improving mental health outcomes in homeless people were limited (Baxter et al., 2019), our intervention for homeless women resulted in significant reductions in depression, anxiety and negative affect. These preliminary results suggest that the adapted UPHW may be an effective intervention for improving mental health in homeless people. Future studies should explore the transdiagnostic processes that could be responsible for these changes (e.g., negative and positive affect, emotional regulation, social support, etc.), analyzing the mediators and moderators of change in this intervention.

We did not find significant changes in positive affect following treatment. Some studies have reported improvements in positive affect following treatment with the UP (Farchione et al., 2012; Reinholt et al., 2017) whereas others have not (Ellard et al., 2010; Ito et al., 2016). The most recent version of the UP (Barlow, et al., 2018) places greater emphasis on reducing avoidance of positive emotions (e.g., “I do not deserve to be happy”). Nevertheless, the version of the UP used in our study (Barlow et al., 2011) is mainly focused on decreasing negative emotions such as anxiety and depression, and it gives little attention to the cultivation of positive emotions. Given the nature of emotions (i.e., positive and negative emotions do not exist on a bipolar

continuum), the absence of changes in positive affect is not unusual. Although speaking of positive emotions and well-being in homeless people might seem inappropriate (e.g., “enough to survive to ask them to be happy”), it does seem to be an important factor to explain the mental health in this population (Panadero et al., 2015). For instance, Munoz et al. (2016) found that positive emotions contribute to health and wellbeing perceptions among homeless people, being an important mediator of quality of life. For this reason, future studies using UPHW should take into account positive affect and place a greater emphasis on increasing positive emotions while administering the primary treatment components.

Homeless women continued to show improvements in anxiety and depression symptoms 3 months following the end of intervention, lending preliminary support of its to the durability of the treatment effects over time. However, these improvements were no longer present at 6-month follow up. Most studies of the UP have found that reductions in anxiety and depression are maintained after 6 months (Barlow et al., 2017; Farchione et al., 2012), with some studies even demonstrating maintenance of treatment gains over longer periods of time (Bullis et al., 2014). However, the clinical severity of the homeless population may be more significant than other clinical population, showing higher rates of anxiety and depression (Farchione et al., 2012). These differences may be due to the interaction between social exclusion and mental health problems, including the high rates of stressful life events to which these women are exposed every day, and the high rates of dual-diagnosis, among others. In fact, traumatic events and stress associated with experiences of homelessness may aggravate mental health problems (Duke & Searby, 2019; Rodriguez-Moreno et al., 2020), which in turn influence homelessness chronicity (Roca et al., 2019). Future studies should consider ways to improve long-term maintenance of treatment gains, such as introducing a “booster” session after the termination of treatment (e.g., 1 session after 2 and 4 months) to remind patients to practice treatment skills over time and help address new difficulties or stressors that they may encounter during the follow-up period.

We also predicted that the reductions in anxiety and depression symptoms would lead to improvements across a number of secondary outcome variables, such as well-being, health, and social support. Contrary to our expectations, we did not find significant changes in well-being, health variables and social support after the treatment. These results make sense since the UPHW version used in this study does not include specific modules aimed at improving these components, furthermore, these aspects can take time to change. However, all of these variables are especially relevant in homeless population. For this reason, future studies should consider introducing specific content, or additional treatment modules, to specifically address health care

issues and strengthen social support networks in this population. For instance, some of the examples of adaptive emotion regulation in the original UP are related to enjoying activities with family or friends or doing activities that require physical mobility. Unfortunately, some of these basic elements of well-being may not always be present for homeless people. Social support networks, for example, may have dissolved or are very weak. Further, rates of physical conditions and disabilities tend to be high in this population. Thus, psychological interventions would constitute a key component of multifactorial community-based programs, together with other crucial structural factors such as housing or employment reintegration (Wickham, 2020). For instance, Housing First programs would benefit from the inclusion of psychological interventions like the UP (Tsemberis et al., 2004).

The results of the present study must be interpreted at the light of some methodological limitations. First, due to difficulties in recruiting participants across different treatment locations, we were unable to randomly assign participants to study condition. Thus, we cannot attribute with absolute certainty that the effects reported are due primarily to the intervention, as opposed to other additional variables, hence leading to potential risk of bias. Of course, randomized controlled trials are considered the “gold standard” for causal inference in health sciences, however, when interventions are applied to real-world community settings, such as the homeless shelters outside the idealized academic settings, its implementation is much more complex. Although many challenges were identified and addressed during the adaptation of the protocol, there were a number of implementation barriers encountered during the trial. The group format, together with the high dropout rates, made it difficult to form small groups (i.e., five participants). Given the risk that the group would eventually dissolve as treatment progressed (e.g., finishing the intervention with only two participants), we decided to delay the start of treatment until almost 10 participants began treatment at one time. The nomadic nature and the idiosyncratic characteristics of homeless population made continuity in the intervention more complex, as well as being able to locate participants for follow-up evaluations (e.g., some women changed the shelter or the city and it was not possible to contact them). Finally, homelessness generally leads to unstructured schedules, which made difficult the delivery of the intervention in terms of scheduling sessions and maintaining attendance. Other study limitations were as follows: (1) we did not use a structured interview to diagnose patients as it was considered too long for the population characteristics. Instead, we confirmed the referring diagnoses with the psychologist of the shelter; (2) the present study did not include an active treatment comparison, making it difficult to tease out the effect of common therapeutic factors (e.g., adherence, expectations, therapist attention, etc.); and (3) all participants were women, so future

studies should include men in order to assess if there are gender differences in the response to the UPHW.

These limitations notwithstanding, to our knowledge this is the first UP adaptation for homeless women in a group format, with data at 3-month and 6-month follow-up. The positive results achieved with this protocol have clinical implications, as protocols of this type could help reduce the burden on shelters, where there is usually only one psychologist on staff. Furthermore, the group format of the UPHW used in this trial fit especially well with the structure and needs of homeless shelters (i.e., cost-effective interventions). As observed in de Ornelas and colleagues' study (2013), participants felt like part of a group with the same characteristics, which encouraged them to share information and improve their social support networks. While previous treatments for homelessness have focused more on structural factors (Hwang & Burns, 2014), we have adapted a purely psychological treatment to directly address the psychological needs of the population. Finally, we believe our study makes an important contribution to the current literature on transdiagnostic protocols in socially excluded populations (Sauer-Zavala et al., 2019).

Conclusion

The preliminary results of our study suggest that the UPHW adaptation for homeless women can be a feasible and effective treatment for depression, anxiety and negative affect in this population. Further research is warranted to replicate our findings and to provide additional evidence of its efficacy and effectiveness in other groups of people who experience social exclusion situations. Furthermore, these data encourage us to perform clinical trials to establish the effectiveness of the UP in group format not only in clinical populations, but also in social settings.

Authors' Note

Author Agreement: All authors have seen and approved the final version of the manuscript being submitted.

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Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr Farchione reported receiving royalties from Oxford University Press as one of the authors of the Unified Protocol. He also receives research support from the National Institute of Health. No other disclosures were reported.

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Supplemental Material

Supplemental material for this article is available online.

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CHAPTER 10:

Mediators and moderators of therapeutic change in the Unified

Protocol for women experiencing homelessness

Rodriguez-Moreno, S., Guillén, A. I., Tirpak, J. W., Marín, C., Cardona, N. D., Eustis E. H., Farchione, J. T., Barlow, D., & Panadero, S. (under review). Mediators and moderators of therapeutic change in the Unified Protocol for women experiencing homelessness. *Journal of Affective Disorders*.

Finally, we carried out the last article of this doctoral dissertation. There is a long tradition in clinical science of studying the processes and mechanisms of change underlying psychological interventions (Kazdin, 2007). In fact, previous studies have shown that understanding potential mediators and moderators of treatment outcomes may be critical to improving the efficacy of existing psychological treatments (Kazdin, 2007, 2009). Identifying mechanisms underlying therapeutic change (e.g., emotion regulation) may be particularly important for transdiagnostic interventions such as the UP (Khakpoor et al., 2019). Moreover, identifying common moderators of treatment response, such as individual baseline characteristics that impact efficacy, may be critical for optimizing and personalizing psychological interventions (see Weisz et al., 2012). In an effort to expand much-needed research on mechanisms of change in psychological interventions (Kazdin, 2009; Nielsen et al., 2018), we decided to examine the mediators and moderators of change in the UPHW.

Mediators and moderators of therapeutic change in the Unified Protocol for women experiencing homelessness

Journal of Affective Disorders (under review)

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Abstract

Background: The general aim of the study was to examine potential mediators and moderators of change in an adaptation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for Homeless Women (UPHW).

Methods: A sample of 80 women experiencing homelessness participated in the study: 37 in the UPHW experimental condition and 43 in the waitlist control condition. The program consisted of 12 face- to-face group sessions lasting 1.5 hours, at a rate of one session per week. The assessment before and after the program included primary outcomes (anxiety and depression) and secondary outcomes, including different potential mediators (positive and negative affect, well-being, and social support) as well as potential moderators (demographics, homelessness, physical function, drug and alcohol abuse).

Results: The UPHW showed significant improvements on anxiety and depression outcomes at post-intervention compared to waitlist control condition. Negative affect was the only significant mediator of the relationship between the UPHW and reductions in anxiety and depression symptoms. In moderator analyses, physical functioning was the only significant moderator of the relationship between the UPHW and depression symptoms.

Limitations: It was not feasible to randomly assign participants in all of the shelters given the small number of women in some of them.

Conclusions: To our knowledge this is the first study examining potential mediators and moderators of change in an evidence-based psychological treatment in a population experiencing homelessness. Findings suggest that transdiagnostic protocols may be a promising approach to improving psychological outcomes in this population.

Keywords: homelessness, homeless women, transdiagnostic treatment, unified protocol, mechanism of change, moderators.

Though individuals facing housing instability and homelessness make up a heterogeneous group, experiences of homelessness are nonetheless characterized by extreme poverty and social exclusion. Therefore, individuals experiencing homelessness represent an extremely vulnerable population, with high rates of physical morbidity, psychological morbidity, and all-causes mortality (Nilsson et al., 2018).

Homelessness and mental disorders are strongly linked, as a high proportion of people experiencing homelessness live with mental disorders, and individuals suffering from mental disorders are at higher risk of becoming homeless (Fazel et al., 2008; Mejia-Lancheros et al., 2020). Several studies have reported higher levels of psychotic disorders (Ayano et al., 2019; Fazel et al., 2008), personality disorders (Fazel et al., 2008), and alcohol- and substance use disorders in homeless individuals relative to the general population (Fazel et al., 2008; Guillén et al., 2020). Higher rates of post-traumatic stress disorder (PTSD) as well as current and lifetime stressful events were also observed at much higher levels in the homeless population compared to the national average (de Vries et al., 2018).

Though both men and women experiencing homelessness report high rates of mental health problems, psychopathology may have a greater prevalence among women experiencing homelessness, and lead to unique and serious negative public health concerns. Winetrobe et al. (2017), in observing the high rates of chronic physical and mental health problems in adults experiencing homelessness, highlighted that women experiencing homelessness had poorer health than homeless men, with greater numbers of chronic physical and mental health diagnoses. Evidence suggests that women experiencing homelessness present with higher levels of anxiety and depression (Phipps et al., 2019), and are also twice as likely as men experiencing homelessness to develop PTSD (de Vries et al., 2018). Moreover, for women experiencing homelessness the

highest excess mortality was associated with mental disorders (Nilsson et al., 2018), with a substance use disorder mortality five times higher than that of the general population (Nusselder et al., 2013). Women experiencing homelessness also tend to present with more than one mental disorder when compared to men experiencing homelessness (Panadero et al., 2018; Teesson et al., 2004; Torchalla et al., 2014). The high rates of mental disorders and high comorbidity among women experiencing homelessness represent a global mental health problem and an urgent issue which warrants immediate attention.

While there have been notable efforts to address specific mental health difficulties amongst homeless populations (McPherson et al., 2018), transdiagnostic approaches might represent a particularly well-suited approach to address the range of psychiatric comorbidity among disorders evidenced in the women experiencing homelessness population. Among transdiagnostic programs, the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2011) has gathered significant empirical support. Established evidence supports the UP as a flexible cognitive-behavioral intervention for a wide range of emotional disorders (e.g., anxiety, depression, borderline personality disorder) (Barlow et al., 2017; Bullis et al., 2019; Cassiello-Robbins et al., 2020; Sakiris and Berle, 2019), that can be applied in both in person (Barlow et al., 2017; Farchione et al., 2012), group (Bullis et al., 2015; Osma et al., 2015; Reinholt et al., 2017), and internet-based formats (Sauer-Zavala et al., 2020). Although originally designed and evaluated for treatment with outpatients, emerging research suggests its feasibility as well as some efficacy in adaptations for inpatient (see Bentley et al., 2017), residential (Cassiello-Robbins et al., 2020), and community and social settings (Marín et al., 2021; Rodriguez-Moreno et al., 2020; Sauer-Zavala et al., 2019).

