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The co-occurrence of chronic pain and psychological distress and its associations with salient socio-demographic characteristics among long-term social assistance recipients in Norway

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HIGHLIGHTS

- Long-term social assistance recipients (LTRs) and pain.
- Chronic pain and psychological distress are associated with childhood difficulties.
- Childhood difficulties increased pain and psychological distress in adult lives.
- There is a relationship between pain, health and life satisfaction among LTRs.
- LTRs with both chronic pain and psychological distress are often feeling lonely.

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ABSTRACT

Background: While lower socioeconomic status increases individual's risk for chronic conditions, little is known about how long-term social assistance recipients (LTRs) with multiple chronic health problems experience chronic pain and/or psychological distress. Social assistance is the last safety net in the Norwegian welfare system and individuals have a legal right to economic assistance if they are unable to support themselves or are entitled to other types of benefits. The purposes of this study were to determine the co-occurrence of both chronic pain and psychological distress and to evaluate for differences in demographic and social characteristics, as well as health-related quality of life, among LTRs.
Methods: This descriptive, cross-sectional study surveyed people receiving long-term social assistance in Norway about their health and social functioning from January-November 2005. The social welfare authority offices in each of 14 municipalities in Norway were responsible to locate the LTRs who met the study's inclusion criteria. The selected municipalities provided geographic variability including both rural and urban municipalities in different parts of the country. LTRs were included in this study if they: had received social assistance as their main source of income for at least 6 of the last 12 months; were between 18 and 60 years of age; and were able to complete the study questionnaire. In this study, 405 LTRs were divided into four groups based on the presence or absence of chronic pain and/or psychological distress. (1) Neither chronic pain nor psychological distress (32%, $n = 119$), (2) only chronic pain (12%, $n = 44$), (3) only psychological distress and (24%, $n = 87$), (4) both chronic pain and psychological distress (32%, $n = 119$).
Results: Except for age and marital status, no differences were found between groups in demographic characteristics. Significant differences were found among the four groups on all of the items related to childhood difficulties before the age of 16, except the item on sexual abuse. LTRs with both chronic pain and psychological distress were more likely to have experienced economic problems in their childhood home; other types of abuse than sexual abuse; long-term bullying; and had more often dropped out of school than LTRs with neither chronic pain nor psychological distress. LTRs with both chronic pain and psychological distress, reported more alcohol and substance use/illicit drug use, more feelings of loneliness and a lower mental score on SF-12 than LTRs with only chronic pain.

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Conclusions and implications: Co-occurrence of chronic pain and psychological distress is common in LTRs and problems in early life are associated with the co-occurrence of chronic pain and psychological distress in adult life. Although this study cannot assign a clear direction or causality to the association between social and demographic characteristics and chronic pain and psychological distress, the findings when examining LTRs' problems in childhood before the age of 16, indicated that incidents in early life create a probability of chronic pain and psychological distress in the adult life of the individuals. Further studies should use life course studies and longitudinal data in to investigate these important questions in LTRs.

1. Introduction

Social assistance is the last safety net in the Norwegian welfare system. Individuals have a legal right to economic assistance if they are unable to support themselves or are entitled to other types of benefits [1]. In 2011, approximately 3.1% of the adult population received social assistance [2], and 35% of these individuals were long-term social assistance recipients (LTRs) defined as having received social assistance at least 6 of the last 12 months [3].

Many LTRs have had a troubled childhood [4,5] and have experienced parents with substance abuse and mental health problems. Compared to the general population, LTRs have less education, little human capital, scarce financial and material resources [6,7], relatively poor physical and mental health (e.g., hypertension, diabetes, pain, anxiety, depression, drug abuse), and poorer quality of life [8–10]. In 2009, over 50% of LTRs had incomes at or below the poverty level [11]. LTRs have a higher mortality rate than the general population and higher rates of alcohol and illicit drug use. It is of note, violence contributes to half of the excess mortality in men, and one-third in women who are LTRs [12].

