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Secure but depressed? Welfare participation and mental health in Hong Kong

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ABSTRACT

Using the data from the Hong Kong Panel Study of Social Dynamics (HKPSSD), this study aims to answer the following questions: In a residual welfare state, does welfare participation improve or worsen recipients' mental health? How does the effect differ by gender and across age groups? We adopt the propensity scores matching method and the fixed-effects model to address the endogeneity issues. The results show that participation in the Comprehensive Social Security Assistance (CSSA) increases depression amongst recipients, and the effect differs by gender and age. Only men show higher levels of depression after receiving CSSA. The effect of CSSA participation on depression is greater for older people than for other age groups. The findings suggest that appropriate policies and services should be implemented to eliminate welfare stigma and address welfare recipients' mental health problems.

Introduction

In recent years mental health problems have shown a high prevalence, especially among disadvantaged groups. In particular, people with low socioeconomic status (SES) tend to have worse mental health (Aneshensel 2009; Bai et al. 2020; Lund et al. 2010; Miech et al. 1999; Ridley et al. 2020).

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Welfare programs provide financial assistance to those in need. While giving economic support, they may also affect recipients' mental health status. Recently, the mental health effects of welfare programs have received increasing attention from social scientists (Aizer et al. 2016; Chen, Wang, and Busch 2019; Qi and Wu 2018; Shahidi et al. 2019; S. Wu, Wu, et al. 2018). Although welfare benefits help relieve the financial burden of the poor, their effect on mental health is debatable. On the one hand, welfare participation provides additional resources to improve the health and mental health conditions of people with low SES. Some studies have shown that those in need can improve their mental health and subjective well-being after participating in welfare programs (Eyal and Burns 2019; Han and Gao 2020; Haushofer and Shapiro 2016; Kilburn et al. 2018). Other studies have found that welfare participation negatively impacts mental health, particularly in developed societies, because of the stigma associated with being in poverty and on welfare (Dackehag et al. 2020; Kühner and Chou 2025; Weitoft et al. 2008; S. Wu, Fraser, et al. 2018). Thus the relationship between welfare participation and mental health remains controversial.

Welfare attitudes and related effects are deeply embedded in the specific welfare model and social context (Andreß and Heien 2001; Esping-Andersen 1990; Larsen 2008). In developing countries with limited economic resources, welfare can significantly improve recipients' living conditions. However, in affluent societies, welfare recipients are more likely to encounter stigma and its negative effects on mental health. As a result, analysis of the relationship between welfare participation and mental health needs to be situated in specific contexts. In addition, the relationship between welfare participation and mental health also varies across different social groups. Studies have reported that males and females have different attitudes towards welfare participation (Dackehag et al. 2020; Huber, Lechner, and Wunsch 2011). Men experience greater shame than women if they cannot make a living and provide support for their family. Adolescents, adults, and older people also respond differently to receiving social assistance (Han and Gao 2020). Middle-aged adults are more susceptible to welfare stigma. These variations further complicate the relationship between welfare participation and mental health. Therefore, a more nuanced study of the mental health effects of welfare benefits must account for the effects of context and variations by social groups.

Endogeneity is another issue to tackle when evaluating the effect of welfare participation on mental health. People with mental health problems may be more likely to enroll in welfare programs (S. Wu, Fraser, et al. 2018). Thus, selection bias and unobserved factors in observational studies can render the relationship between welfare participation and mental health spurious (Chen et al. 2019; Han and Gao 2020). If we are to estimate the causal effect of welfare participation in observational

studies, longitudinal data could provide more convincing results compared with cross-sectional data (Dackehag et al. 2020; Huo et al. 2020).

Hong Kong Special Administrative Region (HKSAR) is a typical example of a residual welfare state (C. Chan 1998; Lee 2005). The HKSAR government advocates self-sufficiency and emphasizes personal responsibility (Miao and Wu 2023). While there is no universal retirement protection scheme or unemployment insurance in Hong Kong, the HKSAR government has established social welfare programs to assist citizens in need, of which the most widely applicable is the Comprehensive Social Security Assistance (CSSA) scheme. CSSA provides a safety net for people in financial need because of age, disability, illness, or unemployment. Some studies show that CSSA recipients are stigmatized in Hong Kong: they are considered lazy and dishonest (Chung 2010), and these stereotypes have negatively impacted recipients' subjective well-being (S. Chan et al. 2022). However, the causal relationship between CSSA participation and mental health remains to established, and the potential variations across different gender and age groups are to be further examined.

This study aims to fill in these research gaps by exploring causality in the relationship between welfare participation and mental health in Hong Kong and how it varies by gender and age. Using data from the Hong Kong Panel Study of Social Dynamics (HKPSSD), we are to answer the following questions: in a residual welfare state, does participation in CSSA make recipients more depressed? How do the effects of CSSA participation on mental health differ between men and women and across different age groups? We employ the propensity score matching method and the fixed-effects model to address the endogeneity issues in the investigation of the causal effect of welfare participation on mental health. The research contributes to the literature on the mental health effects of welfare participation. Hong Kong's typical residual welfare regime and stigmatized welfare programs provide a unique context for our study.

In the following section, we review the literature on the relationship between welfare participation and mental health, and the differences, if any, in that relationship due to gender and age. Section "The Hong Kong context and research hypotheses" describes the Hong Kong context and elaborates our research hypotheses. We describe our data and analytical strategies in Section "Data and analytical strategies" and report the empirical results in Section "Empirical findings." The final section presents the conclusions and insights based on empirical findings.

Literature review

Scholars and policy makers are interested in investigating how participation in a welfare scheme affects recipients' mental health. According to

fundamental cause theory, SES and social support are the fundamental causes of mental health (Link and Phelan 1995). Welfare participation provides people with low SES with additional resources to reduce material deprivation and social exclusion and to improve their health conditions. Thus, it is expected to find mental health benefits of welfare participation. However, there is no consensus on research findings. Some studies show that welfare participation has a positive effect on mental health outcomes (Angeles et al. 2019; Haushofer and Shapiro 2016; Kilburn et al. 2016; Powell-Jackson et al. 2016), while others identify a negative effect (Dackehag et al. 2020; Kiely and Butterworth 2013; Rodriguez 2001; Weitoft et al. 2008; S. Wu, Fraser, et al. 2018).

These contradictory empirical results may reflect distinct social contexts. The positive effect of welfare participation on mental health is generally found in the developing countries (Owusu-Addo, Renzaho, and Smith 2018). People in low-income countries suffer from extreme and multidimensional poverty, lacking money, food, education, and health (Alkire et al. 2015). Cash-transfer programs provide economic assistance for poor people to help them escape poverty. In this case, welfare participation can bring significant advancement in daily life. In a materialist perspective, poor people are satisfied with receiving welfare, and their mental health can be improved. Using randomized control trials in low-income countries, studies of cash-transfer programs show that social assistance recipients have better subjective wellbeing and improved mental health. For instance, Malawi's national unconditional cash transfer program significantly improved youth mental health (Angeles et al. 2019). Caregivers' subjective well-being in households receiving Malawi's Social Cash Transfer Program are improved as well (Kilburn et al. 2018). In Kenya, recipients of GiveDirectly unconditional cash transfers experienced large increases in psychological well-being (Haushofer and Shapiro 2016). The mental health of young cash transfer recipients in Kenya has also been improved (Kilburn et al. 2016). In India, women participating in the Janani Suraksha Yojana program reported less maternal depression (Powell-Jackson et al. 2016). In China, citizens' political trust is mainly determined by the material benefits they receive (Li and Wu 2018).