Understanding potential mediators and moderators of treatment outcomes may be critical to improving the efficacy of existing psychological treatments (Kazdin, 2009, 2007), which seeks to answer Gordon Paul's classic question: "*What treatment, by whom, is most effective for this individual with that specific problem, under which set of circumstances, and how does it come about?*" (Paul, 1969, p. 44). Identification of mechanisms of change in treatment may be particularly important for transdiagnostic interventions, such as the UP, given the emphasis on underlying core processes. Thus far, working alliance (Sauer-Zavala et al., 2018), hope (Gallagher et al., 2020), experiential avoidance (Eustis et al., 2020), negative affect (Talkovsky and Norton, 2018), or emotion regulation (Khakpoor et al., 2019), among others, have been identified as potential mediators in CBTs among heterogeneous samples. As far as we know, no studies to date have examined mediators of change in CBT or transdiagnostic treatments for homeless populations.

In addition, identifying common moderators of treatment response, such as baseline characteristics of the individual that impact the effectiveness of treatment, may be critical for the optimization and personalization of psychological interventions (see Cuijpers et al., 2012; Simon & Perlis, 2010; Weisz et al., 2012). With regards to the UP, greater symptom severity at baseline tend to predict less change over the course of treatment (see Cassiello-Robbins et al., 2020); however, readiness to change may moderate the relationship between baseline symptom severity and overall change in treatment (Boswell et al., 2012). Further, Conklin et al. (2015) found that gains in adaptive emotional regulation strategies after the UP were significantly associated with lower post-treatment psychopathology in a sample with co-morbid anxiety and substance use. Finally, higher levels of emotional suppression at baseline may also moderate the impact of the UP on anxiety symptoms reductions (Hosogoshi et al., 2020). Again,

research is needed not only on common moderators of treatment outcome, but also moderators that may be specific to women experiencing homelessness and their unique material, physical, and social vulnerabilities.

Therefore, the aim of the current study was to examine potential mediators and moderators of change in an adaptation of the UP for women experiencing homelessness in Madrid (Spain). We tested whether changes in positive and negative affect, well-being, and social support mediated the changes in anxiety and depression symptoms after the UP treatment. Affective states (Talkovsky and Norton, 2018), well-being variables (Sun et al., 2020), and social support (Stevens et al., 2013) have been shown to mediate mood symptoms across different populations, and have been found to be relevant variables for the homeless population (Hwang et al., 2009; Panadero et al., 2013). Based on this, and given the lack of existing data on mediators in samples of people experiencing homelessness, we decided to examine these variables as potential mediators in this population. Drawing from previous research on the UP, we hypothesized that reductions in negative affect would be the main mechanism mediating the relationship between the UP and changes in anxiety and depression symptoms (Sauer-Zavala et al., 2012). Furthermore, we tested whether baseline characteristics (demographics, homelessness, physical function, drug and alcohol abuse) would moderate treatment effects. These variables were selected since housing status (Oudshoorn et al., 2018), physical function (Tinland et al., 2018), and drug and alcohol abuse (Guillén et al., 2020) have been shown to be related to poorer mental health in the homeless population. We also hypothesized that these variables would moderate the relationship between the UP and changes in anxiety and depression symptoms.

Method

Participants

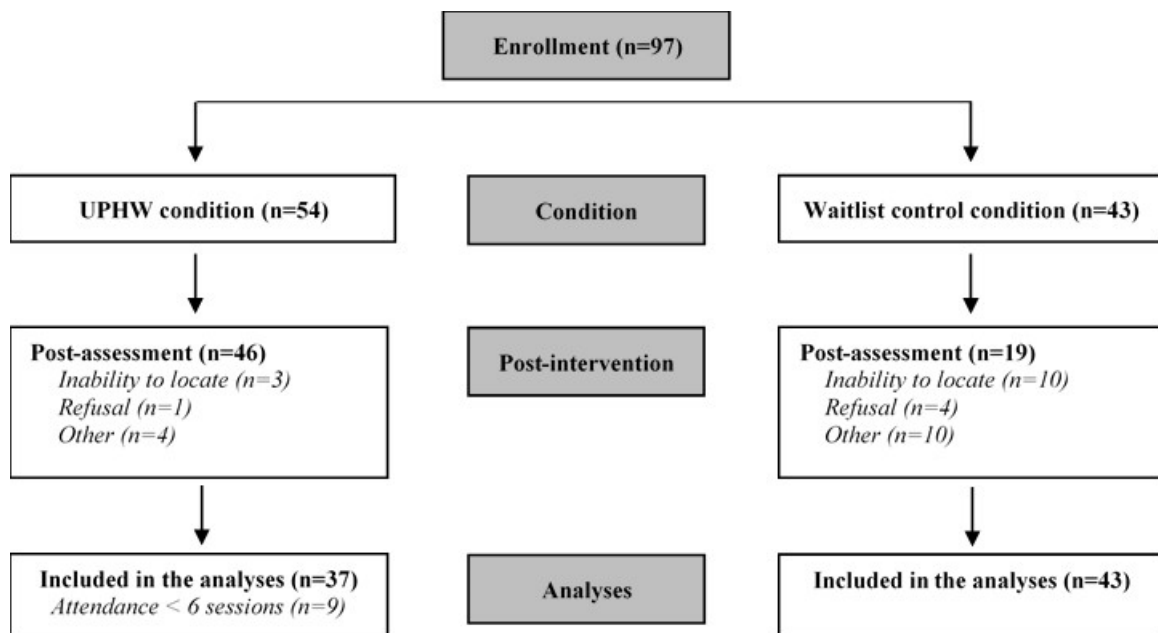
Figure 1 shows the participant flow diagram. Of the 97 women experiencing homelessness who consented to treatment and participated in the study, 46 (85.18%) completed the post-assessment in the Unified Protocol for Homeless Women (UPHW) experimental condition and 19 (44.19%) in the Waitlist control condition (WLC). Finally, 80 women experiencing homelessness were included in the current analyses: 37 in the UPHW and 43 in the WLC. Only women who had attended at least 6 of the 12 sessions were included in the analyses (i.e., minimal treatment exposure), as reported in Rodriguez-Moreno et al. (2020). Participants were recruited across four shelters in Madrid and the surrounding areas. The study was originally planned as a randomized controlled trial, however, the number of women experiencing homelessness in some shelters was insufficient to permit adequate randomization. Therefore, randomization 1:1 was conducted only in those shelters where the number of women experiencing homelessness was large enough to generate two conditions.

Participants in both conditions were compared on demographic and homelessness characteristics at baseline. No significant differences between conditions were found in age ($t_{(78)} = 0.181, p = .857$), nationality ($\chi^2_{(1)} = 0.679, p = .410$), education ($\chi^2_{(1)} = 0.250, p = .617$), or marital status ($\chi^2_{(2)} = 3.513, p = .173$). Moreover, no significant differences were found in the age of arrival to a homeless situation ($t_{(75)} = -0.453, p = .652$), in the total time in a homeless situation ($t_{(75)} = -0.277, p = .782$), or in the number of times in a homeless situation ($\chi^2_{(2)} = 1.720, p = .423$).

Eligible participants were female Spanish-speaking adults (18 years or older) who had access to shelters where the intervention was provided. Moreover, the participants were included in the study if they (1) did not present with severe cognitive impairment;

(2) were not diagnosed with a serious mental disorder in the active phase (i.e. schizophrenia, bipolar disorder or an organic mental disorder); and (3) were not under the influence of alcohol or other substances when the pre-assessment was carried out. These women all met criteria for categories 1, 2, 3 or 4 of the ETHOS (European Typology of Homelessness and Housing Exclusion) typology (Amore et al., 2011), contemplated in the proposal made by FEANTSA (European Federation of National Organizations that work with Homeless). Therefore, participants were women in one of the following living situations: (1) women who lived outdoors (on streets, public space or outside); (2) women in emergency accommodations (without habitual place of residence that make night use of shelters); (3) women in accommodations for homeless people (i.e., living in short to medium length stays in shelters for homeless individuals, temporary accommodations or temporary supportive accommodations); or (4) stable housing programs, in which women are moved to their own accommodations). Unlike Rodriguez-Moreno and collaborators research (2020) where we included women experiencing homelessness in Ethos categories 1, 2 and 3, in this study we have also added the women experiencing homelessness who are in Ethos category 4. In this way, we could know if the accommodation situation acted as a moderator in the therapeutic change in the UP.

Figure 1: Participant flow diagram.



Treatment

For this study, the UP was adapted to better fit homeless women's needs living in shelters (see more details in Marín et al., 2021). However, the UPHW retained the 5 core intervention modules of the UP: (1) mindful emotion awareness, (2) cognitive flexibility, (3) identifying and preventing patterns of emotion avoidance, (4) increasing awareness and tolerance of emotion related physical sensations, and (5) interoceptive and situational emotion-focused exposures. These modules are preceded by an initial module focused on enhancing motivation and an introductory module on the adaptive nature of emotions. The UPHW was delivered in group format (maximum of 10 participants per condition) and consisted of 12 weekly face-to-face sessions lasting 1.5 hours, at a rate of one session per week. The average attendance was 9.6 sessions. All procedures were approved by the University Ethics Committee of Complutense of Madrid (Ref. 2017/18-004) and the trial was registered at clinicaltrials.gov as XXX.

Measures

The procedure included the completion of in-person pre- and post-assessments before the intervention (i.e., pre-assessment) and after its completion (post-assessment),

Primary outcomes

Change in anxiety symptomatology (continuous variable) was assessed using the Beck Anxiety Inventory (BAI; Beck & Steer, 1993); Spanish adaptation (Magán et al., 2008), at pre- and post-intervention. The internal consistency of the Spanish version has been found to range from .85 to .94. In the current study, the internal consistency of the BAI was $\alpha = .88$.

Change in depressive symptomatology (continuous variable) was assessed using the Beck Depression Inventory (BDI-II; Beck et al., 1990); Spanish adaptation (Sanz et al., 2003), at pre- and post-intervention. The Spanish version has shown good internal consistency ($\alpha = 0.86$). In the current study, the internal consistency of the BDI-II was $\alpha = .90$.

Secondary outcomes

a) Mediator variables

Change in positive and change in negative affect (continuous variable) were assessed using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988); Spanish adaptation (López-Gómez et al., 2015), at pre- and post-intervention. The internal consistency of the Spanish version was $\alpha = .92$ for positive affect subscale and $\alpha = .88$ for negative affect subscale. In the current study, Cronbach's alpha was $\alpha = .89$ the positive affect subscale, and $\alpha = .83$ for the negative affect subscale.

Change in well-being (continuous variable) was assessed using the Pemberton Happiness Index (PHI; Hervás and Vázquez, 2013), at pre- and post-intervention. The

Cronbach's alpha of Spanish version was $\alpha = .84$. In the current study, the internal consistency of the PHI was $\alpha = .84$.

Changes in quantity of social support and change in satisfaction with social support (both continuous variables) were assessed using the Social Support Questionnaire (SSQ6; Sarason et al., 1987); Spanish adaptation (Martínez-López et al., 2014), at pre- and post-intervention. The internal consistency of the Spanish version was $\alpha = 0.90$ for quantity of social support subscale and $\alpha = .93$ for satisfaction with social support. In the current study, the internal consistency of the SSQ6 was $\alpha = .90$.

b) Moderator variables

Demographic variables assessed as possible moderators included age (continuous variable), nationality (dichotomous variable; 0 = Foreign nationality, 1 = Spanish nationality), and completed educational level (dichotomous variable; 0= less than secondary education, 1= more than secondary education), at pre-intervention.

Homelessness variables that were assessed as possible moderators were duration of homelessness (continuous variable), age at which one experienced homelessness for the first time (continuous variable), number of episodes of homelessness (multicategorical variable with the following categories: 0 = one episode, 1= between one and five episodes, 2 = more than five episodes), and type of accommodation (dichotomous variable; 0 = housing programs, 1 = shelters), at pre-intervention.