Findings from numerous studies suggest that chronic pain and psychological distress co-occur (e.g., patients with chronic pain report higher levels of depression, fear, and anxiety) [13–16]. However, not every individual with psychological distress has chronic pain or vice versa. Also, no agreement exists on the causal relationships between these two conditions. In general, being female, older age, lower socioeconomic status, being unemployed; having a history of abuse or interpersonal violence, increase or are associated with chronic pain [17] and psychological distress [18–20]. Most of these associations however, were evaluated in individuals with either chronic pain or psychological distress. While lower socioeconomic status increases an individual's risk for chronic conditions [21], little is known about how LTRs with multiple chronic health problems experience chronic pain and/or psychological distress.

In previous work, we have identified that 44% of LTRs reported chronic pain [22], and that 57% had psychological distress [23]. LTRs with chronic pain had a lower health-related quality of life than LTRs without chronic pain. The same goes for LTRs of younger age, presence of chronic pain, loneliness, and alcohol and drug abuse. These characteristics were also associated with lower health-related quality of life [24].

Given the paucity of research on the co-occurrence of chronic pain and psychological distress and its associations with salient demographic and social characteristics in the same individuals into all on long-term social assistance, in this paper we extend our findings from previous studies specifically. In a sample of LTRs ($n = 405$) the purpose of this study is to determine the occurrence of both chronic pain and psychological distress and evaluate for differences in demographic and social characteristics, as well as health related quality of life. LTRs are classified into one of four groups (i.e. neither chronic pain nor psychological distress, only chronic pain, only psychological distress, chronic pain and psychological distress).

2. Methods

2.1. Design and data collection procedures

A detailed description of the methods is reported elsewhere [22,25]. In brief, this study is part of a larger study, entitled: "The study of functional ability among long-term social assistance recipients". The study was funded by the Directorate for Health and Social Affairs in Norway after an evaluation of "The National Activation Trial" from 2000 to 2004 [26], which was done to promote and support new ways to move LTRs away from benefit dependency into work. This descriptive, cross-sectional study surveyed people receiving long-term social assistance in Norway about their health and social functioning from January to November 2005.

The social welfare authority offices in each of 14 municipalities in Norway were responsible to locate the LTRs who met the study's inclusion criteria. The respondents were sent the survey questionnaires, and they returned them directly using a postage paid envelope to Oslo University College. LTRs who did not reply received two mailed reminders. Some LTRs who did not respond to the mailed reminders were telephoned, while others were reminded to complete the questionnaires by case workers. These extensive data collection procedures were used because previous experience has demonstrated that LTRs can be difficult to reach. Some relocate and change their addresses frequently or live at an unknown residence; others stay temporarily in shelters, hospitals, institutions, or prison.

2.2. Sample

The selected municipalities provided geographic variability including both rural and urban municipalities in different parts of the country. LTRs were included in this study if they: had received social assistance as their main source of income for at least 6 of the last 12 months, were between 18 and 60 years of age, and were able to complete the study questionnaire.

In this study, 1291 LTRs met the initial inclusion criteria. However, 225 of these individuals were pre-screened by case workers and were considered to be unable to complete the questionnaire due to severe substance abuse problems, insufficient mastery of the Norwegian language, extensive problems with reading and writing, or serious illness. Therefore, 1066 LTRs were included and, of that number, 562 responded (i.e., response rate of 52.7%). Administrative data ("FD-trygd") were used to compare the 1291 recipients who met the inclusion criteria with those who responded to the questionnaire. No differences in age, gender, and previous receipt of social assistance or social security benefits were found between those LTRs who did and those who did not return the study questionnaires [27].

2.3. Ethics

When research is done with vulnerable groups, special attention needs to be given to research ethics. This study was planned

and performed in a way that protected the LTRs from violations of their right to privacy. Completion of the questionnaires indicated informed consent. The study, including the number of reminders, was approved by the Data Inspectorate and the National Committee for Research Ethics in the Social Sciences and the Humanities.

2.4. Instruments

2.4.1. Sociodemographic characteristics

Data on age, gender, marital status, education, ethnic minority status, and work history were obtained from the LTRs.