On the other hand, the negative effect of welfare participation on mental health has consistently been found in developed countries (Shahidi et al. 2019; S. Wu, Wu, et al. 2018), where average standards of living have reached a high level, although relative poverty persists. Means-tested welfare programs act as a safety net for the disadvantaged to maintain social stability and inclusion. In the United States, young adults whose families receive welfare reported higher depression scores (S. Wu, Fraser, et al. 2018). A longitudinal study in Australia revealed poorer mental health among welfare recipients (Kiely and Butterworth 2013). In a

comparative study using panel data from Britain, Germany, and the United States, unemployed people receiving means-tested benefits reported worse mental health status (Rodriguez 2001).

The stigma associated with poverty and welfare can help explain the negative effects of welfare participation on mental health in these countries (Baumberg 2016; Walker 2014). "Stigma" is a sociological term that refers to "the situation of the individual who is disqualified from full social acceptance" (Goffman 1963, ix). The stigma of poverty is manifested personally, socially, and institutionally. At the personal level, individuals are ashamed of being considered poor. Recipients' perceptions of welfare can moderate the effect of welfare participation on mental health (Bergmans et al. 2018). Socially, public attitudes towards poverty and welfare participation are often negative. Institutionally, the stigma associated with poverty is evident in public policies and the delivery of social assistance. Recipients of social welfare are means-tested, and their personal information becomes publicly available. Therefore, it is not surprising that some who are eligible choose not to receive welfare to avoid the associated stigma (Kühner and Chou 2025).

The heterogeneous effects of welfare participation on mental health by gender and age have been well documented. The effects of gender and age are embedded in the social context: cultural norms and institutional frameworks play a significant role. A number of studies deal with variations due to gender: the negative effect of welfare participation is greater for men than for women (Dackehag et al. 2020; Huber et al. 2011). The difference can be explained by gender role norms: men are expected to be breadwinners, and, therefore, men experience greater shame than women if they cannot make a living and provide for their family (Hochschild and Machung 2012). The effect of welfare participation also varies among age groups. Middle-aged adults are recognized as breadwinners in the family and are, therefore, more susceptible to welfare stigma (Han and Gao 2020). Adolescents also are particularly vulnerable: those with experience of welfare participation have more problems with mental health than their peers (Huo et al. 2020; S. Wu, Wu, et al. 2018). When welfare schemes are designed for specific age groups, they also affect perceptions of social assistance. In societies with a well-established pension system for retired people, pension recipients are less dependent on social assistance and bear less welfare-associated stigma.

One limitation of previous studies is that welfare regimes are less discussed. The effects of welfare participation are embedded in welfare regimes. Studies have shown that welfare regimes and welfare attitudes are closely related (Andreß and Heien 2001; Jakobsen 2011; Larsen 2008; Roosma, van Oorschot, and Gelissen 2014). In a comparative welfare regime's perspective, people's perceptions of welfare vary according to

different welfare provisions. The liberal welfare state, for example, provides modest welfare for disadvantaged groups, and stigma potentially attaches to welfare recipients. In extreme cases, the residual welfare state can provide minimum welfare benefits, and welfare stigma is the most pronounced. Welfare provision disparities even within a country can have conflicting consequences. For instance, China is classified as a hybrid welfare state: welfare provisions are generous in urban areas but minimal in rural areas (Gao, Yang, and Li 2013). The Minimum Livelihood Guarantee program (*dibao*) is the basic social assistance scheme in China. Studies have found different effects of *dibao* participation. For urban residents, *dibao* participation carried a stigma that had a negative effect on their mental health (Qi and Wu 2018). Urban *dibao* recipients were less happy than non-recipients because welfare participation generally reduced their economic prospects (Gao and Zhai 2017). In contrast, *dibao* participation in rural China improved recipients' life satisfaction, manifested through perceived social status and confidence about the future (Han and Gao 2020).

The Hong Kong context and research hypotheses

Hong Kong was under British colonial rule for more than 150 years. In 1997, the People's Republic of China resumed the exercise of sovereignty over Hong Kong. Following the "One Country, Two Systems" policy, the HKSAR government inherited the colonial government's *laissez-faire* ideology (Chiu and Siu 2022). On the other hand, the HKSAR government advocates self-sufficiency and emphasizes personal responsibility (Miao and Wu 2023). There is no universal retirement protection scheme or unemployment insurance. The HKSAR welfare system is a typical residual welfare model (C. Chan 1998; Lee 2005). The government provides limited welfare benefits to citizens, the result of colonial history and reinforced by the 1990s' financial crisis.

Among the HKSAR's few welfare schemes, CSSA is a means-tested social welfare scheme for those without adequate means to meet their needs. CSSA provides a safety net for people in need due to old age, disability, illness, unemployment, and low income. The CSSA scheme was introduced in 1993 to replace the former Public Assistance Scheme, which had been in effect since 1971. There are three types of payments from the CSSA: standard rates, supplements, and special grants.[1] The standard rates and supplements are adjusted periodically according to the Social Security Assistance Index of Prices. In 2017, the average monthly CSSA payment for a household with three eligible members was HK$12,250 (Census and Statistics Department 2018).

CSSA qualification is determined on a household basis. Figure 1 presents the number and composition of CSSA cases from 2007 to 2017 and shows a downward trend (Census and Statistics Department 2018). At the end of 2017, the CSSA provided aid to 232,134 cases, representing 336,681 recipients. Case categories included old age, permanent disability, ill health, single-parent status, low earnings, and unemployment. The largest category was old age, accounting for 62.1% of CSSA cases in 2017. Since there is no public pension scheme in Hong Kong, CSSA is responsible for providing necessary funds to older people aged 60 years and above living in poverty. In recent years, there has been an increase in the percentage of these cases, as the result of population aging. CSSA is rarely given due to low earnings or unemployment (only 1.9% and 5.5% of cases, respectively, in 2017).

Mental disorders have been a significant public health concern in HKSAR. According to the Hong Kong Mental Morbidity Survey conducted between 2010 and 2013, 13.3% of the 5,719 surveyed adults reported common mental disorders, the most frequent diagnosis being mixed anxiety and depressive disorder (Lam et al. 2015). Like evidence from elsewhere, people with lower SES in Hong Kong have more mental distress (Bai et al. 2020; Chang et al. 2020; Cheung and Chou 2019).