Physical function (continuous variable) was assessed using the subscale from the SF-12 Health Questionnaire (Ware et al., 1996); Spanish adaptation (Vilagut et al., 2008), at pre-intervention. The internal consistency of the Spanish version was $\alpha = .85$ for Physical function. In the current study, Cronbach's alpha was $\alpha = .82$.

Drug abuse (continuous variable) was assessed using the Drug Abuse Screening Test score (DAST-10; Skinner, 1982); Spanish adaptation (Pérez et al., 2010), at pre-

intervention. The Spanish version has shown good internal consistency ($\alpha = 0.89$). In the current study, the internal consistency of the DAST-10 was $\alpha = .74$.

Alcohol abuse (continuous variable) was assessed using the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993); Spanish adaptation (Rubio et al., 1998), at pre-intervention. The Cronbach's alpha of Spanish version was $\alpha = .86$. In the current study, the internal consistency of the AUDIT was $\alpha = .90$.

Statistical analysis

The treatment of missing data was conducted following recommendations by Hair et al. (2014). After determining the type and extent of missing data, the diagnosis of randomness was carried out by using Little's MCAR test. Results showed that the missing data could be classified as missing completely at random ($\chi^2 (54) = 66.80, p = .113$), and thus suitable for imputation. Multiple Imputation (by using linear regression) was used to replace the missing data.

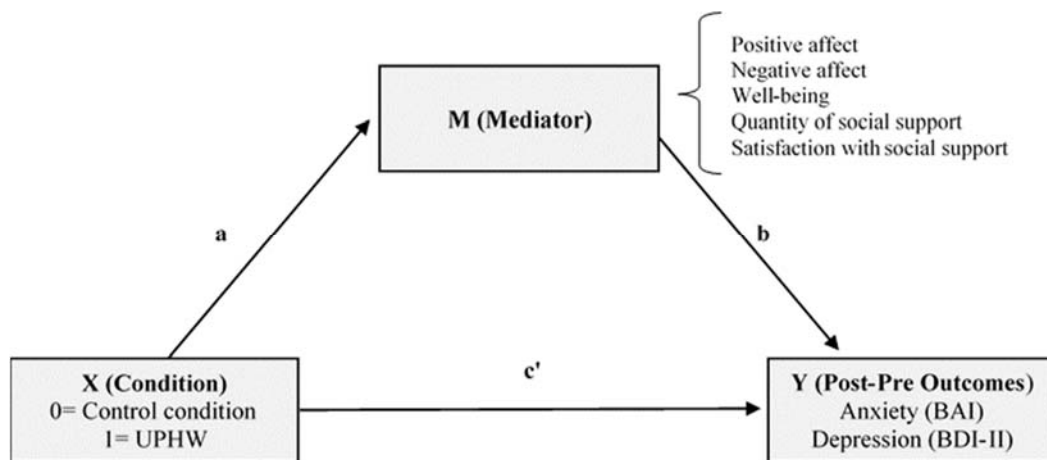
G*Power v. 3.1.9.4 was used to calculate post hoc statistical power. With a significance level of .05, a sample size of 80, and a medium effect size of .40 based on previous studies of the UP in Spain (Osma et al., 2015), we found a statistical power value of 99% for regression analysis.

Mediation and moderation analyses were performed using the PROCESS macro for SPSS version 3.4.1 (Hayes, 2017). Assumptions of linearity, normality, homoscedasticity and independence were previously checked. All analyses were based on 5000 bootstrapping samples with 95% confidence intervals.

The conceptual diagram of the simple mediation analyses is represented in Figure 2. The change score (pre-intervention to post-intervention) on the primary outcome measures BAI and BDI-II were entered as the dependent variables. The variable representing condition (UPHW = 1, WLC = 0) was entered as the independent variable.

The five potential mediators for the analyses were change scores from pre-intervention to post-intervention on measures of positive affect, negative affect, well-being, quantity of social support, and satisfaction with social support. In the mediation analysis for each primary outcome measure, an indirect effect was considered significant when the CI did not include zero. To control for variation in outcome scores, the pre-intervention scores of BAI and BDI-II were entered as covariates in the corresponding mediation analysis.

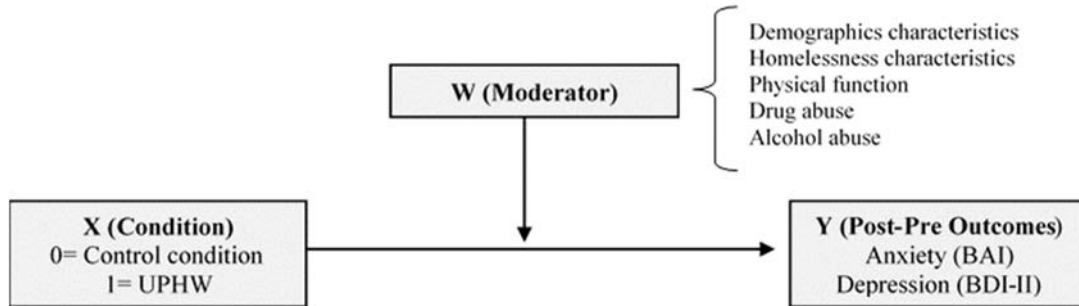
Figure 2. Conceptual diagram of the mediation analyses.



The conceptual diagram of the simple moderation analyses is represented in Figure 3. The change score (pre-intervention to post-intervention) on the primary outcome measures BAI and BDI-II were entered as the dependent variables. The variable representing condition (UPHW = 1, WLC = 0) was entered as the independent variable. The potential moderators for analyses were age, nationality, educational level, duration of homelessness, age experiencing homelessness for the first time, number of episodes of homelessness, accommodation, physical function at pre-intervention, drug abuse at pre-intervention, and alcohol abuse at pre-intervention. Following Hayes' (2017) guidelines, the two levels of dichotomous variables were recorded as -0.5 and 0.5 rather than dummy coding them 0 and 1. To control for variation in outcome score, the pre-intervention

scores of BAI and BDI-II were also entered as covariates in the corresponding moderation analysis.

Figure 3. Conceptual diagram of the moderation analyses.



Results

Mediation analyses

Table 1 shows the results of mediation analyses on the primary outcome measure BAI. Participants in the UPHW intervention, as compared to the WLC, showed significantly greater improvement on anxiety outcomes post-intervention (total condition effect $\beta = -4.52, p < .05$). Examination of specific indirect effects showed that the effect of the condition on anxiety was only mediated significantly by changes in negative affect (Effect = $-1.45, 95\% \text{ CI} = -3.62, -0.03$).

Table 2 shows the results of mediation analyses on the primary outcome measure BDI-II. Participants in the UPHW intervention, as compared to the WLC, showed significantly greater improvement on depressive outcomes post-intervention (total condition effect $\beta = -6.587, p < .01$). Examination of specific indirect effects showed that the effect of the condition on depressive outcome was significantly mediated by changes in negative affect (Effect = $-1.82, 95\% \text{ CI} = -4.35, -0.12$).

Table 1

Results of mediation analyses for the UPHW intervention on the outcome measure BAI compared to control condition.

	c'-path Coefficient	a-path Coefficient	b-path Coefficient	Bootstrap results for indirect effects (95 % CI)		
				Effect	Lower	Upper
Positive affect (PANAS-PA)	-4.03*	3.33	-0.15	-0.49	-1.65	0.21
Negative affect (PANAS-NA)	-3.07	-3.91	0.37***	-1.45*	-3.62	-0.03
Well-being (PHI)	-4.20*	0.40	-0.81	-0.32	-1.31	0.33
Quantity of social support (SSQ number)	-4.55*	-2.96	-0.01	0.03	-0.84	0.59
Satisfaction with social support (SSQ satisfaction)	-4.75**	1.44	0.16	0.23	-0.64	1.25

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2

Results of mediation analyses for the UPHW intervention on the outcome measure BDI-II compared to control condition.

	c'-path Coefficient	a-path Coefficient	b-path Coefficient	Bootstrap results for indirect effects (95 % CI)		
				Effect	Lower	Upper
Positive affect (PANAS-PA)	-5.60**	2.69	-0.37*	-0.98	-3.02	0.69
Negative affect (PANAS-NA)	-4.77**	-4.39*	0.41***	-1.82*	-4.35	-0.12
Well-being (PHI)	-5.83**	0.36	-2.12**	-0.76	-2.64	0.73
Quantity of social support (SSQ number)	-6.95**	-3.02	-0.12	0.36	-0.21	1.45
Satisfaction with social support (SSQ satisfaction)	-6.49**	1.87	-0.05	-0.10	-0.83	0.52

* $p < .05$; ** $p < .01$; *** $p < .001$

Moderation analyses

Results of the moderation analyses testing whether the association of condition (UPHW vs. WLC) with the primary outcome measure BAI was moderated by certain characteristics are reported in Table 3. No significant moderators emerged, indicating that there was no evidence of an interaction between conditions and any of the potential moderators examined (demographic characteristics, homelessness characteristics, physical function, drug abuse or alcohol abuse).

Finally, results of the moderation analyses on the primary outcome measure BDI are reported in Table 4. Physical functioning significantly moderated the relationship between condition and depressive symptomatology ($b = -0.16, p=.0191$). Specifically, participants in the UPHW intervention who had a better physical functioning at pre-intervention showed more improvement on depressive symptoms from pre-intervention to post-intervention, in contrast with participants in the WLC. No other significant moderators were found.

Table 3

Results of moderation analyses for the UPHW intervention on the outcome measure BAI compared to control condition.

	Coefficient	95 % CI	
		Lower	Upper
<i>Demographics</i>			
Age	-0.15	-0.39	0.09
Nationality	-5.08	-12.15	1.99
Educational level	1.43	-5.60	8.45
<i>Homelessness characteristics</i>			
Duration of homelessness	0.03	-0.03	0.08
Age becoming homeless for the first time	-0.15	-0.36	0.06
Number of episodes of homelessness	-6.70	-30.74	17.35
Accommodation	1.01	-10.57	12.60
<i>Health and substance abuse</i>			
Physical function at pre-intervention	-0.06	-0.18	0.06
Drug abuse at pre-intervention	0.84	-7.99	9.67
Alcohol abuse at pre-intervention	-3.83	-12.19	4.53

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

Results of moderation analyses for the UPHW intervention on the outcome measure BDI-II compared to control condition.

	Coefficient	95 % CI	
		Lower	Upper
<i>Demographics</i>			
Age	-0.10	-0.48	0.28
Nationality	-1.46	-6.33	3.40
Educational level	-0.07	-8.66	8.51
<i>Homelessness characteristics</i>			
Duration of homelessness	0.03	-0.04	0.09
Age becoming homeless for the first time	-0.09	-0.36	0.18
Number of episodes of homelessness	-1.58	-22.72	19.56
Accommodation	-1.13	-12.85	10.58
<i>Health and substance abuse</i>			
Physical function at pre-intervention	-0.16*	-0.29	-0.03
Drug abuse at pre-intervention	2.82	-12.38	18.02
Alcohol abuse at pre-intervention	-3.37	-19.44	12.70

* $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

Understanding potential mediators and moderators of treatment outcomes is crucial to improve the efficacy of psychological treatments (Kazdin, 2009). However, no studies to date have examined potential mediators and moderators of change in CBT or transdiagnostic treatments for homeless populations. Thus, the aim of this study was to examine potential mediators and moderators of change in an adaptation of the UP for women experiencing homelessness. The UPHW has been shown to be effective in reducing psychological distress in this population (Rodriguez-Moreno et al., 2020). Specifically, as compared to the WLC, the UPHW showed significant reductions in anxiety, depression, and negative affect that were maintained over a 3-month follow-up period.

In the current study, the UPHW also showed significant improvements on anxiety and depression outcomes at post-intervention compared to WLC. We found that negative affect was the only significant mediator of the relationship between the UP and reductions

in symptoms of anxiety and depression. These results are similar to those obtained in past research that found that decreases in negative affect were positively correlated with decreases in depression and anxiety symptoms (Sauer-Zavala et al., 2012; Talkovsky and Norton, 2018). Alternatively, life satisfaction has been negatively correlated with negative affect (Busseri, 2018). Several models of psychopathology point to negative affect along with reductions in positive affect in some instances as a central dimensions of anxiety and depressive disorders (e.g. Barlow, 2002; Griffith et al., 2010; Hofmann et al., 2012). The targeting of underlying common features of emotional disorders, such as negative affect, could help explain why transdiagnostic interventions might be superior to diagnosis-specific interventions at reducing anxiety and depression across multiple diagnoses (Barlow et al., 2004; Norton et al., 2013).