2.4.2. Pain

Pain was assessed using a nine-item questionnaire that evaluated the presence of pain, and if present, its cause, location, duration, intensity, and treatments. In this study, LTRs were categorized into pain groups based on their responses to a screening question about whether or not they were generally in pain. In the present study, only the presence and duration of pain (i.e., being in chronic pain versus not being in chronic pain) is used in the analysis. The duration of pain is used as the sole instrument because it is the most relevant way of measuring chronic pain. Chronic pain was defined as pain of >3 months duration. For the LTR group who answered "yes" to the question "Do you generally have pain?" the response to the duration question was analyzed. Those LTRs whose pain duration was >3 months were classified as "chronic pain patients". Those LTRs whose pain duration was ≤3 months were classified as "not being in chronic pain".

2.4.3. Psychological distress

The 10-item Hopkins symptom checklist (HSCL-10) was used to evaluate psychological distress. HSCL is one of the most widely used questionnaires for evaluating psychiatric symptoms and deviant behaviour and has earlier been used in patients with chronic pain. A total HSCL-10 score is calculated as the mean of the 10 individual items. Each item is rated on a 4-point Likert scale that ranges from 1 (not at all) to 4 (extremely). HSCL-10 has a cut point of 1.85 [28] which is recommended as a valid predictor of mental disorders as assessed independently by a clinical interview. Cronbach's alpha for the HSCL-10 in LTRs was 0.92.

2.4.4. Childhood difficulties before the age of 16

The items that evaluated childhood's difficulties before the age of 16 were used in a previous Norwegian study about living conditions among inmates in prisons [29]. In this study, 7 difficulties were evaluated using a, yes/no format. LTRs were asked "Did you experience any of the following problems before the age of 16?": economic problems in childhood home, conflicted relationships between your parents, parents' abuse of alcohol and drugs, sexual abuse, other types of abuse, long-term bullying, and dropped out of school.

2.5. Health

2.5.1. Alcohol and substance use/illicit drug use questionnaire

Two questions were asked about whether the LTRs now were or previously had been experiencing problems with alcohol and substance/illicit drug use (i.e., yes, "yes some", collapsed to yes (1) "not now, but earlier", and "no" collapsed to no (2). These items were developed and pilot tested for this study.

2.5.2. Feeling lonely

LTRs were asked "Does it happen that you often, sometimes, seldom, or never (seldom and never were collapsed) feel lonely?" This question was used in previous studies of the Norwegian general population by Statistics Norway [30].

2.6. Quality of life

2.6.1. Life Satisfaction

A single item (i.e., "How satisfied or dissatisfied are you with your life overall"? assessed life satisfaction. The response ranged from "very satisfied" (1) to "very dissatisfied" (5) using a 5-point Likert scale [31]. In this study, "very satisfied" and "satisfied" were collapsed to "satisfied", and "very dissatisfied" and "dissatisfied" were collapsed to "dissatisfied".

2.6.2. Health-related quality of life

The Short-Form Health Survey (12 SF-12) was used to evaluate health-related quality of life. The SF-12 is a self-administered multi-dimensional instrument. The Norwegian version consists of 12 questions about physical and mental health [32,33]. In this study, participants were asked to respond to each of the 12 items in relationship to "the last four weeks". The instrument is scored into two components that measure physical (i.e. physical component summary scale (PCS) and mental (i.e. mental component summary scale (MCS)). The scores on PCS and MCS are transformed into a 0 to 100 scale. Higher scores indicate a better health-related quality of life. The scores are standardized based on United States general population norms so that a score of 50 corresponds to the mean score for this population [32].

2.7. Statistical analyses

Data were analyzed using SPSS for Windows (version 22.0). Descriptive statistics and frequency distributions were used to describe the characteristics of the sample. In order to create the four chronic pain and psychological distress groups, LTRs were categorized based on their chronic pain status (i.e., chronic pain or no chronic pain and their score on the HSCL-10 (i.e., <1.85 (no psychological distress) or >1.85 (psychological distress)). Only individuals who had complete data on all 10 items of the HSCL-10 or could be clearly placed in either the chronic pain or no chronic pain groups ($n = 369$) were included in this analysis. One-way analyses of variance (ANOVA) and Chi Square analyses were used to evaluate for differences in demographic, social, health, substance use/illicit drug use characteristics, and childhood difficulties among the four groups. If the overall ANOVA, or Chi Square tests indicated significant differences among the four groups (p-value of <0.05), pairwise contrasts were done to determine where the differences were. If the Bonferroni procedure was used across the six possible pairwise contrasts (i.e., 0.05/6), the p-value needed to be <0.008 to be considered statistically significant.