Under the residual welfare state, CSSA recipients are stigmatized: they are often accused of laziness, abuse of the system, and fraud (S. Chan et al. 2022; Yang, Miao, and Wu 2022). As a result of this stigmatization, CSSA participation may have a negative overall effect on mental health despite the financial relief it offers. CSSA recipients are likely to suffer a

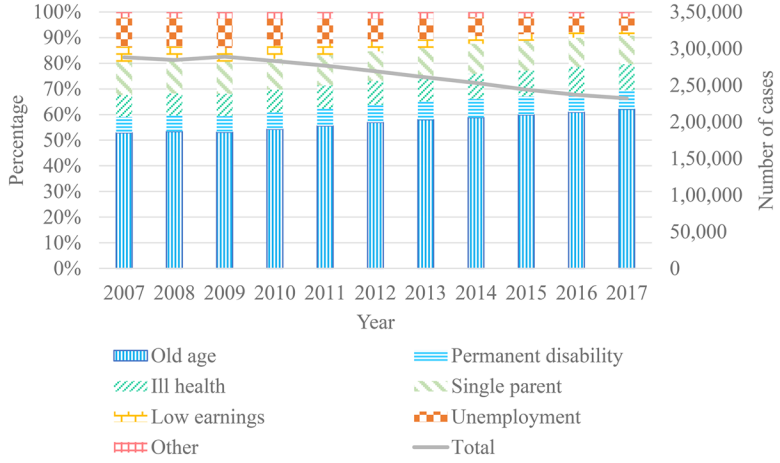

Figure 1. Number and composition of CSSA cases in Hong Kong, 2007–2017. *Source:* Census and Statistics Department, HKSAR, 2018

sense of shame, exacerbated by the application process, media coverage, and interactions with others (Chung 2010). Consequently, CSSA recipients have poorer mental health and a greater incidence of depression. Accordingly, we propose our first research hypothesis:

Hypothesis 1: CSSA recipients are more depressed than non-recipients.

In traditional Chinese society, men are expected to support the household as the breadwinner (Hochschild and Machung 2012). Although many women have entered the workforce, traditional assumptions persist in Hong Kong (Tong and Chiu 2017). Therefore, male CSSA recipients are more likely to suffer from a sense of failure. We propose our second hypothesis on the gender difference:

Hypothesis 2: Men are more likely to suffer from depression than women among CSSA recipients than among non-recipients.

As we have noted, the reasons for becoming a CSSA recipient vary across age groups. Many older people aged 60 years and above receive CSSA because they have no pension, and CSSA is their sole source of income. The official statistics show that more than 60% of CSSA cases are older people (Census and Statistics Department 2018), and they are particularly vulnerable to welfare stigma. Before February 2017, when older people applied for CSSA, their adult children were required to declare that they would not provide financial support for them. Given the culture of filial piety in China and the expectation that adult children will support their parents, these so-called "bad-son statements" made older people and their offspring feel ashamed. Therefore, our third research hypothesis was:

Hypothesis 3: Older people are more likely than other age groups to suffer from depression due to CSSA participation.

Data and analytical strategies

Data

Our analyses were based on data from the Waves 3 and 4 (W3 and W4 hereafter) of the Hong Kong Panel Study of Social Dynamics (HKPSSD). The HKPSSD is a city-wide longitudinal household survey. Using stratified random sampling and the computer-assisted personal interviewing (CAPI) system, the survey collects household-level information such as housing and economic conditions and personal information such as education, employment, health, attitudes, and social activities (X. Wu 2016). W3 and W4 were conducted in 2015 and 2017, respectively. The raw W3 data represent 5,160 adults from 2,401 households and W4 3,407 adults

from 1,978 households. After merging samples and eliminating missing data, our balanced data sets were based on 2,083 adults from 1,303 households.

The dependent variable in the study was the participant's degree of depression. We adopted the Hopkins Symptom Checklist (HSCL-10), widely used to measure mental health for clinical and epidemiological purposes (Kleppang and Hagquist 2016). In HSCL-10, depression is measured by responses to six questions (Syed et al. 2008): interviewees were asked to what degree, during the past week, they "blamed themselves for things," "had difficulties falling or staying asleep," "felt blue," "experienced feelings of worthlessness," "felt that everything was an effort," and "felt hopeless about the future." Answers were given on a four-point Liker scale from 1 meaning "not at all (<1 day)" to 4 indicating "extremely (5–7 days)." Cronbach's alpha of the six items was 0.80 in W3 and 0.82 in W4, showing high validity. In the following analysis, we averaged scores of the six items to measure depression, with a higher score meaning a greater level of depression.

The key independent variable in our study was CSSA participation. It is a dichotomous variable coded as 1 if the respondent received CSSA and 0 otherwise. In the household questionnaires, respondents were asked whether their household received CSSA. Given that CSSA is a household-based welfare system, we treat all members of the household as CSSA recipients if the household received CSSA. As panel data are available for the HKPSSD, we could trace any change in CSSA participation between W3 in 2015 and W4 in 2017.

The other independent variables include both individual and household characteristics. Individual characteristics included gender, age, immigrant status, marital status, health issues, education, and work status. Gender is a dichotomous variable coded as 1 for males and 0 for females. Age is a continuous variable. Immigrant status is a dummy variable coded as 1 if the respondent was born outside Hong Kong. Marital status is represented by three categories: unmarried, married, and divorced/widowed. Health issues is a dummy variable coded as 1 if the respondent had a chronic form of the following conditions: cancer, diabetes, hypertension, heart disease, stroke, asthma, high cholesterol, Alzheimer's disease, arthritis, or eye disease. Education is a dummy variable coded as 1 if the respondent had a degree from a post-secondary institution. Working status is also a dummy variable coded as 1 if the respondent was working when interviewed.

Household characteristics include household size, household structure, economic status, and home ownership. Household size is a continuous variable measuring the number of household members. Household structure indicates the age of household members according to three

categories: no older people (people aged 60 years and above), at least one older person (but not all), and all older people. Economic status is a dummy variable coded 1 if the household's monthly income before CSSA was less than the official poverty line. Home ownership was coded 1 if the household owned their own home and 0 otherwise.

Analytical strategies

Estimating the treatment effects of policy participation using conventional Ordinary Least Squares (OLS) regression raises issues of endogeneity. In our study, endogeneity mainly arose from self-selection bias and omitted variables. Observed and unobserved variables could undermine the validity of our findings regarding the relationship between CSSA participation and depression. CSSA recipients and non-recipients differed in many attributes. We need to compare the treated with the untreated who had similar characteristics. In terms of omitted variables, unobserved characteristics could influence both CSSA participation and mental health, leading to the biased estimates. To address these issues and make causal inferences, we needed to use advanced statistical methods and take advantage of panel survey design of the HKPSSD.

Propensity score matching (PSM) is a widely used semi-parametric method for addressing selections bias based on observational data (Guo and Fraser 2015). We adopt PSM to counteract the selection bias in CSSA participation and estimate a causal effect. First, we run a logistic regression to estimate the probability (i.e., the propensity score) of participating in CSSA (treatment) using a set of variables. We then match the samples with similar propensity scores. Using the matched samples, we can estimate the average treatment effect (ATE) and the ATE on the treated (ATT), which remove the selection bias due to observable covariates. Different methods can be adapted to match samples when using propensity scores. In this study, we adopted the radius matching method with a caliper of 0.01, which helps retain as many comparable samples as possible. We use the standardized mean differences to check imbalances before and after matching (Morgan and Todd 2008).

To remove the bias caused by omitted variables, we can also employ the fixed-effects model to estimate the causal effect of CSSA participation. Given that HKPSSD W3 and W4 are panel data, we could eliminate time-invariant personal factors once we control individual-level fixed effects. Our model is calculated as follows:

$$Depression_{it} = \alpha + \beta_1 CSSA_{it} + X_{it}\Gamma + \mu_i + \varepsilon_{it}\ \varepsilon_{it} \sim \mathrm{N}\left(0, \sigma_e^2\right),$$

where $Depression_{it}$ is the depression score of the respondent i at time t; $CSSA_{it}$ is the CSSA participation status of respondent i at time t; X_{it} is a vector of individual-level observed variables; μ_i is unobserved time-invariant individual-specific attributes; α is the constant; and ε_{it} is the error term. We adjust the standard errors for household clustering on the assumption that individuals within the same household were likely to have similar characteristics.