Contrary to our predictions, we did not find that positive affect, well-being, or social support mediated changes in anxiety and depressive symptoms after the UPHW treatment. Although we introduced some brief positive psychological exercises and positive group dynamics at the end of each UPHW session (e.g. “Share with another participant something positive that has happened to you this week”), perhaps these changes were not large enough to mediate the effects of the treatment. Moreover, the UP version used in this study (2011) does not include specific modules targeting positive emotions, psychological well-being or social networks. Positive psychology interventions have increasing evidence supporting their effectiveness in reducing depression and anxiety symptoms while enhancing well-being and quality of life (Carr et al., 2020), both in non-clinical and clinical populations (Chakhssi et al., 2018; Roca et al., 2021). Research has found that some patients prefer positive CBT (i.e., CBT including positive emotions, strengths and positive memories) to traditional CBT (Geschwind et al., 2020). Therefore, given the mental and physical health benefits of positive emotions (Pressman and Cohen,

2005), future versions of the UP would likely benefit from the inclusion of “positive therapeutic ingredients” (e.g., positive affect, gratitude, life satisfaction, or optimism), focused on eliciting positive emotions, cognitions, behaviors and relations. Furthermore, taking into account that positive social support has been associated with lower rates of mental health problems in people experiencing homelessness (Hwang et al., 2009), future studies replicating our results should also introduce more social support components into the UPHW, such as building social networks in shelters or recovering family social networks.

Moderators of outcomes were also examined to better understand who benefits most from UPHW treatment. We found that the relationship between UPHW and depressive/anxiety symptoms did not depend upon the different housing status (i.e., shelters vs. housing programs), the homelessness chronification (i.e., duration of homelessness, age at which one became homeless for the first time, and the number of homeless episodes), or the comorbidity of drugs and alcohol abuse. Physical functioning was the only significant moderator of the relationship between the UPHW and depression symptoms. In this study, physical functioning was defined as the degree to which health limits physical activity in daily life (Vilagut et al., 2008). Our results indicated that women with better physical functioning at baseline showed greater depressive symptom reductions after the intervention, as compared to the WLC. In other words, the UPHW was more effective in reducing depressive symptoms for those women with better physical functioning before the intervention. A plausible explanation of this result could be that women with a poorer physical functioning would find it more difficult to engage in the exercises and techniques that may involve physical functioning and mobility, such as some exposure exercises (e.g., going to a store, use public transport), which in turn may reduce the effectiveness of the UPHW in reducing depressive symptoms. In those

cases, the UP may benefit from the inclusion of a behavioral activation module adapted to the person's level of functioning (Kanter et al., 2010), recovering the physical functioning and the level of daily activity by scheduling activities (including pleasurable ones) that have the potential to improve their mood. Furthermore, clinicians should consider these potential physical functioning limitations when working with patients to design exposures, by personalizing the exposure content and selecting situations adapted to the physical functioning of each patient (e.g., looking at media content that is emotionally avoided, having a conversation, etc.). Given the role of physical health status and functioning in women experiencing homelessness with mental health problems (Tinland et al., 2018), as well as the role of physical functioning variables in predicting well-being in this population (Panadero et al., 2013), future studies should explore more deeply potential ways to improve physical functioning in daily activities in this population.

Several study limitations should be considered when interpreting these findings. First, it was not feasible to randomly assign participants in all of the shelters given the small number of women in some of them. Second, we used a wait list control condition as comparison, so future studies might include active control conditions to examine the efficacy of the UPHW in RCT designs with a large sample size. Third, only pre-post data were analyzed, preventing us from understanding the long-term mediators and moderators of the UPHW. Fourth, self-reported measures were used to assess depressive and anxiety symptoms. Future studies would benefit from the inclusion of a structured clinical interview for the clinical diagnosis (Brown et al., 1994; First et al., 1996). Further research is also needed to assess the generalizability of the findings to men experiencing homelessness, as well as to other forms of CBT. While these results highlight the importance of negative affect and physical functioning, future research should continue

to investigate other potential mechanisms of change, such as emotion regulation (Khakpoor et al., 2019), experiential avoidance (Eustis et al., 2020), working alliance (Sauer-Zavala et al., 2018), and intolerance of uncertainty (Talkovsky and Norton, 2018), among others, in addition to other possible moderators (e.g., economic and employment status, childhood stressful life events, previous psychological treatments, etc.). Furthermore, the limited research in this population makes the selection of variables more difficult, so results may be different depending on the potential mediators and moderators that are examined.

Conclusions

These limitations notwithstanding, to our knowledge this is the first study examining potential mediators and moderators of change in an evidence-based psychological treatment in a population experiencing homelessness. Clinical psychological research to date has paid more attention to the effects of interventions than to the study of mediators and moderators of change (Castonguay et al., 2006). However, there is a long tradition in clinical science of studying the processes and mechanisms of change underlying psychological interventions (Kazdin, 2007). For whom, when, how, and why is the UP effective? This question brings us closer to the framework of ‘personalized medicine’ (Hamburg and Collins, 2010), increasingly present in the field of psychology (Cuijpers et al., 2012), and a necessary step for the progress of evidence-based psychological treatments. Furthermore, the results of the present study highlight the importance of developing psychological treatments in the settings in which the problems are occurring thus increasing the external validity of interventions and building bridges between research clinics and the lived experience of individuals suffering with these disorders.

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CHAPTER 11

DISCUSSION

The final stretch of my PhD has coincided with the COVID-19 pandemic. When we are stuck at home for several months, the mind has enough time to reflect on what really matters in life: Do I have a safe place to spend the pandemic? Do I have enough savings to survive during these months? Do I have someone to help me in this situation? What if the answer to these questions is a consistent, and resounding, “no”? This has been the situation of many people experiencing homelessness over the past year.

How can I “stay home” if I do not have a home? How can I maintain “social distance” if I live in an overcrowded homeless shelter? Many shelters were plagued with an overwhelming number of positive COVID-19 cases and did not have sufficient resources to cope with the virus. Some soup kitchens were closed, bereft of workers, and out of food. Panhandling, a last resort for many people experiencing homelessness, is virtually impossible when people are quarantined in their homes and not traversing the streets. The challenges typically faced by people experiencing homelessness have intensified due to the COVID-19 pandemic. I will always remember the striking image of people in a homeless situation sleeping in the Ifema in Madrid or Las Vegas parking lots, physically confined to white-painted rectangles spaced by the minimum distance required. Now, more than ever, the research included in this doctoral dissertation is especially meaningful.

11.1. Summary

The main goals of the present doctoral dissertation were, first, to examine the mental health problems and the incidence of stressful life events in women experiencing

homelessness, and second, to design of an evidence-based, transdiagnostic psychological treatment for those problems. Over the years, empirical evidence suggests that people experiencing homelessness in general, particularly women, experience a high number of SLEs and mental health problems (Padgett et al., 2012; Phipps et al., 2019). However, to date, few studies have focused exclusively on such issues in women experiencing homelessness (e.g., Duke & Searby, 2019), and even fewer in our country (Spain). The majority of programs and social policies target structural factors contributing to homelessness by providing housing, employment reintegration, and legal support (Baxter et al., 2019; Wickham, 2020). Unfortunately, there is a dearth of evidence-based psychological treatments developed specifically to address mental health problems in this population (Speirs et al., 2013). Further, existing interventions do not adequately consider the gender-specific problems and needs of women experiencing homelessness, a vulnerable subgroup with idiosyncratic characteristics (Luchenski et al., 2018; Speirs et al., 2013). The six studies aim to fill this gap in the literature by (1) deepening our knowledge of the SLEs and mental health problems in women experiencing homelessness and (2) exploring the development, feasibility, and efficacy of an evidence-based psychological treatment to address these issues. The main findings from our studies are reviewed and discussed below.

11.2. How do SLEs affect women experiencing homelessness?

Our first step was to examine the incidence of SLEs in people experiencing homelessness and determine if there were any gender differences in the number and type of SLEs experienced. In our article presented in Chapter 5, we found that homeless individuals typically experienced numerous SLEs throughout their lives. We also found that women in a homeless situation experienced a larger number, and a greater variety, of SLEs than their male counterparts. According to the intersectionality theoretical

framework (Hankivsky & Christoffersen, 2008), gender identity interacts with social exclusion and homelessness to create a unique model of discrimination. Therefore, women experiencing homelessness may face difficulties that are neither distinctly due to their living status nor their gender, but to the complex interaction between these two factors (Cronley et al., 2019). In other words, the stressors of the homelessness condition (e.g., proneness to SLEs) may interact with the difficulties of being a woman (e.g., maternity, menstruation, experiencing sexual abuse, etc.). Some authors have indicated that gender could influence experiences of social exclusion, as it is a crucial factor in understanding the routes toward becoming homeless, subjective experiences during homelessness, and opportunities to access housing resources (Bretherton, 2017; Johnson et al., 2017; Montgomery et al., 2017). As SLEs play a fundamental role in initiating and maintaining homelessness (Jasinski et al., 2005; Muñoz et al., 2005; Padgett et al., 2012), specifically for women, (Johnson et al., 2017), their role must be taken into account when developing homelessness prevention programs.

Our findings converge with those of previous studies (Hatch & Dohrenwend, 2007; Zugazaga, 2004). Prior work indicates that women in a homeless situation experience more SLEs than men, both in childhood/adolescence and adulthood (Liu et al., 2021; Padgett et al., 2012). Whereas men in a homeless situation tend to experience SLEs related to legal problems and alcohol abuse, women suffer more abuse (e.g., sexual, physical, and psychological), partner violence, and psychiatric hospitalization. Our results showed that rates of intrafamilial violence, abuse, and sexual violence in childhood and adolescence are markedly different between men and women experiencing homelessness. Suffering from early traumatic experiences is one of the most important risk factors for homelessness among women (Dice, 2012) and is a dominant theme in their narratives around their personal trajectories into homelessness (Cronley et al., 2019).

Unfortunately, the victimization endured in childhood often persists in adulthood. Our results indicated that women experiencing homelessness reported higher rates of serious mental health problems, suicide attempts, and psychiatric hospitalizations in adulthood than their male counterparts (Tsai et al., 2014).

Given the higher rates of SLEs in women experiencing homelessness, as well as the differences between childhood and adulthood SLEs, we developed a second study (Chapter 6) to examine how these SLEs were related to patterns and trajectories of homelessness using cluster and discriminant analysis. Such analytic techniques are especially useful for identifying the specific needs, characteristics, and trajectories of different subgroups within a larger population. We found that our sample could be organized into three main clusters based on frequency and type of SLEs experienced: A) the “Shorter homelessness trajectories and best physical and mental health” subgroup; B) the “Early onset of homelessness and poorer physical and mental health” subgroup; and C) the “Chronic homelessness and poorest physical and mental health” subgroup. These results were similar to those found in previous studies among people experiencing homelessness (e.g., Ciapessoni, 2016; Muñoz et al., 2005) in terms of typology and percentage terms.

Cluster A (i.e., “shorter homelessness trajectories and best physical and mental health”) was characterized by low levels of SLEs in both childhood/adolescence and adulthood, a shorter duration of homelessness, fewer physical and mental health problems, and lower rates of alcohol and substance consumption. Interestingly, this cluster was the largest subgroup in the study, debunking the stereotype that all homeless individuals have severe mental health problems and abuse substances (Vázquez et al., 2017). Cluster B (i.e., “early onset of homelessness and poorer physical and mental health”) was characterized by a greater number of SLEs, both in childhood and before the

onset of homelessness, as well as by higher rates of mental health problems and alcohol consumption in adulthood. This cluster corroborates the relationship between SLEs, mental health problems, alcohol consumption and homelessness observed in previous studies (Chambers et al., 2014). Finally, Cluster C (i.e., “chronic homelessness and poorest physical and mental health”) was mainly characterized by a higher prevalence of adulthood SLEs, physical health problems, disabilities, and substance use. Moreover, Cluster C experienced significantly greater episodes of homelessness than Clusters B and A, which is an indicator of the “revolving door to homelessness” (Roca et al., 2019).

11.2.1 Clinical Implications of Chapter 5 (Study 1) and Chapter 6 (Study 2)

Our results have important implications for designing future interventions that are sensitive to traumatic life experiences (Tsai et al., 2014). Clinical interventions aimed at mitigating the harmful interactions between gender, social exclusion, and traumatic experiences may be classified into two main groups: prevention-oriented interventions and palliative-based interventions.