3. Results

3.1. Distribution of the chronic pain and psychological distress groups

As shown in Table 1, the LTRs were divided into four groups based on the presence or absence of chronic pain and/or psychological distress. One group had neither chronic pain nor psychological distress (32% $n = 119$). One group reported having only chronic pain (12% $n = 44$), one group reported having only psychological distress but not chronic pain (24% $n = 87$), and one group reported having both chronic pain and psychological distress (32% $n = 119$).

Table 1
Differences in socio-demographic characteristics between long-term social assistance recipients (LTRs) with neither chronic pain nor psychological distress, LTRs with only chronic pain, LTRs with only psychological distress and LTRs with both chronic pain and psychological distress.

Characteristics	LTRs with neither chronic pain nor psychological distress (0) *N* = 119 (32%)	LTR with only chronic pain (1) *N* = 44 (12%)	LTR with only psychological distress (2) *N* = 87 (24%)	LTR with chronic pain and psychological distress (3) *N* = 119 (32%)	Statistics
Age (years) Mean (SD)	31.1 (10.3)	38.8 (11.3)	32.1 (10.2)	36.1 (10.4)	$F(3, 355) = 8.23$; $p < .001$ 0 < 1,3; 1 > 2
	N (%)	*N* (%)	*N* (%)	*N* (%)	
Gender					
Male	69 (58.0)	24 (54.5)	57 (65.5)	67 (56.3)	$X^2 = 2.29$; $p = 515$
Female	50 (42.0)	20 (45.5)	30 (34.5)	52 (43.7)	
Education					
Primary school	46 (39.3)	21 (48.8)	46 (55.4)	59 (51.3)	$X^2 = 8.24$; $p = .221$
Secondary school	58 (49.6)	17 (39.6)	32 (38.6)	50 (43.5)	
College/University	13 (11.1)	5 (11.6)	5 (6.0)	6 (5.2)	
Marital status					
Married/cohabitant	29 (24.4)	13 (29.6)	10 (11.5)	28 (23.7)	$X^2 = 19.17$; $p = .004$
Never married	67 (56.3)	17 (38.6)	64 (73.6)	59 (50.0)	Never married
Divorced/separated	23 (19.3)	14 (31.8)	13 (14.9)	31 (26.3)	1 < 2; 2 > 3
Lives alone					
Yes	55 (46.2)	20 (45.5)	48 (57.1)	61 (52.1)	X^2 =2.93; $p = .403$
No	64 (53.8)	24 (54.5)	36 (42.9)	56 (47.9)	
Ethnic minority					
Yes	18 (19.8)	9 (28.1)	8 (11.3)	20 (23.0)	$X^2 = 5.25$; $p = .155$
No	73 (80.2)	23 (71.9)	63 (88.7)	67 (77.0)	
Never employed at least 6 months					
Yes	81 (68.6)	33 (75.0)	59 (70.2)	81 (68.6)	X^2 Y= 0.72; $p = .868$
No	37 (31.4)	11 (25.0)	25 (29.8)	37 (31.4)	

3.2. Differences in demographic characteristics among the four groups

Except for age and marital status, no significant differences were found in any demographic characteristics among the four groups (see Table 1). LTRs who reported neither chronic pain nor psychological distress were younger than the LTRs with only chronic pain and younger than the LTRs with both chronic pain and psychological distress. LTRs with only chronic pain were significantly older than LTRs with only psychological distress. LTRs with only psychological distress were more often never married than LTRs with only chronic pain. In addition, LTRs with psychological distress were more likely to be never married than LTRs with both chronic pain and psychological distress.