After conducting analyses using the PSM method and fixed-effects models separately, we combine the two methods. Before running the fixed-effects models, we keep the matched samples (where the treated and the untreated were matched according to their propensity scores). In other words, samples that are out of common support or fail to match with other samples are dropped off in fixed-effects analyses.

Empirical findings

Descriptive statistics

We present the descriptive statistics by waves and CSSA status in Table 1. W3 included 169 CSSA recipients and 1,914 non-recipients. In W4, the number of CSSA recipients rose to 178, whereas the number of non-recipients was 1,905. The mean depression scores of CSSA recipients and non-recipients in W3 were 1.412 and 1.150, respectively. In W4, we observe an increase in average depression scores of both groups. The mean depression score of CSSA recipients was 1.625 and that of non-recipients 1.291. The summary results show that CSSA recipients are more depressed than non-recipients.

When we factor in individual and household characteristics, we found significant differences between CSSA recipients and non-recipients. CSSA recipients are more likely to be older people, immigrants, divorced or widowed, or in poor health. They are less likely to have a job or post-secondary education. CSSA recipients also tend to be from a small household. It is more likely that all members of the household are older people, that they live in poverty before receiving CSSA, and that they do not own their home. These patterns can be found in both W3 and W4 data.

Given that W3 and W4 are panel data, we could track changes in CSSA participation for the same respondent. Table 2 reports the changes in CSSA participation between W3 and W4. CSSA participation status stay the same for 96.3% of respondents. Of the remaining 3.7%, 34 received CSSA in W3 but not in W4, and 43 received CSSA in W4 but not in W3. A total of 135 respondents received CSSA in W3 and W4; the remaining 1,905 respondents did not receive CSSA during either wave.

Table 1. Descriptive statistics by waves and CSSA status, HKPSSD Waves 3 and 4.

	Wave 3		Wave 4	
Variables	CSSA recipients ($n = 169$)	Non-CSSA recipients ($n = 1,914$)	CSSA recipients ($n = 178$)	Non-CSSA recipients ($n = 1,905$)
Outcome				
Depression (1–4)	1.412 (0.607)	1.150 (0.311)	1.625 (0.717)	1.291 (0.466)
Individual characteristics				
Male	0.432 (0.497)	0.441 (0.497)	0.455 (0.499)	0.439 (0.496)
Age	63.544 (18.731)	50.457 (17.788)	67.528 (17.431)	52.722 (17.749)
Immigrant	0.639 (0.482)	0.432 (0.495)	0.68 (0.468)	0.427 (0.495)
Marital status				
Unmarried	0.201 (0.402)	0.249 (0.432)	0.146 (0.354)	0.228 (0.42)
Married	0.497 (0.501)	0.644 (0.479)	0.494 (0.501)	0.668 (0.471)
Divorced/widowed	0.302 (0.46)	0.107 (0.309)	0.36 (0.481)	0.103 (0.305)
Health issues	0.497 (0.501)	0.309 (0.462)	0.68 (0.468)	0.415 (0.493)
Post-secondary degree	0.101 (0.302)	0.246 (0.431)	0.079 (0.270)	0.275 (0.447)
Employed	0.065 (0.247)	0.502 (0.500)	0.067 (0.2510)	0.533 (0.499)
Household characteristics				
Household size	2.018 (1.003)	3.289 (1.386)	2.107 (1.137)	3.302 (1.426)
Household structure				
No older people	0.231 (0.423)	0.464 (0.499)	0.135 (0.343)	0.387 (0.487)
Older person(s), but not all older persons	0.178 (0.383)	0.38 (0.485)	0.247 (0.433)	0.452 (0.498)
All older people	0.592 (0.493)	0.156 (0.363)	0.618 (0.487)	0.161 (0.367)
Below poverty line before CSSA	0.917 (0.276)	0.246 (0.431)	0.927 (0.261)	0.225 (0.417)
Home ownership	0.036 (0.186)	0.519 (0.5)	0.039 (0.195)	0.516 (0.500)

Notes: Sample means are reported. Standard deviations are in parentheses.

Table 2. Changes in CSSA participation, HKPSSD Waves 3 and 4.

	Wave 4		
Wave 3	CSSA recipients	Non-CSSA recipients	*N*
CSSA recipients	135	34	169
	(6.48)	(1.63)	(8.11)
Non-CSSA recipients	43	1,871	1,914
	(2.06)	(89.82)	(91.89)
N	178	1,905	2,083
	(8.55)	(91.45)	(100)

Notes: Cell percentages are in parentheses.

Model estimates

The descriptive statistics in Table 1 show that CSSA recipients and non-recipients shared few attributes. The selection of CSSA participants is based on observed variables. We employ the PSM method to remove this type of selection bias. First, we use logistic regressions to predict the propensity of receiving CSSA in W3 and W4. Odds ratios are reported in Table 3. The results show that, holding constant of all other factors, respondents who do not work, do not own their home, or live below the

poverty line are more likely to receive CSSA. Collinearity may exist in the models, although we aim to predict propensity rather than estimate unbiased coefficients.

We use the standardized mean differences for balance diagnostics to check the balance of covariates between the treated and the untreated before and after PSM (Morgan and Todd 2008). Since our matching method is radius matching with a caliper, there are cases where many samples in the untreated matched with one sample in the treated. When calculating the standardized difference after matching, we make adjustments using the weights generated in the matching procedure (Austin 2008). Table 4 shows the significant mean differences observed between the treated and the untreated before matching. If we use 0.1 as the threshold, almost all the mean differences are eliminated after matching. The standardized mean difference of the third category of household structure (all older people) in W3 was 0.104, which is close to 0.1. Overall, the covariate means between the treated and the untreated are balanced after matching.

Table 5 and Figure 2 show the estimated effects of CSSA participation on depression. To avoid complication, only coefficients and standard errors of CSSA participation are reported (full models can be found in Appendix A Table A1). In Model 1, we pool the W3 and W4 data sets and run an OLS regression. We show that CSSA recipients were more depressed than non-participants. Other things being equal, the depression

Table 3. Logistic regression models predicting propensity scores, HKPSSD Waves 3 and 4.

	Wave 3	Wave 4
Variables	Model 1	Model 2
Male	0.928	1.466*
Age	1.017	0.988
Immigrant (yes = 1)	0.902	1.324
Marital status (ref. = unmarried)		
Married	0.470+	0.512+
Divorced/widowed	0.531	1.567
Health issues (yes = 1)	0.698	0.954
Post-secondary degree (yes = 1)	1.000	0.587
Employed (yes = 1)	0.227***	0.212***
Household size	0.495***	0.793
Household structure (ref. = no older people)		
Older person(s), but not all older persons	0.550	1.542
All older people	0.538	2.672*
Below poverty line before CSSA (yes = 1)	14.215***	15.844***
Home ownership (yes = 1)	0.038***	0.044***
Constant	0.351	0.107**
N	2,083	2,083

Notes: Coefficients are odds ratios. Standard errors adjusted for household cluster effects are not reported. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$.