First, prevention-oriented interventions aim to prevent homelessness by attenuating the impact of childhood traumatic experiences, which are a major vulnerability factor for female homelessness (Castaños-Cervantes, 2019; Thoits, 2010). Interventions in this category focus on the early detection of SLEs among high-risk youth; including, but not limited to, foster homes, orphanages, and children with mothers who are homeless, involved in prostitution, imprisoned, or have a history of psychiatric hospitalization. Furthermore, preventative interventions should also identify women who are victims of physical, sexual and/or psychological abuse, either by their families or their communities (Lee et al., 2010). At-risk individuals should be identified and treated as soon as possible to mitigate the negative psychological effects of traumatic life experiences, thus prevent the onset of homelessness.

Second, palliative-based interventions help people experiencing homelessness become more socially included. Such interventions consider homelessness as a traumatic situation in itself (Tsai et al., 2014) which increases the risk of experiencing additional SLEs in the future, especially for women. Our first study suggests that interventions targeting homeless men should include addiction and justice-involved services, whereas interventions targeting homeless women should provide trauma-informed care for psychological, physical, and sexual abuse, as well as psychological treatment for the emotional consequences of abuse that could lead to psychiatric hospitalizations.

Another area that requires special attention is the prevention of gender-based violence. Policymakers should broaden the resources available to female victims of gender-based violence, especially those experiencing challenges in multiple areas (e.g., mental health problems, substance use) to help prevent them from becoming homeless. Other priorities are to facilitate access to existing services for women in a homeless situation who experience gender-based violence or sexual abuse and design specific resources for women experiencing homelessness who are affected by such violence. Finally, it is also important to train professionals working in shelters or other services within the homeless-care network to identify and address situations of abuse and gender-based violence.

Furthermore, given the characteristics and needs of the different subgroups of women experiencing homelessness on the basis of their SLEs (Chapter 6), interventions and social services may be organized into three categories. Interventions aimed to treat Cluster A (i.e., women with shorter homelessness trajectories and the best physical and mental health) should focus on structural factors, such as housing and employment, since health and functioning are relatively strong. Interventions aimed toward Cluster B (i.e., women with an early onset of homelessness and poor physical and mental health) should

deliver a combination of housing programs, health care, and psychological treatment in early stages of homelessness, which could prevent its chronicity. In this regard, Housing First (HF) programs have shown to be a cost-effective alternative to the traditional emergency homeless shelters and transitional housing progression (Tsemberis, 2010). In fact, HF has shown to be even more effective when it is specifically designed to address the idiosyncratic needs and characteristics of women (Oudshoorn et al., 2018) and when psychological treatments aimed at treating PTSD, affective disorders, and alcohol abuse are included. Finally, interventions aimed to treat Cluster C (i.e., chronically homeless women with the poorest physical and mental health) should focus on treating chronic physical and mental health problems (including substance abuse) that may be producing a homelessness (e.g., multiple entrances into, and exits from, homelessness; Roca et al., 2019).

11.2.2 Limitations and Future Directions of Chapters 5 (Study 1) and 6 (Study 2)

As explained in Chapter 2, the Stressful Life Events (SLEs) are defined as episodes that play a key role in individuals' lives and often cause significant changes. This definition of SLEs includes not only negative events (e.g., death of a family member), but also positive events (e.g., marriage, a move to a new city, the birth of a child; Kobasa, 1979). In both Studies 1 and 2, we used a list of SLEs that only includes negative events. Future studies should include both negative and positive events and evaluate the valence that each person gives to that event. For instance, the birth of a child is usually a positive event, but it could be perceived as a negative event for some women (e.g., when the birth is premature, unexpected or unplanned). Further, it is possible that greater frequency of positive life events may buffer against psychological stressors.

As previously mentioned, SLEs are key factors in understanding the origin and maintenance of homelessness (Jasinski et al., 2005; Muñoz et al., 2005; Padgett et al.,

2012). However, few studies have investigated whether these events are causes or consequences of homelessness (e.g., Muñoz et al., 1999). Future studies should explore whether these SLEs happen before or after the homelessness onset; particularly, longitudinal studies may shed light on the impact of stressful events over time and how these subgroups change in psychological outcomes as a consequence of homelessness.

Another limitation is that our SLEs check-list only included quantitative information. We encourage future work to incorporate qualitative methods to analyze personal narratives around these events (e.g., Cronley et al., 2020), which would deepen our understanding of their impact in the lives of women experiencing homelessness. Furthermore, despite the wide range of events included in both studies, some areas may require more in-depth analysis (e.g., mental disorder, suicide, and substance use), which could help clarify our results. Further, experiences of transgender individuals were not evaluated in these studies, so future research should also consider transgender experiences and gender differences through a non-binary paradigm (e.g., Begun & Kattari, 2016). Finally, our studies are limited in their reliance on cross-sectional data, which cannot shed light on causal relationships between psychological phenomena. Future studies should include longitudinal methods to clarify how SLEs change women's lives over time.

11.3. The impact of mental health problems in women experiencing homelessness

Mental health is also a key variable for understanding the etiology and maintenance of homelessness, particularly for women (Phipps et al., 2019). In Chapters 5 to 7, we found a high prevalence of mental health problems in women experiencing homelessness. For instance, in Chapter 5, women experiencing homelessness showed higher rates of serious mental health problems, psychiatric hospitalization, suicide attempts, and drug abuse than their male counterparts. In Chapter 6, Cluster B was

characterized by mental health problems, psychiatric hospitalizations, and alcohol consumption among women experiencing homelessness.

Finally, in Chapter 7, we found that mental health problems were also related to other important risk factors in this population. Women experiencing homelessness with higher risk of mental ill-health were five times more likely to have experienced housing problems in their childhood, four times more likely to have suffered sexual abuse and unemployment problems throughout their lives, and 3.6 more likely to have attempted suicide compared to women experiencing homelessness without risk of mental ill-health problems. Further, mental health problems were also strongly associated with physical health conditions: The odds of suffering from a chronic disease were 2.5 times higher and the odds of having suffered from physical pain was 4.4 times higher among women experiencing homelessness with risk of mental ill-health compared to women who did not present this risk. Importantly, these social, mental, and physical issues were also significantly associated with lower levels of happiness, social support, and higher levels of loneliness. These findings were consistent with those found in previous studies (e.g., Bower, 2018; Chambers et al., 2014; Phipps et al., 2019; Sun et al., 2012).

Beyond mental health issues, we found that women experiencing homelessness at high risk of mental ill-health were less happy than those at low risk, replicating previous studies in the field (Sun et al., 2012). Although this result may seem tautological, it actually has important practical implications. Panadero et al. (2013) found that the predictors of general happiness among people in a homeless situation were not feeling lonely, not having a disability, not having any serious or chronic illnesses, having positive expectations for the future, identifying with some religious belief, and having a positive perception of one's state of health. In the light of the holistic definition of health provided by the World Health Organization (WHO), interventions targeting women in a homeless

situation should not only focus on reducing the sources of distress and the severity of symptomatology, but should also include therapeutic components aimed at increasing the well-being and life satisfaction in this population, along with improvements in their living conditions (e.g., Housing First model). These positive psychological factors are crucial in achieving the necessary motivation to face the challenges of social and labor integration. For this reason, we decided to include positive dynamics at the end of each session in our adaptation of the UPHW (see Chapter 8).

The high suicide rates are another matter of concern in this population (Ayano et al., 2019). In Chapter 5, we found a high prevalence of suicide attempts among women experiencing homelessness. Specifically, nearly half (48.9%) of women in our sample had attempted suicide throughout their lives. Furthermore, women with higher risk of mental ill-health had attempted suicide at greater rates (59.4%) than women who at no risk (see Chapter 7), consistent with previous studies (Dunne et al., 2012). Interestingly, Calvo-García et al. (2016) found that the second risk factor for suicidal ideation within homeless population in Spain is being female. The largest proportion of suicide attempts among women could be related to experiencing various SLEs, such as childhood abuse or mental disorders (Dietz, 2010; McHolm et al., 2003; Vázquez & Panadero, 2019). According to the Stress–Diathesis Model of Suicidal Behavior (van Heeringen, 2012), reducing the impact of SLEs, especially during the earliest stages of life, can decrease the number of suicide attempts among people at risk of suicide. With this in mind, future studies should develop early-on assessment protocols that address suicidal ideation in women who endured SLEs at young ages and implement such protocols in assistance services and street outreach teams (Panadero et al., 2018).

Alcohol and other substance abuse constitutes another key mental health problem in the homeless population (Guillén et al., 2020). In Chapter 5, we found that men

experiencing homelessness presented more problems related to alcohol consumption than did women; however, this was not the case with abuse of other substances (i.e., illicit drugs, marijuana, prescription drugs). These results diverge from prior research in other countries where men in a homeless situation presented higher rates of drug use than their female counterparts (Hatch & Dohrenwend, 2007; Tsai et al., 2014; Zugazaga, 2004). A recent study by Guillén (2020) found that, in Spain, consumption of tobacco, alcohol, sedatives and illicit drugs is more common among women experiencing homelessness than in the general population. Furthermore, in Chapter 6 we found that alcohol abuse was related to childhood SLEs and other mental health problems (i.e., in cluster B), whereas illicit drug abuse was related to adulthood SLEs and being arrested or reported to the police (i.e., in cluster C).

Despite the problematic consumption of alcohol and drugs among women experiencing homelessness, only a small percentage have access to substance abuse treatments (Guillén et al., 2020). The main barriers to accessing these treatments include long waiting times, physical distance to health centers or clinics, feeling depressed/lacking the motivation to engage in treatment, perceiving that help is not effective, and a lack of knowledge about where to find treatment (Upshur et al., 2018). Further, such programs are typically male dominated, which may discourage some women from participating. However, several studies show the effectiveness of supervised consumption facilities in decreasing lethal overdoses and other high risk behaviors, pharmaceutical interventions in reducing harms and addressing comorbidities, and managed alcohol programs in reducing or stabilizing alcohol consumption (Magwood et al., 2020). Future studies should develop psychoeducational programs to make women experiencing homelessness aware of the effectiveness of available treatments as well as motivational programs to reduce the barriers to accessing these treatments.

Further, suffering from physical illnesses and disabilities constitutes a vulnerability factor for becoming homeless (Aubry et al., 2012) and is related to chronic homelessness (Parker, 2010). However, in contrast to previous studies in other countries (Nishio et al., 2017), we did not find significant differences between women with and without mental ill-health risk in terms of suffering from/reporting a disability or handicap (Chapter 7). Future studies should examine the reasons why women in a homeless situation with mental health problems do not present higher rates of disability. Perhaps there are some shortcomings in recognizing the mental health pathologies in the disability spectrum.

Taken together, the results of these studies highlight that there is a powerful interaction between the lack of socio-economic resources and mental health problems for women experiencing homelessness (Chambers et al., 2014; Duke & Searby, 2019; Greenberg & Rosenheck, 2010). These results underline the unquestionable need to develop psychological treatments suitable for, and specifically designed for, this population (see Chapter 8).

11.3.1 Limitations and future directions in the study of mental health in women experiencing homelessness

There are some limitations to the studies presented in Chapters 5, 6, and 7. They do not include a general population control group, the participants were not formally diagnosed by a clinician, we used a structured interview, the sample was recruited urban areas in Madrid (Spain), and we only collected and analyzed cross-sectional data. In recognition of these limitations, future studies should include: (1) a general population control group to compare the results with people who have never been homeless or with a group of people at risk of becoming homeless; (2) a structured clinical interview (e.g., SCID or ADIS) to formally diagnose participants' mental health problems, which will

enable us to determine how outcomes may depend on the type of psychopathology (e.g., what are the differences between women experiencing homelessness with affective disorders versus those with psychotic disorders?); (3) include qualitative information to better understand the impact of mental health problems on the lives of women in a homeless situation; (4) the replicability of these results in other contexts (e.g., rural areas and other countries), as well as the transcultural differences in such processes; and (5) longitudinal information in order to better understand the bidirectional relationship between mental health and homelessness over time. Taken together, these studies highlight the importance of developing evidence-based psychological interventions aimed at treating mental health problems and associated factors (e.g., well-being, social support, and loneliness). From an economic standpoint, developing such interventions may significantly reduce the unnecessary public expenditure (e.g., losses in unemployment, productivity, long-term mental health and emergency care) arising from the secondary consequences of these mental health problems. In addition, in terms of the role of public policies and societies in addressing homelessness, it is essential to point out the importance of the gender, autonomy dimension and the historical inequalities (e.g., sexism and misogyny) through an intersectional perspective in women experiencing homelessness (Leite et al., 2019; Moura et al., 2019).