3.3. Differences in childhood difficulties before the age of 16 among the four groups

As shown in Table 2, significant differences were found among the four groups on all of the items related to childhood difficulties before the age of 16, except the item on sexual abuse. LTRs with both chronic pain and psychological distress were more likely to have experienced economic problems in their childhood home; other types of abuse than sexual abuse; long-term bullying; and had more often dropped out of school than had LTRs with neither chronic pain nor psychological distress. LTRs with only psychological distress had more often experienced conflicted relationship between their parents than LTRs without both chronic pain and psychological distress. Finally, LTRs with psychological distress with or without chronic pain, had, before the age of 16, more often experienced having parents who abused alcohol and drugs, than LTRs with only chronic pain.

3.4. Differences in health and social characteristics among the four groups

As shown in Table 3, significant differences were found in the occurrence of alcohol and substance use/illicit drug use when comparing LTRs with both chronic pain and psychological distress to LTRs with neither chronic pain nor psychological distress. LTRs with both chronic pain and psychological distress more often have problems with alcohol and substance/illicit drug use than do LTRs with only chronic pain. In addition, LTRs with psychological distress and LTRs with both chronic pain and psychological distress reported more feelings of loneliness than did LTRs with only chronic pain. Differences among the four groups on individual items on HSCL-10 are illustrated in Fig. 1.

3.5. Differences in life satisfaction and health-related quality of life among the four groups

As shown in Table 3, LTRs with neither psychological distress nor chronic pain were more satisfied with their life than both the LTRs group with psychological distress only and the LTRs group with both chronic pain and psychological distress. LTRs in the chronic pain only group were less dissatisfied with their life than LTRs with psychological distress and LTRs with both chronic pain and psychological distress. As shown in Fig. 2, significant differences in PCS scores were found among the four groups. LTRs with neither chronic pain nor psychological distress reported significantly higher physical component summary scale (PCS) scores than LTRs with only chronic pain and LTRs with both chronic pain and psychological distress. LTRs with only chronic pain had a significantly higher mental component summary scale (MCS) scores than LTRs with only psychological distress and LTRs with both chronic pain and psychological distress.

4. Discussion

To my knowledge, this study is the first to determine the co-occurrence of chronic pain and psychological distress and to evaluate differences in demographic and social characteristics among LTRs, as well as health-related quality of life. In the present study, the overall occurrence of chronic pain alone, psychological distress alone, and both chronic pain and psychological distress in

Table 2
Differences in childhood difficulties before the age of 16 between long-term social assistance recipients (LTRs) with neither chronic pain nor psychological distress, LTRs with only chronic pain, LTRs with only psychological distress and LTRs with both chronic pain and psychological distress.

Childhood difficulties before 16 years of age	LTRs with neither chronic pain nor psychological distress (0) *N* = 119 (32%)	LTR with only chronic pain (1) *N* = 44 (12%)	LTR with only psychological distress (2) *N* = 87 (24%)	LTR with chronic pain and psychological distress (3) *N* = 119 (32%)	Statistics
	N (%)	*N* (%)	*N* (%)	*N* (%)	
Economic problems in childhood home					
Yes	40 (35.1)	17 (40.5)	38 (46.3)	102 (86.4)	$X^2 = 8.23$; $p = .042$
No	74 (64.9)	25 (59.5)	44 (53.7)	16 (13.6)	0 < 3
Conflicted relationships between your parents					
Yes	55 (47.0)	19 (46.3)	58 (69.0)	72 (64.3)	$X^2 = 14.06$; $p = .003$
No	62 (53.0)	22 (53.7)	26 (31.0)	40 (35.7)	0 < 2
Parents alcohol and drug abuse					
Yes	33 (29.2)	5 (12.2)	30 (37.0)	44 (39.6)	$X^2 = 11.63$; $p = .009$
No	80 (70.8)	36 (87.2)	51 (63.0)	67 (60.4)	1 < 2,3
Sexual abuse					
Yes	14 (12.1)	1 (2.4)	16 (19.8)	16 (14.4)	$X^2 = 7.21$; $p = .065$
No	100 (87.7)	40 (97.6)	65 (80.2)	95 (85.6)	
Other types of abuse					
Yes	10 (8.8)	5 (12.5)	16 (19.8)	37 (33.9)	$X^2 = 23.59$; $p < .001$
No	103 (91.2)	35 (87.5)	65 (80.2)	72 (66.1)	0 < 3
Long term bullying					
Yes	24 (21.2)	7 (17.1)	26 (32.1)	52 (45.6)	$X^2 = 20.09$; $p < .001$
No	89 (78.8)	34 (82.9)	55 (67.9)	62 (54.4)	0 < 3; 1 < 3
Dropped out of school					
Yes	27 (23.9)	11 (26.8)	36 (45.0)	58 (51.3)	$X^2 = 21.89$; $p < .001$
No	86 (76.1)	30 (73.2)	44 (55.0)	55 (48.7)	0 < 2,3