Table 4. Standardized mean differences for imbalance tests before and after propensity score matching, HKPSSD Waves 3 and 4.

	Wave 3		Wave 4	
Variable	Before matching	After matching	Before matching	After matching
Male	0.018	0.051	0.033	0.029
Age	0.717	0.054	0.842	0.093
Immigrant	0.425	0.094	0.525	0.092
Marital status				
Unmarried	0.114	0.007	0.212	0.076
Married	0.300	0.023	0.357	0.073
Divorced/widowed	0.496	0.022	0.636	0.015
Health issues	0.389	0.005	0.552	0.002
Post-secondary degree	0.390	0.070	0.532	0.036
Employed	1.106	0.031	1.179	0.015
Household size	1.051	0.016	0.927	0.014
Household structure				
No older people	0.506	0.077	0.599	0.076
Older person(s), but not all older persons	0.463	0.022	0.440	0.056
All older people	1.008	0.104	1.060	0.013
Below poverty line before CSSA	1.854	0.004	2.017	0.006
Home ownership	1.282	0.003	1.256	0.030

Table 5. Estimations from Different Models of CSSA Participation and Depression, HKPSSD Waves 3 and 4.

	Coefficient	S. E.
Model 1: Pooled OLS (W3 and W4)		
CSSA recipients	0.199***	0.044
Model 2: PSM (W3)		
CSSA recipients	0.136*	0.064
Model 3: PSM (W4)		
CSSA recipients	0.135+	0.073
Model 4: Fixed effects (W3 and W4)		
CSSA recipients	0.166*	0.074
Model 5: Fixed effects after matching (W3 and W4)		
CSSA recipients	0.189*	0.076

Notes: Standard errors are adjusted for household cluster effects. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$.

score of the former was 0.199 higher than that of the latter on average. The coefficient is statistically significant ($p < 0.001$ level).

In Models 2 and 3, the estimates are made using the PSM method. The coefficients of CSSA participation represent the treatment effect on the treated (ATT). After eliminating the selection bias caused by observable covariates, the estimated effects of CSSA participation decrease. Even after the elimination of bias, however, the mean depression score of CSSA recipients was approximately 0.135 higher than that of non-recipients, therefore, CSSA still had a negative effect on mental health.

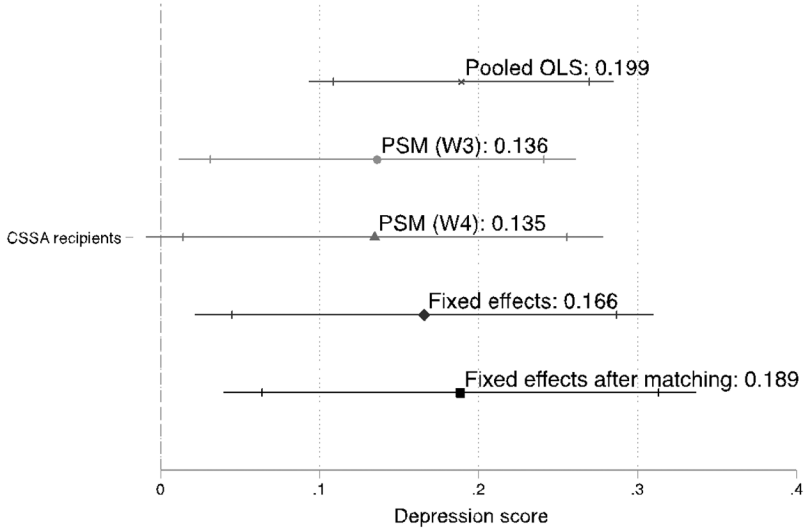

Figure 2. Estimations from different models of CSSA participation and depression, HKPSSD Waves 3 and 4.

The panel data provided by the HKPSSD allow us to track changes over time. In Model 4 of Table 5, we use the fixed-effects model to remove bias coming from time-invariant omitted variables. The result shows that CSSA participation made respondents more depressed. The mean depression score of CSSA recipients was 0.166 higher than that of non-recipients ($p < 0.05$). This estimate supports those in Models 1, 2, and 3.

The PSM method can remove selection bias caused by observable covariates, and the fixed-effects model is useful for dealing with bias caused by time-invariant omitted variables. We combine them in Model 5, and our findings are consistent with the previous models. CSSA participation is positively associated with depression. The mean depression score of CSSA recipients was 0.189 higher than that of non-recipients ($p < 0.05$). The negative relationship between CSSA participation and mental health was demonstrated, lending support to *Hypothesis 1*.

Differences by gender and age

In the analyses described above, we employ different models to estimate the effect of CSSA participation on depression in the general population. Still, since the effects of CSSA participation may vary by different social groups, we then investigate gender and age differences in the effects. After matching, we adopt the fixed-effects models (see Table 6 and Figure 3).

The relationship between CSSA participation and depression for males and females is estimated in Models 1a and 1b, respectively. The association between CSSA participation and depression is found only among men. The mean depression score of male CSSA recipients was 0.356 higher than that of male non-recipients ($p < 0.05$). Although the mean depression score of female CSSA recipients was 0.094 higher than that of female non-recipients, the coefficient is statistically insignificant. CSSA participation leads to more depression for men but not for women: therefore, *Hypothesis 2* is thus supported.

We also examine differences by age group (see Models 2a and 2b of Table 6). The two age groups (below 60 and 60 and older) refer to respondents' ages in W4. While the coefficients in Models 2a and 2b are statistically significant, those in 2b are slightly higher than those in 2a. For respondents younger than 60, the mean depression score of CSSA recipients was 0.167 higher than that of non-recipients ($p < 0.1$). For respondents 60 years old or older, the mean depression score of CSSA recipients was 0.205 higher than that of non-recipients ($p < 0.05$). Our findings show that, although CSSA participation has made both older people and other age groups more depressed, older people were more affected, supporting *Hypothesis 3*.

Conclusions and discussion

The relationship between welfare participation and mental health has been the subject of much research and policy attention in recent years. In this study, we estimated the causal effect of welfare participation on depression in the context of Hong Kong. We analyzed two waves of panel data from HKPSSD and applied the PSM method and the fixed-effects models to address endogenous issues. The results show that CSSA participation increased depression among recipients. After removing the selection bias and omitted variable bias, the mean depression score of CSSA recipients was still higher than that of non-recipients. We also found differences by gender and age groups. Only males had experienced more depression if they received CSSA. The negative effect of welfare participation on mental health was also greater for older people than for other age groups. This study contributes to the literature on mental health consequences of welfare participation. Our research findings provide important input for policies intended to eliminate welfare stigma and improve welfare recipients' mental health.

Our study employed different models to estimate the causal effect of CSSA participation on depression in Hong Kong. Previous studies (e.g., S. Chan et al., 2022) were unable to address endogenous issues because they used cross-sectional data only. Unobserved factors in observational

studies can render the relationship between welfare participation and mental health spurious (Peng and Yip 2024). With the HKPSSD panel data combined with the PSM method and the fixed-effects models, we were able to minimize both selection bias and omitted variable bias. We demonstrated that welfare participation made recipients more depressed in a typical residual welfare state. This finding is consistent with previous studies that have observed the negative effect of welfare participation on mental health in developed countries.