11.4. Is the Unified Protocol a good treatment alternative for women experiencing homelessness?

In an effort to address the disproportionately high rates of mental health problems and SLEs among women experiencing homelessness, as well as the urgency of applying evidence-based treatments to community settings, we decided to adapt the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for Homeless Women (UPHW). In Spain, transdiagnostic therapy has shown to be more effective than

treatment-as-usual in adult primary care patients, leading to improvements in anxiety, depression, somatization outcomes, functioning, and quality of life domains (Cano-Vindel et al., 2021). As explained in Chapter 4, the UP is one of the most widespread and empirically validated transdiagnostic treatments. The UP has shown to be effective in reducing symptoms of anxiety and depression and improving the use of adaptive emotion regulation strategies in different contexts (Cassello-Robbins et al., 2020; Sakiris & Berle, 2019). To date, only two previous studies have examined the application of the UP to people experiencing homelessness (Sauer-Zavala et al., 2019; Youn et al., 2019), neither of which provided data on its efficacy for this particular population.

In Chapters 8, 9, and 10, we described our adaptation of the UPWH and assessed its feasibility, effectiveness, and the mediators/moderators of change. First, our results in Chapter 8 suggested that the UPHW is a feasible intervention in terms of participant attendance, satisfaction, perceived usefulness, emotional state, and group cohesion for its intended recipients. Our findings are consistent with those of Sauer-Zavala et al. (2019), who found high levels of satisfaction when administering the UP at a community-based organization that provides healthcare and other services to homeless individuals and their families. Our UPWH was a great opportunity to combine the application of a robust, standardized program with a more flexible approach that could be tailored to the specific needs of women in a homeless situation. Furthermore, our adaptation of the protocol converged with the four core principles of therapeutic interventions for women in a homeless situation (David et al., 2015): 1) The use of group support, 2) provision of flexible resources in a low demand environment, 3) supportive program leadership, and 4) treatment delivered for, and by, women.

Replicating the results of evidence-based interventions in different cultural and contextual backgrounds represents a challenge for their generalizability and applicability

worldwide (Castro-Camacho et al., 2019). In this sense, our adaptation of the UP faced different challenges due to the characteristics of women experiencing homelessness:

- 1) Our participants presented many difficulties in attending the intervention sessions; e.g., some forgot their appointments due to their unstructured schedules. Thus, it was necessary for therapists to contact the women the same day of the session to remind them of their upcoming appointment.
- 2) Given the substance abuse problems and cognitive impairments in this population (e.g., sometimes when women went to smoke during the break they did not return), we decided that each session would last an hour and a half without rest. Furthermore, we decided to add two summaries in each session: one at the beginning to remember the work done in the previous session and another at the end with key takeaways to reinforce learning.
- 3) Taking into account the educational level in this population, we simplified the exercises and the terminology of the original UP protocol by using more layperson language and fewer technical terms.
- 4) We also adapted some of the examples used in the original UP to the realities of the homeless population. For instance, instead of using examples related to situations that occur in people's homes, we used examples of common situations in the shelters. Similarly, instead of examples within the work and family context, we employed examples of interactions with the social workers and other shelter users.
- 5) In order to help participants manage their emotions, we introduced a short mindfulness exercise at the beginning of each session (from session 6 onward).

- 6) Given that most of the women attending the intervention lived in the same shelter and share the rooms and common areas, it was common to find previous conflicts among the participants. We decided to incorporate some positive group dynamics to improve the group cohesion and to reduce the arguments between participants.
- 7) Given potential confidentiality issues, we decided not to use a patient handbook in order to avoid the risk of theft and disclosure of confidential data. In the shelters, women do not always have their own private space where they can keep a patient handbook and diary safe.

Second, the results presented Chapters 9 and 10 showed that the UPHW resulted in significant improvements on measures of anxiety, depression and negative affect, with medium effect sizes, replicating previous results in the UP literature (Bullis et al., 2015; Farchione et al., 2012; Osma et al., 2015). Furthermore, changes in negative affect worked as a mechanism of change of the reductions in both anxiety and depression. The Reliable Change Index also revealed significant differences in depression symptoms between UPHW and WLC, indicating that almost 50% of the cases in the UPHW group were recovered after the intervention. In contrast, 56% of participants in the control group either deteriorated or showed no changes after the intervention. Physical functioning was the only significant moderator of the relationship between the UPHW and depression symptoms; in other words, women with better physical functioning at baseline showed greater depressive symptom reductions after the intervention, as compared to the WLC. Finally, the inter-session assessment in the UPHW group showed a linear trend reduction for depression and anxiety scores across the 12 sessions.

As mentioned in Chapter 4, some community-based, case management, and housing programs have indirectly improved some mental health outcomes in people

experiencing homelessness (Coldwell & Bender, 2007; Morse et al., 1992; Munthe-Kaas et al., 2018). However, a recent meta-analytic review has found that permanent supporting housing programs are not effective in improving mental health outcomes as compared to control programs (Aubry et al., 2020). Furthermore, although permanent supportive housing significantly improved housing stability, its short-term effects on health and well-being outcomes were unclear (Baxter et al., 2019). Interestingly, in Chapter 10, we found that the relationship between UPWH and depressive/anxiety symptoms did not depend upon an individual's housing status (i.e., shelters vs. housing programs). Therefore, notwithstanding the importance of treating structural factors, transdiagnostic treatments in general, and our UPHW in particular, would constitute a feasible and effective coadjutant treatment to community-based programs providing housing, such as the Housing First (HF) model (Tsemberis et al., 2004). Future studies should analyze the combined effectiveness of UPHW with Housing First programs.

We also found that improvements in anxiety and depression were maintained over a 3-month follow-up period, but not at 6-month follow-up, as shown in previous studies (Barlow et al., 2017; Farchione et al., 2012). A plausible explanation for our results is that women experiencing homelessness have to deal not only with mental health problems, but also with social exclusion, which may reduce the long-term alleviation of symptoms. Future studies should include additional sessions after the intervention to prevent relapse, reinforce the skills learned, maintain the motivation for change, and address any questions, challenges, or roadblocks participants may be experiencing. Furthermore, the combination of psychological interventions with housing programs focused on the living conditions (i.e., structural factors) may promote the maintenance of long-term treatment effects by helping homeless women change their living conditions.

Taken into account the importance of increasing positive affect as a part of the treatment of depression and anxiety (Craske et al., 2019), as well as the benefits of social connectedness and support on health and well-being (Walter et al., 2016), we introduced positive dynamics at the end of each UPHW session (e.g. “share with another participant something positive that has happened to you during the week”). Although the therapists anecdotally observed improvements in the women’s support networks throughout the treatment, these improvements were not powerful enough to produce significant changes in variables related to well-being, social support, and health after the treatment. We also found that neither positive affect, nor well-being, nor social support mediated changes in anxiety and depressive symptoms after the UPHW treatment. Future studies should add a specific module aimed at improving these components (Barlow et al., 2018), as these aspects may need time and specific training to significantly change.

11.4.1 Limitations and future directions in the adaptation of the UPHW

As is the case with all research, ours is not free from limitations. First of all, (1) the number of women experiencing homelessness in some shelters was insufficient to allow randomization into condition; (2) when basic needs are not met, psychological needs tend to become less important to the individual seeking services. For instance, some women were debating whether to come to the UPHW sessions or go to a church that was giving away free clothes or food. In other cases, they could not afford public transportation to reach the intervention site; (3) the nomadic nature of homeless individuals made continuity in the intervention, as well as locating participants for follow-up evaluations, more difficult; (4) previous interpersonal conflicts between the women participating in the intervention affected session attendance and even led some women to terminate their participation in the intervention; (5) some women declined to participate as they thought it was “another craft workshop” due to the overload of these types of

programs in some shelters; (6) the high rates of severe cognitive impairment, language difficulties (i.e., speech difficulties or language barriers), and active psychopathology meant that many of the women in the shelters were unable to participate in the intervention, which reduced sample size even further; (7) we did not use a structured interview to diagnose patients; and (8) the study was conducted in a single community-based sample in Madrid (Spain), so we must be cautious not to overgeneralize our results.

Bearing in mind the study limitations, future studies should take the following into consideration: (1) Shelters and public institutions play a key role in facilitate RCT studies by coordinating the resources available to this population; 2) The research team should budget some funds to pay for the participants' transportation to and from the intervention site; (3) Promoting a close relationship between the research team and the referral social workers and the shelters where the intervention takes places helps to locate participants for follow-up evaluations; (4) Introducing a communication and relationships module as a part of the program, to clarify group norms and rules of coexistence within the group; (5) Clearly explaining in the initial orientation session how the UPHW is different from other occupational workshops that are offered in shelters; (6) Always including co-therapists or co-facilitators when working with this population, as they may be able to help with difficulties in understanding the material and mitigate conflicts that may arise; (7) Including a structured clinical interview (e.g., SCID or ADIS) to formally diagnose the mental health problems; and (8) the replicability of these results in other contexts (e.g., other regions in Spain and other countries). Future studies should also examine the efficacy of the UPHW for men experiencing homelessness (Sauer-Zavala et al., 2019), develop a brief UPHW (Bentley et al., 2017; Sauer-Zavala et al., 2019), and explore the adaptation of the UPHW to an individual format (e.g., Farchione et al., 2012).

In summary, among homeless populations, mental health problems go hand in hand with social exclusion. One of the main aims of this dissertation was to adapt an evidence-based psychological intervention to a context where socio-economic variables cannot be ignored. While the field of social psychology has focused more on structural and environmental factors, clinical psychology has focused more on individual factors. With the studies presented in this dissertation, we hope to contribute to build bridges between clinical and social psychology.

CHAPTER 12

CONCLUSIONS

This dissertation had two main aims: (1) To explore the stressful life events and mental health problems among women experiencing homelessness, and (2) to design of an evidence-based psychological treatment that addresses those problems. Ultimately, our findings across the six studies presented in the dissertation are consistent with each other and with the previous literature on the topic. The study limitations notwithstanding, we strongly believe that our research addresses a variety of gaps in the existing literature. To our knowledge, our team was one of the first to adapt the UP into a group format for women experiencing homelessness, as well as the first to examine the effectiveness and the potential mediators and moderators of change in an evidence-based psychological treatment for this population. The robust feasibility and effectiveness of this adaptation makes an important contribution to the current literature on transdiagnostic protocols in socially excluded populations. The conclusions derived from the studies included in this dissertation are as follows:

- ❖ Identifying stressful life events (SLEs) and mental health problems is crucial for understanding the etiology and maintenance of homelessness.
- ❖ Women in a homeless situation experience a higher number and different types of SLEs than their male counterparts.
- ❖ Our sample of women experiencing homelessness could be organized into three clusters based on SLEs experienced: (1) the “shorter homelessness trajectories and best physical health and mental health” subgroup; (2) the “early onset of homelessness and poorer physical and mental health” subgroup, and (3) the “chronic homelessness and poorest physical health and mental health” subgroup.

- ❖ Women in a homeless situation with high risk of mental ill-health have poorer living conditions, worse physical health, feel less happy, have lower levels of social support, and are lonelier than women without risk of mental ill-health.
- ❖ It is possible to adapt and apply evidence-based psychological interventions to situations of extreme social exclusion, e.g., homeless populations.
- ❖ Our novel adaptation of the transdiagnostic Unified Protocol, the UPHW, was a feasible and effective treatment for women experiencing homelessness. Participants reported significant increases from pre- to post-treatment in satisfaction, perceived usefulness, mood state, and group cohesion.
- ❖ The UPHW group showed significant improvements in anxiety, depression, and negative affect than the WLC group. Improvements in anxiety and depression were maintained over a 3-month, but not 6-month, follow-up period. The reliability of clinical changes showed significant differences between UPHW and WLC for depression. The inter-session assessment in the UPHW group showed a linear trend reduction for depression and anxiety scores across the 12 sessions.
- ❖ Negative affect mediated the relationship between the UPHW and the reduction of both anxiety and depression symptoms. Physical functioning moderated the relationship between the UPHW and depression symptoms.
- ❖ Taken together, our results highlight the potential for drawing on transdiagnostic interventions to treat an array of emotional disorders in people experiencing homelessness.