this sample of LTRs was 68%. This finding is consistent with previous reports that noted that a high percentage of LTRs struggle with relatively poor physical and mental health [8,34]. Previous research has also noted that health problems tend to be unequally distributed within populations, with the greatest burden being carried by the socially disadvantaged [35]. LTRs and welfare recipients have a higher rate of chronic pain and psychological distress than the general population and have more depressive symptoms, decreased psychological well-being, and are more likely to have mental problems than non-recipients [10,36,37]. A recent longitudinal study found that economic hardship, unemployment and living on social welfare were strong determinants of common mental disorders [6].

No significant differences were found among the four groups, in the majority of demographics characteristics. However, consistent with previous reports, the occurrence of chronic pain was associated with increased age [17,37–39], and LTRs with only psychological distress more often had never been married than LTRs with only chronic pain, and LTRs with both chronic pain and psychological distress. This finding is consistent with previous research on marital status and mental health, which consistently shows that married people report better mental health than do those who are not married [40]. However, a potential reason for more often never having married, is perhaps being of a younger age.

Consistent with previous studies [4,41,42], LTRs in Norway have experienced numerous childhood difficulties. While a relatively high percentage of LTRs in all four groups reported that they had "experienced economic problems in childhood homes", the highest occurrence rate was found among LTRs who reported having both chronic pain and psychological distress. This finding is consistent with a US study which found that poverty, low socioeconomic status, and parents receiving welfare assistance, were important early life course circumstances that increased the risk of experiencing

Table 3
Differences in health and social characteristics between long-term social assistance recipients (LTRs) with neither chronic pain nor psychological distress, LTRs with only chronic pain, LTRs with only psychological distress and LTRs with both chronic pain and psychological distress.

Characteristics	LTRs with neither chronic pain nor psychological distress (0) *N* = 119 (32%)	LTR with only chronic pain (1) *N* = 44 (12%)	LTR with only psychological distress (2) *N* = 87 (24%)	LTR with chronic pain and psychological (3) *N* = 119 (32%)	Statistics
	N (%)	*N* (%)	*N* (%)	*N* (%)	
Alcohol					
Yes	9 (7.7)	3 (6.8)	16 (18.4)	30 (25.2)	X^2 =16.81; $p = .001$
No	108 (92.3)	41 (93.2)	71 (81.6)	89 (74.8)	0 < 3; 1 < 3
Substance/Illicit drug use					
Yes	10 (8.5)	4 (9.1)	40 (46.0)	41 (34.5)	$X^2 = 47.66$; $p < .001$
No	107 (91.5)	40 (90.9)	47 (54.0)	78 (65.5)	0 < 2,3; 1 < 2,3
Life satisfaction					
Satisfied	60 (50.4)	12 (27.3)	7 (8.0)	7 (6.0)	$X^2 = 123.0$; $p < .001$
Neither/nor	52 (43.7)	26 (59.1)	39 (44.8)	42 (36.2)	Satisfied; 0 > 2,3; 1 > 3
Dissatisfied	7 (5.9)	6 (13.6)	41 (47.1)	67 (57.8)	Dissatisfied; 0 < 2,3; 1 < 2,3
Feeling lonely					
Often	10 (8.5)	8 (18.2)	49 (57.6)	64 (54.2)	$X^2 = 90, 49$; $p < .001$
Sometimes	57 (48.3)	17 (38.6)	28 (32.9)	38 (32.2)	Often; 0 < 2, 3; 1 < 2,3
Seldom/never	51 (43.2)	19 (43.2)	8 (9.4)	16 (13.6)	Seldom/never; 0 > 2,3; 1 > 2,3