Table 6. Fixed-effects regression coefficients for CSSA participation and depression by gender and age group, HKPSSD Waves 3 and 4.

	By gender		By age group	
	Model 1a	Model 1b	Model 2a	Model 2b
Variables	Male	Female	Below 60	60 and above
CSSA recipients	0.356*	0.094	0.167+	0.205*
	(0.140)	(0.084)	(0.101)	(0.104)
Controls	Yes	Yes	Yes	Yes
Constant	1.155***	1.105***	1.170***	1.230***
	(0.100)	(0.100)	(0.086)	(0.116)
R-squared	0.096	0.096	0.100	0.088
Observations	1,794	2,280	2,410	1,664
Unique observations	897	1,140	1,205	832

Notes: Age group is defined by age in Wave 4. Controls include marital status, health issues, post-secondary degree, work status, household size, household economic status, and home ownership. Standard errors adjusted for household cluster effects are in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$.

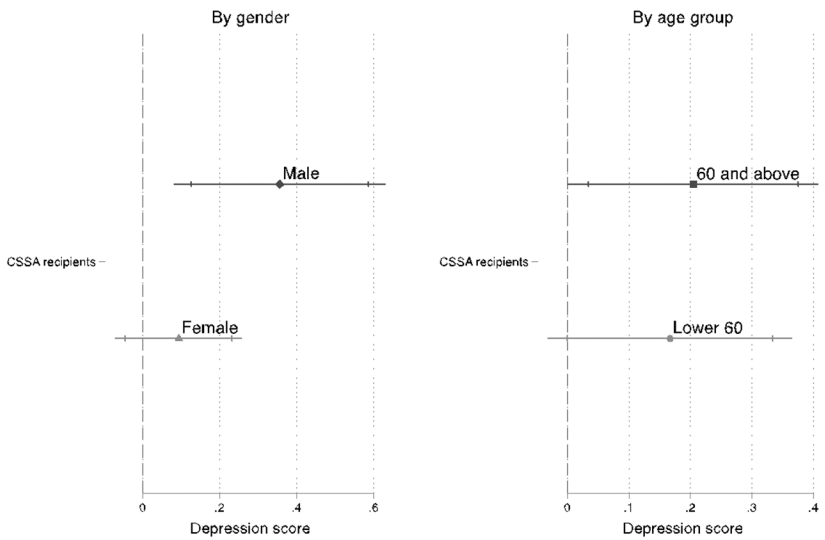

Figure 3. Depression and CSSA participation by gender and age group, HKPSSD Waves 3 and 4.

Hong Kong adopts the residual welfare regime (C. Chan 1998; Lee 2005) and values self-sufficiency (Wong and Lou 2010). Welfare stigma is deeply shaped by institutions and culture. Although CSSA recipients gain additional financial resources, they are stereotyped as lazy and dishonest (Chung 2010; Lo 2020; Yang et al. 2022). CSSA recipients are likely to suffer a sense of shame, exacerbated by the application process, media coverage, and interactions with others (Chung 2010). As a result, CSSA recipients tend to hide their status, leading to a negative impact on their social activities and interactions with others (S. Chan et al. 2022). The stigma associated with CSSA receipt helps explain the negative relationship between welfare participation and mental health in Hong Kong.

As we have noted, only men experienced higher levels of depression due to the receiving of CSSA. This supports research conducted in Sweden (Dackehag et al. 2020). Gender role norms can explain this finding (Hochschild and Machung 2012). When men are expected to be family breadwinners, they suffer more than women if they cannot make a living. The gender differences suggest that men and women respond differently to welfare participation and its stigma. The interplay between poverty, gender roles, and mental health illustrates the nuanced consequences of the family-based welfare. We also found that CSSA participation had a greater effect on depression for older people. This finding is more surprising: it does not support the results reported by Han and Gao (2020) in mainland China. It may be that these older people were ashamed of not having a pension or family support.

This study has certain limitations. First, HKPSSD does not have a direct measure of welfare stigmatization. If future surveys provide such measures, they could be used to provide more direct evidence of the mechanism between welfare participation and mental health. Second, although we employed the PSM method and the fixed-effects models to estimate the causal relationship, some unobservable time-variant factors may still have skewed our results. For instance, events that affected welfare participation and respondents' mental health may have occurred between our interviews. Third, some CSSA recipients might not report their welfare status due to shame (Walker 2014). In other words, the rate of CSSA participation was possibly underestimated. Nevertheless, this bias, if any, would not challenge our results because when we include these recipients, the "true" depression level of CSSA recipients would be even higher.

Notwithstanding its limitations, this study has important implications for welfare reforms in HKSAR. At present, CSSA protects older and unemployed people and others in need. As HKSAR has not yet established a universal pension scheme, CSSA plays the role of a public pension. Older people accounted for 62.1% of all CSSA recipients in 2017 (Census and Statistics Department 2018). Given that older people appear

to suffer more from the stigma associated with CSSA, it is important to consider whether the current means-tested scheme should be replaced by universal provision for all older people in Hong Kong. In addition, the policy agenda needs to incorporate unemployment insurance to manage the exceptional risks (Pun, Jin, and Yang 2023).

The negative effect of social assistance on mental health should warn policy-makers. All sectors of society, including government, media, and the public, ought to work together to eliminate the stigma of poverty and social welfare. In addition to economic security, the mental wellbeing of welfare recipients also needs to be taken into account. Given the negative effect of CSSA participation on mental health, we must consider the best way to address this problem.

Note

1. Standard rates cover basic needs, such as food, electricity and gas, clothing and footwear, and transport; supplements meet the specific needs of single-parent families, ill people, people with disabilities, older people, and long-term recipients; special grants address particular needs, such as rent, water and sewage charges, school expenses, special diets, rehabilitation, and surgical appliances.

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References

Aizer, Anna, Shari Eli, Joseph Ferrie, and Adriana Lleras-Muney. 2016. "The Long-Run Impact of Cash Transfers to Poor Families." *The American Economic Review* 106 (4): 935–971. https://doi.org/10.1257/aer.20140529.

Alkire, Sabina, José Manuel Roche, Paola Ballon, James Foster, Maria Emma Santos, and Suman Seth. 2015. *Multidimensional Poverty Measurement and Analysis*. Oxford: Oxford University Press.

Andreß, Hans-Jürgen, and Thorsten Heien. 2001. "Four Worlds of Welfare State Attitudes? A Comparison of Germany, Norway, and the United States." *European Sociological Review* 17 (4): 337–356. https://doi.org/10.1093/esr/17.4.337.

Aneshensel, Carol S. 2009. "Toward Explaining Mental Health Disparities." *Journal of Health and Social Behavior* 50 (4): 377–394. https://doi.org/10.1177/002214650905000401.

Angeles, Gustavo, Jacobus de Hoop, Sudhanshu Handa, Kelly Kilburn, Annamaria Milazzo, and Amber Peterman. 2019. "Government of Malawi's Unconditional Cash Transfer Improves Youth Mental Health." *Social Science & Medicine* 225: 108–119. https://doi.org/10.1016/j.socscimed.2019.01.037.

Austin, Peter C. 2008. "Assessing Balance in Measured Baseline Covariates When Using Many-to-One Matching on the Propensity-Score." *Pharmacoepidemiology and Drug Safety* 17 (12): 1218–1225. https://doi.org/10.1002/pds.1674.