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ANNEXES

Supplementary materials

Role of stressful life events among women experiencing homelessness:

An intragroup analysis

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Supplementary materials

Role of stressful life events among women experiencing homelessness:

An intragroup analysis

Method

Measures

Supplementary Table 1.

Stressful life events in childhood and adolescence (before 18 years old)

Major financial problems

Prolonged unemployment of a member of their family

A parent had a physically incapacitating health problem

A parent had a serious mental health problem

A parent had problems with alcohol

A parent had problems with drugs

A parent left the family home

Serious fights and arguments between the parents

Her mother was abused by her partner

Problems of family violence

One of her parents was in prison

Serious conflicts between her and someone in your family

Frequent changes of residence

Thrown out of home

She was abandoned

Ran away from home

Parents divorced or separated

Brought up by people other than their parents

Housing problems in childhood (eviction, inadequate housing conditions, etc.)

Dropped out of school

Expelled from school

Suffered from abuse

Suffered from sexual abuse

Supplementary Table 2.

Stressful life events throughout life (after 18 years old)

Death of father

Death of mother

Death of spouse or partner

Death of a child

Suffered from a serious illness, injury or accident

Separation or divorce from spouse

Suffered from serious unemployment problems

Suffered from major financial problems

Drunk too much at some point in her life

Abused drugs at some point in her life

Been in prison

Admitted to a psychiatric hospital

Done work that separated her from her home

Lost her home due to eviction

Emigrated from her country of origin

Left her partner and/or children in their place of origin

Had a serious mental health problem

Suffered from sexual assault (over 18 years old)

Suffered from abuse by her spouse or partner

Suffered from physical violence

Had Attempted Suicide

Reported to the police

Arrested or detained for a crime

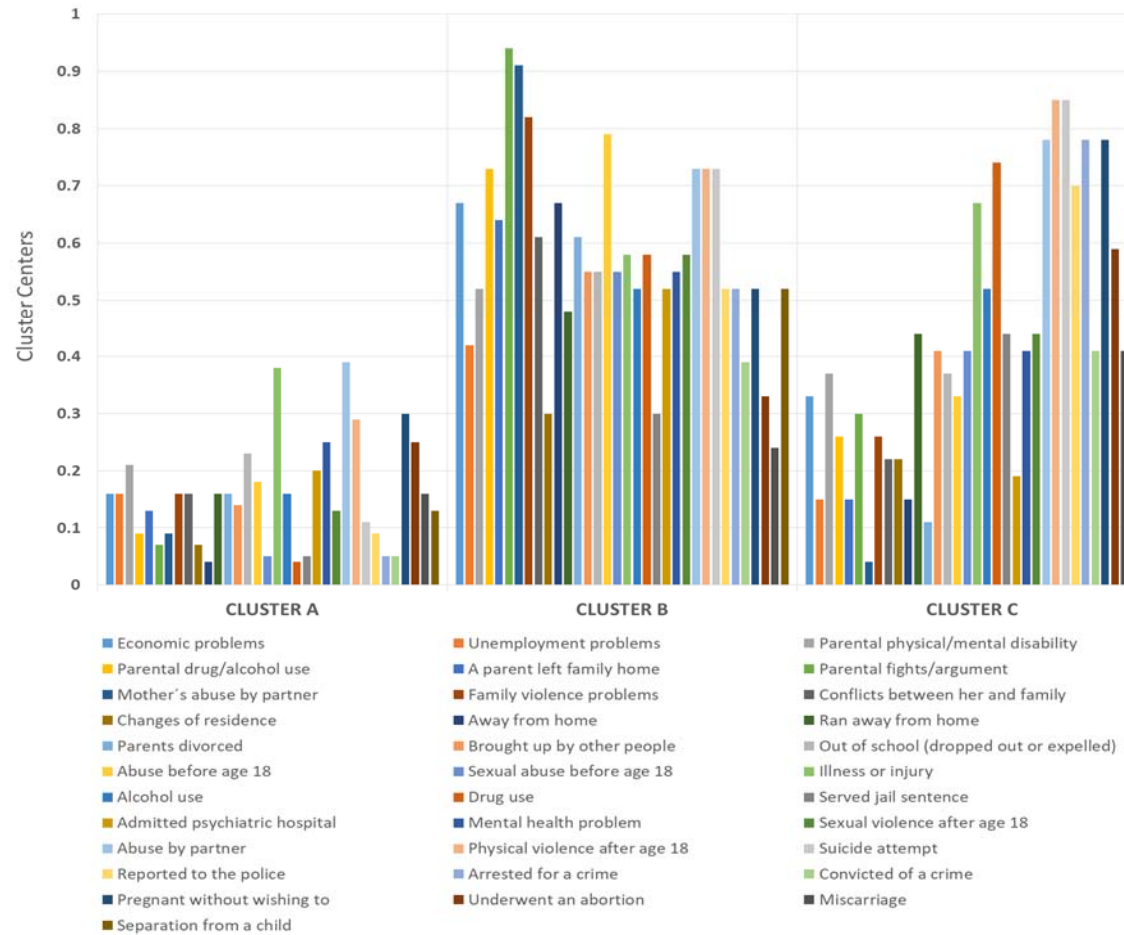
Convicted of a crime
Became pregnant without wishing to
Underwent an abortion
Suffered from a miscarriage
Separation from a child (adoption, abandoned, etc.)
She was a single mother (without a partner)

Results

Cluster Analysis Results

In line with the data preprocessing criterion of Muñoz et al. (2005), only those SLEs with prevalences higher than 15% were included in the analysis to ensure the significance of the variables. Furthermore, some SLEs with lower prevalences were combined to preserve both events: a) “Parental physical/mental health problem” was the result of combining “a parent had a physically health problem” with “a parent had a mental health problem”; b) “Away from home” of combining “thrown out of home” with “was abandoned”; and c) “Lost your home” of combining “lost your home due to eviction” with “lost your home due to demolition”.

Supplementary Figure 1: Final cluster centers for the SLEs included in the three-cluster solution.



Supplementary Table 3: Structure matrix for each discriminant functions.

	Function 1	Function 2
Mother's abuse by partner	0.65*	-0.36
Parental fights/argument	0.58*	-0.02
Family violence problems	0.54*	-0.10
Away from home	0.37*	-0.06
Conflicts between her and family	0.30*	0.07
Parental drug/alcohol use	0.29*	-0.01
A parent left family home	0.27*	-0.10
Abuse before age 18	0.21*	-0.01
Sexual abuse before age 18	0.21*	0.02
Parental physical/mental disability	0.16*	-0.04
Age	-0.14*	-0.09
Admitted psychiatric hospital	0.09*	0.01
Economic problems	0.09*	-0.01
Miscarriage	-0.07*	0.04
Unemployment problems	0.07*	-0.01
Suicide attempt	0.31	0.50*
Arrested for a crime	0.25	0.48*
Drug use	0.15	0.41*
Physical violence after age 18	0.19	0.31*
Convicted of a crime	-0.01	0.31*
Underwent an abortion	0.02	0.26*
Served jail sentence	0.10	0.26*
Illness or injury	0.08	0.25*
Abuse by partner	0.10	0.22*
Ran away from home	0.02	0.20*
Pregnant without wishing to	0.13	0.19*
Reported to the police	0.06	0.17*
Mental health problem	0.00	0.16*
Sexual violence after age 18	0.02	0.15*
Parents divorced	0.10	-0.14*
Separation from a child	0.07	0.13*
Changes of residence	-0.01	0.11*
Duration of homelessness	0.09	0.10*
Brought up by other people	0.07	-0.09*
Alcohol use	0.00	-0.07*
Out of school (dropped out or expelled)	-0.02	-0.04*
Nationality	-0.03	-0.03*

Subgroup Characterization

Stressful Live Events

Secondly, Supplementary Table 4 shows the differences in stressful live events among the three clusters. The percentage of childhood SLEs was significantly higher in Cluster B, which yielded a number of striking data: 66.7% of the women in this cluster experienced economic problems in their families; 72.7% had parents with drug or alcohol-related problems; 63.6% had experience of a parent leaving the family home; 93.9% of parental fights or arguments; 90.9% had experience of maternal abuse at the hands of partners; 81.8% had been victims of violence in their family; 60.6% had had conflicts with their families; 66.7% were away from home; 60.6% had divorced parents; and 78.8% were abused, 54.4% sexually before the age of 18. Cluster B was also characterized by SLEs related to mental health, such as mental health problems (54.4%) and psychiatric hospital admissions (51.5%).

As for the remaining SLEs, cluster C yielded a higher percentage of adulthood SLEs, such as drug use (74.1%), physical violence after 18 (85.2%), suicide attempt (85.2%), served jail sentences (44.4%), being reported to the police (70.4%) and being arrested for a crime (77.8%). Cluster C also had a higher percentage of women-specific SLEs, such as undesired pregnancy (77.8%), abortion (59.3%), miscarriage (40.7%) or separation from a child (63%). Finally, there were some SLEs for which Cluster B and C percentages were similar but significantly higher than in Cluster A (characterized by low levels for all SLEs): illness or injury, alcohol use, abuse by partner or criminal conviction.

Supplementary Table 4: Comparison of the three clusters in terms of Stressful Life Events (SLEs).

SLE	Cluster A % (n)	Cluster B % (n)	Cluster C % (n)	$\chi^2_{(2)}$
Economic problems	16.1 (9)	66.7 (22)	33.3 (9)	23.55***
Unemployment problems	16.1 (9)	42.4 (14)	14.8 (4)	9.49**
Parental physical/mental disability	21.4 (12)	51.5 (17)	37 (10)	8.61 *
Parental drug/alcohol use	8.9 (5)	72.7 (24)	25.9 (7)	39.92***
A parent left family home	12.5 (7)	63.6 (21)	14.8 (4)	30.05***
Parental fights/argument	7.1 (4)	93.9 (31)	29.6 (8)	67.89***
Mother's abuse by partner	8.9 (5)	90.9 (30)	3.7 (1)	77.48***
Family violence problems	16.1 (9)	81.8 (27)	25.9 (7)	40.35***
Conflicts between her and family	16.1 (9)	60.6 (20)	22.2 (6)	20.60***
Changes of residence	7.1 (4)	30.3 (10)	22.2 (6)	8.42*
Away from home	3.6 (2)	66.7 (22)	14.8 (4)	46.81***
Ran away from home	16.1 (9)	48.5 (16)	44.4 (12)	12.59**
Parents divorced	16.1 (9)	60.6 (20)	11.1 (3)	25.40***
Brought up by other people	14.3 (8)	54.5 (18)	40.7 (11)	16.76***
Out of school (dropped out or expelled)	23.2 (13)	54.5 (18)	37 (10)	8.96*
Abuse before age 18	17.9 (10)	78.8 (26)	33.3 (9)	32.91***
Sexual abuse before age 18	5.4 (3)	54.5 (18)	40.7 (11)	28.20***
Illness or injury	37.5 (21)	57.6 (19)	66.7 (18)	7.26*
Alcohol use	16.1 (9)	51.5 (17)	51.9 (14)	16.25***
Drug use	3.6 (2)	57.6 (19)	74.1 (20)	49.60***

Served jail sentence	5.4 (3)	30.3 (10)	44.4 (12)	18.55***
Admitted psychiatric hospital	19.6 (11)	51.5 (17)	18.5 (5)	12.10**
Mental health problem	25 (14)	54.5 (18)	40.7 (11)	7.97*
Sexual violence after age 18	12.5 (7)	57.6 (19)	44.4 (12)	21.34***
Abuse by partner	39.3 (22)	72.7 (24)	77.8 (21)	15.30***
Physical violence after age 18	28.6 (16)	72.7 (24)	85.2 (23)	29.83***
Suicide attempt	10.7 (6)	72.7 (24)	85.2 (23)	54.30***
Reported to the police	8.9 (5)	51.5 (17)	70.4 (19)	35.37***
Arrested for a crime	5.4 (3)	51.5 (17)	77.8 (21)	47.10***
Convicted of a crime	5.4 (3)	39.4 (13)	40.7 (11)	19.48***
Pregnant without wishing to	30.4 (17)	51.5 (17)	77.8 (21)	16.74***
Underwent an abortion	25 (14)	33.3 (11)	59.3 (16)	9.44**
Miscarriage	16.1 (9)	24.2 (8)	40.7 (11)	6.06*
Separation from a child	12.5 (7)	51.5 (17)	63 (17)	25.58***

* $p < .05$; ** $p < .01$; *** $p < .001$.