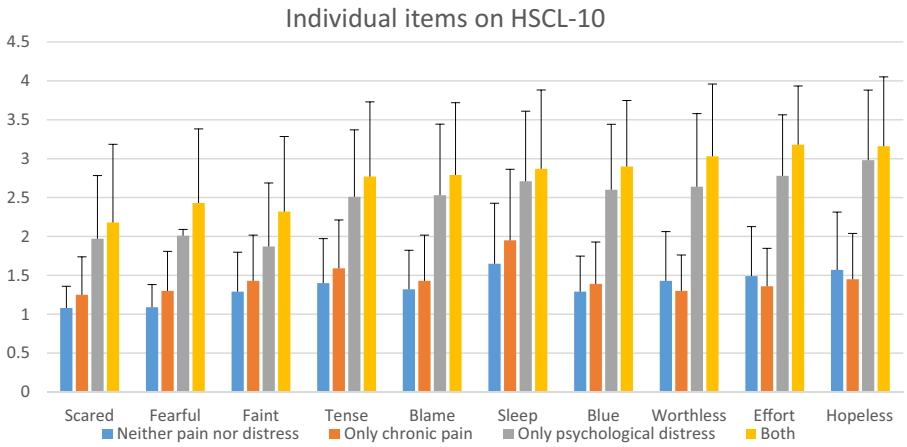

Fig. 1. Differences in single item and mean scores on the Hopkins Symptom Checklist between long-term social assistance recipients (LTRs, $n = 369$) with neither chronic pain nor psychological distress ($n = 119$), LTRs with only chronic pain ($n = 44$), LTRs with only psychological distress ($n = 87$) and LTRs with both chronic pain and psychological distress ($n = 119$). All values are plotted as means ± standard deviation.

depression, chronic pain, or both of these conditions in adulthood [43]. Additional support for the relationship between increased childhood difficulties and poorer mental health as adults was found in a previous study on depressive symptoms over the life course. They have found that low household income, low economic status in early age, and having parents with low education are associated with higher occurrences of depression and anxiety in adulthood [44].

It is interesting to note that compared to LTRs with neither chronic pain nor psychological distress, a significantly higher percentage of LTRs in the only psychological distress group reported that they "experienced conflicted relationships between their parents". This finding is consistent with previous work which found that an individual's childhood conditions (e.g., low social support, small degree of control and coping in everyday life), and their relationships with family and friends (e.g. attachment insecurity) [45]. Previous studies have also shown that a variety of life events in young age (e.g., serious economic problems, chronic pain, hazardous alcohol use, gambling addiction, living below the poverty line), were all risk factors for mental health problems [45].

Another finding is that, compared to LTRs in the chronic pain only group, LTRs in both the psychological distress only group and the group with both chronic pain and psychological distress grew up with parents who abused alcohol and illicit drugs. In addition, significantly more LTRs in these two groups had dropped out of school before the age of 16. These findings suggest that both socio-economic background and critical life events increase the likelihood that an individual will receive social assistance [5]. In addition, previous research has found that exposure to parental addiction in childhood was associated with psychological distress into adulthood [46].

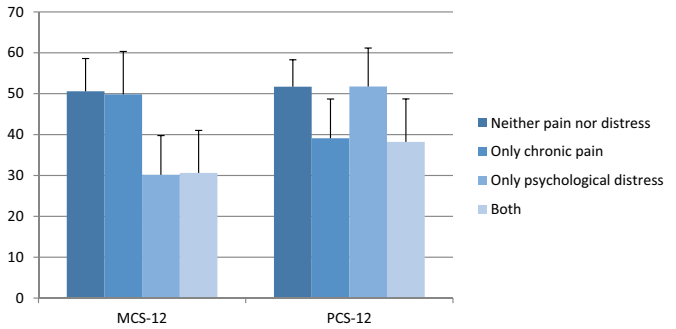

Fig. 2. Differences in physical component (PCS 12) and mental component (MCS 12) scores from the SF-12 between long-term social assistance recipients (LTRs, $n = 320$) with neither chronic pain nor psychological distress ($n = 107$), LTRs with only chronic pain ($n = 41$), LTRs with only psychological distress ($n = 76$) and LTRs with both chronic pain and psychological distress ($n = 96$). All values are plotted as means ± standard deviation.