Bai, Xue, Zhonglu Li, Juan Chen, Chang Liu, and Xiaogang Wu. 2020. "Socioeconomic Inequalities in Mental Distress and Life Satisfaction among Older Chinese Men and Women: The Role of Family Functioning." *Health & Social Care in the Community* 28 (4): 1270–1281. https://doi.org/10.1111/hsc.12960.

Baumberg, Ben. 2016. "The Stigma of Claiming Benefits: A Quantitative Study." *Journal of Social Policy* 45 (2): 181–199. https://doi.org/10.1017/S0047279415000525.

Bergmans, Rachel S., Lawrence M. Berger, Mari Palta, Stephanie A. Robert, Deborah B. Ehrenthal, and Kristen Malecki. 2018. "Participation in the Supplemental Nutrition Assistance Program and Maternal Depressive Symptoms:

Moderation by Program Perception." *Social Science & Medicine* 197: 1–8. https://doi.org/10.1016/j.socscimed.2017.11.039.

Census and Statistics Department. 2018. *Statistics on Comprehensive Social Security Assistance Scheme, 2007 to 2017*. Hong Kong: Census and Statistics Department.

Chan, Chak-Kwan. 1998. "Welfare Policies and the Construction of Welfare Relations in a Residual Welfare State: The Case of Hong Kong." *Social Policy & Administration* 32 (3): 278–291. https://doi.org/10.1111/1467-9515.00103.

Chan, Siu Ming, Hung Wong, Tat Chor Au-Yeung, Xuan Huo, and Qin Gao. 2022. "Impacts of Poverty Stigma on Negative Affect among Welfare Recipients: Path Analysis on Mainland China and Hong Kong SAR." *Journal of Asian Public Policy* 15 (1): 145–164. https://doi.org/10.1080/17516234.2020.1806428.

Chang, Qingsong, Chenhong Peng, Yingqi Guo, Ziyi Cai, and Paul S. F. Yip. 2020. "Mechanisms Connecting Objective and Subjective Poverty to Mental Health: Serial Mediation Roles of Negative Life Events and Social Support." *Social Science & Medicine* 265: 113308. https://doi.org/10.1016/j.socscimed.2020.113308.

Chen, Xi., Tianyu Wang, and Susan H. Busch. 2019. "Does Money Relieve Depression? Evidence from Social Pension Expansions in China." *Social Science & Medicine* 220: 411–420. https://doi.org/10.1016/j.socscimed.2018.12.004.

Cheung, Kelvin Chi Kin, and Kee-Lee Chou. 2019. "Poverty, Deprivation, and Depressive Symptoms among Older Adults in Hong Kong." *Aging & Mental Health* 23 (1): 22–29. https://doi.org/10.1080/13607863.2017.1394438.

Chiu, Stephen W. K., and Kaxton Y. K. Siu. 2022. "Hong Kong as an Economic Miracle? The Myth of Laissez-Faire and Industrialization." In *Hong Kong Society: High-Definition Stories beyond the Spectacle of East-Meets-West*, edited by S. W. Chiu and K. Y. Siu, 137–163. Singapore: Springer.

Chung, Kim Wah. 2010. "Negative Public Perception on Welfare Recipients and Its Implications for Social Security in Hong Kong." *Journal of Asian Public Policy* 3 (2): 200–206. https://doi.org/10.1080/17516234.2010.504328.

Dackehag, Margareta, Lina Maria Ellegård, Ulf-G Gerdtham, and Therese Nilsson. 2020. "Social Assistance and Mental Health: Evidence from Longitudinal Administrative Data on Pharmaceutical Consumption." *Applied Economics* 52 (20): 2165–2177. https://doi.org/10.1080/00036846.2019.1683149.

Esping-Andersen, Gøsta. 1990. *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.

Eyal, Katherine, and Justine Burns. 2019. "The Parent Trap: Cash Transfers and the Intergenerational Transmission of Depressive Symptoms in South Africa." *World Development* 117: 211–229. https://doi.org/10.1016/j.worlddev.2019.01.014.

Gao, Qin, Sui Yang, and Shi Li. 2013. "The Chinese Welfare State in Transition: 1988–2007." *Journal of Social Policy* 42 (4): 743–762. https://doi.org/10.1017/S0047279413000329.

Gao, Qin, and Fuhua Zhai. 2017. "Public Assistance, Economic Prospect, and Happiness in Urban China." *Social Indicators Research* 132 (1): 451–473. https://doi.org/10.1007/s11205-015-1174-4.

Goffman, Erving. 1963. *Stigma: Notes on the Management of Spoiled Identity*. Englewood Cliffs, NJ: Prentice-Hall.

Guo, Shenyang, and Mark W. Fraser. 2015. *Propensity Score Analysis: Statistical Methods and Applications*. 2nd ed. Los Angeles: SAGE.

Han, Huawei, and Qin Gao. 2020. "Does Welfare Participation Improve Life Satisfaction? Evidence from Panel Data in Rural China." *Journal of Happiness Studies* 21 (5): 1795–1822. https://doi.org/10.1007/s10902-019-00157-z.

Haushofer, Johannes, and Jeremy Shapiro. 2016. "The Short-Term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya." *The Quarterly Journal of Economics* 131 (4): 1973–2042. https://doi.org/10.1093/qje/qjw025.

Hochschild, Arlie, and Anne Machung. 2012. *The Second Shift: Working Families and the Revolution at Home*. Revised edition. New York: Penguin Books.

Huber, Martin, Michael Lechner, and Conny Wunsch. 2011. "Does Leaving Welfare Improve Health? Evidence for Germany." *Health Economics* 20 (4): 484–504. https://doi.org/10.1002/hec.1615.

Huo, Xuan, Qin Gao, Fuhua Zhai, and Mingang Lin. 2020. "Effects of Welfare Entry and Exit on Adolescent Mental Health: Evidence from Panel Data in China." *Social Science & Medicine* 253: 112969. https://doi.org/10.1016/j.socscimed.2020.112969.

Jakobsen, Tor Georg. 2011. "Welfare Attitudes and Social Expenditure: Do Regimes Shape Public Opinion?" *Social Indicators Research* 101 (3): 323–340. https://doi.org/10.1007/s11205-010-9666-8.

Kiely, Kim M., and Peter Butterworth. 2013. "Social Disadvantage and Individual Vulnerability: A Longitudinal Investigation of Welfare Receipt and Mental Health in Australia." *The Australian and New Zealand Journal of Psychiatry* 47 (7): 654–666. https://doi.org/10.1177/0004867413484094.

Kilburn, Kelly, Sudhanshu Handa, Gustavo Angeles, Maxton Tsoka, and Peter Mvula. 2018. "Paying for Happiness: Experimental Results from a Large Cash Transfer Program in Malawi." *Journal of Policy Analysis and Management* 37 (2): 331–356. https://doi.org/10.1002/pam.22044.

Kilburn, Kelly, Harsha Thirumurthy, Carolyn Tucker Halpern, Audrey Pettifor, and Sudhanshu Handa. 2016. "Effects of a Large-Scale Unconditional Cash Transfer Program on Mental Health Outcomes of Young People in Kenya." *The Journal of Adolescent Health* 58 (2): 223–229. https://doi.org/10.1016/j.jadohealth.2015.09.023.