Supplementary materials

Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women

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Supplementary materials

Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women

Method

Treatment

Supplementary Table 1. Treatment content split by session.

Session number	Content
Session 1	Psychoeducation. Understanding emotions. Introduction to the motivation to change
Session 2	Motivation and commitment to change. Objectives and goals
Session 3	Three components model of emotional experiences. <i>What do I think? what do I feel? how do I act?</i>
Session 4	Recognizing and tracking emotional responses. ARC model of emotional experiences
Session 5	Emotion awareness training. Non-judgmental present-focused emotion awareness exercises Mindfulness
Session 6	Understanding the thought: Evaluation and cognitive reevaluation. Cognitive flexibility
Session 7	Understanding and managing our feelings: Awareness and tolerance to physical sensations
Session 8	Emotion-driven behaviors (EDBs)
Session 9	Emotional Avoidance
Session 10	Interoceptive and situational emotion exposure. Imaginal exposure
Session 11	Achievement Recognition and looking to the future
Session 12	Relapse prevention and treatment termination

EDBs: Emotion-driven behaviors

Therapist and treatment integrity

The therapist (SRM) and the co-therapist were two PhD candidates in clinical psychology with extensive experience working with homeless individuals in clinical

practice. Both the therapist and the co-therapist were trained in the UPHW protocol by the treatment developers, and both were directly involved in the adaptation of the treatment protocol. Program adherence was supported by periodic meetings with the senior authors of the study. Furthermore, treatment adherence was assessed by the therapist and co-therapist after each session using a standardized questionnaire assessing degree of adherence to the goals, contents and activities of each session, as well as an open-ended question about areas for improvement (Marín et al., in press).

Therapists contacted participants before treatment sessions and also after any missed sessions to explore reasons for non-attendance. Previous studies have shown that dropout rates are very high in homeless population (Coldwell & Bender, 2007; Rew et al., 2017), probably due to the nomadic nature of the homeless. In this study, treatment completion was high, with only 28.3% discontinuing treatment in the UPHW. This may be due to the high satisfaction levels ($M=8.97$, $SD=1.45$ in a single-item measuring satisfaction from 0 to 10) and the perceived usefulness of the treatment ($M=9.10$, $SD=1.42$; in a single-item measuring usefulness from 0 to 10) in the full sample (including the drop-out cases). that have been reported for the UPHW in this population (Marin et al., in press). Reasons for treatment discontinuation included health problems, hospitalizations, incompatibility with medical appointments, and alcohol and other substance problems.

Assessment

Primary outcomes

Beck Anxiety Inventory (BAI) (Beck & Steer, 1993). The BAI is a 21-item self-report measure designed to assess anxiety severity, with a maximum of 63 points. Each item has a 4-point severity scale (e.g., not at all, mildly, moderately, and severely),

addressing symptoms experienced during the past week. The internal consistency of the Spanish version has been found to range from .85 to .94 (Magán et al., 2008). In the current study, the internal consistency of the BAI was $\alpha = .89$.

Beck Depression Inventory-II (BDI-II) (Beck et al., 1990). The BDI-II is a 21-item self-report measure designed to assess depression severity. Each item is rated from 0 to 3 with a total score of a maximum of 63 points. The Spanish version has shown good internal consistency ($\alpha = 0.86$) (Sanz et al., 2003). In the current study, the internal consistency of the BDI-II was $\alpha = .90$.

Secondary outcomes

Positive and Negative Affect Scale (PANAS) (Watson et al., 1988). The PANAS is a 20-item self-report measure designed to assess negative and positive affect in the last week. Each item has a 5-point severity scale (e.g., not at all, mildly, moderately, quite a lot, and severely) with a total score from 10 to 50 in each factor. The internal consistency of the Spanish version was $\alpha = .92$ for positive affect subscale and $\alpha = .88$ for negative affect subscale (López-Gómez et al., 2015). In the current study, Cronbach's alpha was $\alpha = .89$ for the positive affect subscale, and $\alpha = .84$ for the negative affect subscale.

Pemberton Happiness Index (PHI) (Hervás & Vázquez, 2013). The PHI is a 21-item measure designed to assess integrative well-being using a scale from 0 (fully disagree) to 10 (fully agree) in the first 11 items and dichotomous answers (yes/no) for the last 10 items. It includes two subscales (remember well-being and experienced well-being) and a total score. Remember well-being subscale assesses happiness and satisfaction level based upon people's memory and judgment of their lives, while experienced well-being subscale assesses momentary affective states in real time. The

total mean score ranges from 0 to 10 and the Cronbach's alpha of Spanish version was $\alpha = .84$. In the current study, the internal consistency of the PHI was $\alpha = .85$.

Short Form Health Survey (SF-12) (Ware et al., 1996). SF-12 is a generic health status instrument with 12 items, and eight subscales (physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional and mental health). These eight subscales can be combined into two scores for physical health (PH) and mental health (MH), and a total score, ranged from 0 to 100, where higher scores reflect better self-reported health. The internal consistency of the Spanish version was $\alpha = .85$ for PH and $\alpha = .78$ for MH (Vilagut et al., 2008). In the current study, Cronbach's alpha was $\alpha = .79$ for the PH subscale, and $\alpha = .75$ for the MH subscale.

Social Support Questionnaire (SSQ6) (Sarason et al., 1987): The SSQ is a 6 item measure of social support. It includes two scales: number and satisfaction with social support (on a scale ranging from 1 to 9). The Spanish version has shown good internal consistency for both dimensions ($\alpha = 0.90$ and $\alpha = 0.93$, respectively) (Martínez-López et al., 2014). In the current study, the internal consistency of the SSQ6 was $\alpha = .89$.

Overall Anxiety Severity and Impairment Scale (OASIS) (Norman et al., 2006) and **Overall Depression Severity and Impairment Scale (ODSIS)** (Bentley et al., 2014). The OASIS and ODSIS are two self-report questionnaire designed to evaluate the severity and functional impairment associated with anxiety and depression, respectively. The scales consist of five items with a 5-point Likert scale ranging from 0 (I didn't feel anxious/depressed) to 4 (Constant anxiety/depressed); total scores range from 0 to 20. Cronbach's alpha of the OASIS Spanish version was 0.86 (González-Robles et al., 2018) and $\alpha = .93$ for the ODSIS Spanish version (Mira et al., 2019). In the present study, the Cronbach's alpha for the OASIS was $\alpha = .86$ and for the ODSIS was $\alpha = .89$.

Data analysis

Student *t* and chi-square test were used to analyze baseline differences between groups. Following CONSORT guidelines (Moher et al., 2012), data imputation was performed following Newman's suggestions (2014), using Maximum Likelihood estimation (ML) via Expectation Maximization imputation (EM). The treatment of missing data was conducted following Hair and colleagues (2014) recommendations. Firstly, construct-level missing data were found, with a 16.2% of overall pre-post missing values in both groups and 22.5% of missing values along the four temporal moments in UPHW group. Secondly, Little's MCAR test, which was used to evaluate the random pattern of missing data, showed that the missing data were completely at random ($\chi^2_{(248)} = 168.60, p > .05$), and thus suitable for imputation. Thirdly, no significant differences between completers and dropped out cases were found in age ($t_{(44)} = -0.84, p = .41$), nationality ($\chi^2_{(2)} = 2.34, p = .31$), education ($\chi^2_{(5)} = 3.70, p = .60$), marital status ($\chi^2_{(1)} = 0.93, p = .34$), and employment ($\chi^2_{(1)} = 1.13, p = .29$). Furthermore, no significant differences between groups were found in the age of arrival to a homeless situation ($t_{(42)} = -0.14, p = .89$), in the total time in a homeless situation ($t_{(41)} = -1.03, p = .31$), and in the number of times in a homeless situation ($t_{(43)} = -0.81, p = .42$). Finally, after the ML imputation, sensitivity analysis was conducted comparing the results of the completers with the estimated data in the main outcomes (i.e., BDI and BAI), reaching the same conclusions with both data sets, indicating that ML estimation would not lead to biased estimations.

The data analysis plan was conducted with SPSS v. 25 following four successive steps. Firstly, analyses of covariance (ANCOVA) were carried out to examine the pre to post intervention effects in primary and secondary outcomes, using condition as the between-subjects factor (i.e., UPHW vs WLC) and baseline scores as covariates (i.e.,

pre scores). The use of ANCOVAs while controlling baseline scores has been recommended by several authors as a more powerful tool in pretest-posttest designs (Weinfurt, 2000). Secondly, in order to test whether the post-intervention changes remain stable over time, repeated measure ANOVAs were computed for the follow ups (i.e., post, 3-months and 6-months follow up). Thirdly, repeated measure ANOVA was performed to test post-module changes in depression (ODSIS) and anxiety (OASIS) in the UPHW group, using polynomial contrasts to test linear trends in the outcomes (i.e., 12 inter session assessment). For all the analyses: a) basic assumptions were tested, correcting the degrees of freedom when sphericity assumption was violated; b) Partial Eta square (η^2_p) and Cohen's d effect sizes and its corresponding 95% Confidence Intervals (CI) were calculated based on Botella & Sánchez-Meca suggestions (2015); power analysis ($1-\beta$) was also computed for each ANOVA effect; and d) pairwise Bonferroni-corrected comparisons were used for post-hoc analysis.

Finally, in order to improve individual-level analysis and the detection of potential adverse effects of the intervention, the Reliable Change Index was computed using the Jacobson and Truax's index (RCI; Jacobson & Truax, 1991) for the main outcome measures (i.e., BDI and BAI) in the completer's database. Firstly, we established the cut-off points for each post-intervention outcome (i.e., under cut-off = no change; above cut-off = functional change). Secondly, the RCI was computed, where an RCI lower than -1.96 indicates an improvement, an RCI between -1.96 and 1.96 indicates no changes and RCI greater than 1.96 indicates a deterioration. Finally, in order to determine the type of clinical change, participants were classified into four categories using their cut-off and RCI scores: a) *No change*: when the post-intervention score does not reach the functional cut-off and the change is no reliable, b) *Recovered*: when post-intervention scores is located within the range of the functional distribution

and the change is reliable; c) *Improved*: when the change is reliable but post-intervention scores does not reach the functional level; and d) *Deteriorated*: when the post-intervention score does not reach the functional cut-off and the post-intervention score is worse than pre-intervention score.

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Scientific articles included in the dissertation

The present doctoral dissertation follows a publication compendium format, including a general introduction, divided into four chapters, and a general discussion and conclusions. The scientific articles composing the dissertation are as follow:

- Rodríguez-Moreno, S., Vázquez, J.J., Roca, P., & Panadero, S. (2020). Differences in stressful life events between men and women experiencing homelessness. *Journal of Community Psychology*, 49(2), 375-389. <https://doi.org/10.1002/jcop.22465>
- Rodríguez-Moreno, S., Panadero, S., & Vázquez, J. J. (2020). Role of stressful life events among women experiencing homelessness: An intragroup analysis. *American Journal of Community Psychology*, 1-12. <https://doi.org/10.1002/ajcp.12480>
- Rodríguez-Moreno, S., Panadero, S., & Vázquez, J. J. (2020). Risk of mental ill-health among homeless women in Madrid (Spain). *Archives of Women's Mental Health*, 23, 657-664. <https://doi.org/10.1007/s00737-020-01036-w>
- Marín, C. Guillén, A. I., Rodríguez-Moreno, S., Diéguez, S., Panadero, S., & Farchione, T. J. (2021). Application of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders among homeless women: A feasibility study. *Psychotherapy*. <https://doi.org/10.1037/pst0000357>
- Rodríguez-Moreno, S., Farchione, T. J., Roca, P., Marín, C., Guillén, A. I., & Panadero, S. (2020). Initial effectiveness evaluation of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders for homeless women. *Behavior Modification*, 1-23. <https://doi.org/10.1177/0145445520982562>

- Rodríguez-Moreno, S., Guillén, A. I., Tirpak, J. W., Marín, C., Cardona, N. D., Eustis E. H., Farchione, T. J., Barlow, D. H., & Panadero, S. (under review). Mediators and moderators of therapeutic change in the Unified Protocol for women experiencing homelessness. *Journal of Affective Disorders*.

As a way to integrate each article in the dissertation, the thesis chapters are accompanied by a brief preamble explaining the importance of the study in the field, in general, and in the dissertation in particular.

All coauthors have declared their agreement to the use of these publications as part of the present doctoral dissertation, giving up the possibility of using these articles as part of any other doctoral dissertations.

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