An important finding from our study is that significantly more LTRs with both chronic pain and psychological distress reported experiences of "long term bullying" and reported "other types of abuse". This finding is consistent with a growing body of research that focuses on the association between childhood difficulties (e.g., bullying, psychical abuse, sexual abuse) and pain [47–52]. A recent meta-analysis confirms the association between having been bullied and having psychosomatic problems [53]. In addition, a review assessed evidence from longitudinal studies for childhood determinants of adult mental illness, found evidence that child abuse, especially child sexual abuse has powerful consequences (e.g., major psychiatric disorders, high risk life-styles, self-destructive and violent behaviors, problems with relationships) [54]. However, it is interesting to note that no significant differences were found regarding sexual abuse between the four groups in the present study. In this present study, LTRs, compared to the general population in Norway, reported lower prevalence rates for sexual abuse [55].

This study shows that LTRs with psychological distress only and LTRs with both chronic pain and psychological distress are more often feeling lonely than LTRs within the other two groups. However, these findings support the suggestion that loneliness affects an individual's physical health and mortality, as well as that individual's mental health and cognitive functioning [56].

LTRs in the psychological distress only group and in the group with both chronic pain and psychological distress were more dissatisfied with their lives than were LTRs with neither chronic pain nor psychological distress and LTRs with chronic pain only. This is consistent with a previous study, which had found depression to be a robust predictor of low health-related quality of life [57]. Both groups reported a very low mental component score (MCS) (MCS = 30.16 and 30.63, respectively). LTRs with neither chronic pain nor psychological distress have the same mean MCS score (MCS = 50.60) as is indicated by the normative data for the general population in Norway. Individuals in that same group (LTRs with neither chronic pain nor psychological distress) have a higher physical component summary score (PCS) than indicated by the normative data (PCS score = 50.3) [32]. The LTRs who reported chronic pain only and both chronic pain and psychological distress have a lower psychical score, (PCS = 39.11 and 38.22, respectively),

which is lower than the normative data for patients with low back pain [33]. This finding confirms findings from earlier research, that chronic pain and mental health problems such as anxiety and depression are closely linked [58] to poor quality of life.

Some limitations of this present study need to be acknowledged. First, with the cross-sectional design we cannot assign a direction or causality to the association between socio-demographic factors, chronic pain and psychological distress in LTRs. We need to know more about causality and effects of various factors and how these factors impact individuals' life courses. Another limitation is the use of retrospective self-report questions about childhood difficulties before the age of 16. It may be difficult to remember events from many years ago, and memory changing as the years pass. [59]. A third limitation of the present study is that, although the overall sample size of LTRs was relatively large, the distribution of the four groups resulted in there being relatively small sample sizes in the pain only group, and in the psychological distress only group. A fourth limitation may be that the prevalence rates of sexual abuse are underreported. This may occur because this study is based on self-reported data where some might suppress incidents of sexual abuse.

5. Conclusion and implications

Despite these limitations, findings from the present study suggest that the co-occurrence of chronic pain and psychological distress is common among LTRs. Although this study cannot assign a clear direction or causality to the association between social and demographic characteristics, and chronic pain and psychological distress, the findings when examining LTRs' problems in childhood before the age of 16, indicated that incidents in early life create a probability of chronic pain and psychological distress in the adult life of the individuals. Findings from the present study may also indicate a close relationship between objective living conditions and subjective well-being, pain and health among LTRs.

Implications of this study are that future research should use life course studies and address whether having chronic pain and psychological distresses is a major or minor contributor to disability in LTRs.

Ethical approval

The study was approved by the Data Inspectorate and the National Committee for Research Ethics in the Social Sciences and the Humanities in Norway.

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Conflict of interest

None declared

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