Kleppang, Annette Løvheim, and Curt Hagquist. 2016. "The Psychometric Properties of the Hopkins Symptom Checklist-10: A Rasch Analysis Based on Adolescent Data from Norway." *Family Practice* 33 (6): 740–745. https://doi.org/10.1093/fampra/cmw091.

Kühner, Stefan, and Kee-Lee Chou. 2025. "To Claim or Not to Claim: Investigating Non-Take-Up of Welfare Schemes Targeting Hong Kong Older Adults and the Stigma Attached to Them." *Journal of Social Policy* 54 (1): 100–120. https://doi.org/10.1017/S0047279422000794.

Lam, Linda Chiu-Wa, Corine Sau-Man Wong, Min-Jung Wang, Wai-Chi Chan, Eric Yu-Hai Chen, Roger Man-Kin Ng, Se-Fong Hung, Eric Fuk-Chi Cheung, Pak-Chung Sham, Helen Fung-Kum Chiu, et al. 2015. "Prevalence, Psychosocial Correlates and Service Utilization of Depressive and Anxiety Disorders in Hong Kong: The Hong Kong Mental Morbidity Survey (HKMMS)." *Social Psychiatry and Psychiatric Epidemiology* 50 (9): 1379–1388. https://doi.org/10.1007/s00127-015-1014-5.

Larsen, Christian Albrekt. 2008. "The Institutional Logic of Welfare Attitudes: How Welfare Regimes Influence Public Support." *Comparative Political Studies* 41 (2): 145–168. https://doi.org/10.1177/0010414006295234.

Lee, Eliza W. Y. 2005. "The Renegotiation of the Social Pact in Hong Kong: Economic Globalisation, Socio-Economic Change, and Local Politics." *Journal of Social Policy* 34 (2): 293–310. https://doi.org/10.1017/S0047279404008591.

Li, Zhonglu, and Xiaogang Wu. 2018. "Social Policy and Political Trust: Evidence from the New Rural Pension Scheme in China." *The China Quarterly* 235: 644–668. https://doi.org/10.1017/S0305741018000942.

Link, Bruce G., and Jo Phelan. 1995. "Social Conditions as Fundamental Causes of Disease." *Journal of Health and Social Behavior* Spec No: 80–94. https://doi.org/10.2307/2626958.

Lo, Wai Han. 2020. "Governmentality and Neoliberalism: A Study of Media Discourse on Poverty in Hong Kong." *Journal of Poverty and Social Justice* 28 (1): 55–78. https://doi.org/10.1332/175982719X15687079983161.

Lund, Crick, Alison Breen, Alan J. Flisher, Ritsuko Kakuma, Joanne Corrigall, John A. Joska, Leslie Swartz, and Vikram Patel. 2010. "Poverty and Common Mental Disorders in Low and Middle Income Countries: A Systematic Review." *Social Science & Medicine* 71 (3): 517–528. https://doi.org/10.1016/j.socscimed.2010.04.027.

Miao, Jia, and Xiaogang Wu. 2023. "Social Consequences of Homeownership: Evidence from the Home Ownership Scheme in Hong Kong." *Social Forces* 101 (3): 1460–1484. https://doi.org/10.1093/sf/soac011.

Miech, Richard A., Avshalom Caspi, Terrie E. Moffitt, Bradley R. Entner Wright, and Phil A. Silva. 1999. "Low Socioeconomic Status and Mental Disorders: A Longitudinal Study of Selection and Causation during Young Adulthood." *American Journal of Sociology* 104 (4): 1096–1131. https://doi.org/10.1086/210137.

Morgan, Stephen L., and Jennifer J. Todd. 2008. "A Diagnostic Routine for the Detection of Consequential Heterogeneity of Causal Effects." *Sociological Methodology* 38 (1): 231–282. https://doi.org/10.1111/j.1467-9531.2008.00204.x.

Owusu-Addo, Ebenezer, Andre M. N. Renzaho, and Ben J. Smith. 2018. "The Impact of Cash Transfers on Social Determinants of Health and Health Inequalities in Sub-Saharan Africa: A Systematic Review." *Health Policy and Planning* 33 (5): 675–696. https://doi.org/10.1093/heapol/czy020.

Peng, Chenhong, and Paul S. F. Yip. 2024. "Comparing the Mental Health Effects of Different Social Assistance Programmes in Hong Kong." *Journal of Asian Public Policy* 17 (3): 484–504. https://doi.org/10.1080/17516234.2022.2144162.

Powell-Jackson, Timothy, Shreya K. Pereira, Varun Dutt, Sarah Tougher, Kaveri Haldar, and Paresh Kumar. 2016. "Cash Transfers, Maternal Depression and Emotional Well-Being: Quasi-Experimental Evidence from India's Janani Suraksha Yojana Programme." *Social Science & Medicine* 162: 210–218. https://doi.org/10.1016/j.socscimed.2016.06.034.

Pun, Ngai, Shuheng Jin, and Haocheng Yang. 2023. "A City of Exceptional Risks? A Critical Policy Analysis of Hong Kong Unemployment Insurance." *Journal of Asian Public Policy* 16 (2): 221–236. https://doi.org/10.1080/17516234.2021.1976983.

Qi, Di., and Yichao Wu. 2018. "Does Welfare Stigma Exist in China? Policy Evaluation of the Minimum Living Security System on Recipients' Psychological Health and Wellbeing." *Social Science & Medicine* 205: 26–36. https://doi.org/10.1016/j.socscimed.2018.03.041.

Ridley, Matthew, Gautam Rao, Frank Schilbach, and Vikram Patel. 2020. "Poverty, Depression, and Anxiety: Causal Evidence and Mechanisms." *Science* 370 (6522): eaay0214. https://doi.org/10.1126/science.aay0214.

Rodriguez, Eunice. 2001. "Keeping the Unemployed Healthy: The Effect of Means-Tested and Entitlement Benefits in Britain, Germany, and the United States."

American Journal of Public Health 91 (9): 1403–1411. https://doi.org/10.2105/AJPH.91.9.1403.

Roosma, Femke, Wim van Oorschot, and John Gelissen. 2014. "The Preferred Role and Perceived Performance of the Welfare State: European Welfare Attitudes from a Multidimensional Perspective." *Social Science Research* 44: 200–210. https://doi.org/10.1016/j.ssresearch.2013.12.005.

Shahidi, Faraz V., Chantel Ramraj, Odmaa Sod-Erdene, Vincent Hildebrand, and Arjumand Siddiqi. 2019. "The Impact of Social Assistance Programs on Population Health: A Systematic Review of Research in High-Income Countries." *BMC Public Health* 19 (1): 2. https://doi.org/10.1186/s12889-018-6337-1.

Syed, Hammad Raza, Henrik Daae Zachrisson, Odd Steffen Dalgard, Ingvild Dalen, and Nora Ahlberg. 2008. "Concordance between Hopkins Symptom Checklist (HSCL-10) and Pakistan Anxiety and Depression Questionnaire (PADQ), in a Rural Self-Motivated Population in Pakistan." *BMC Psychiatry* 8 (1): 59. https://doi.org/10.1186/1471-244X-8-59.

Tong, Yuying, and Stephen Wing-kai Chiu. 2017. "Women's Labor Force Participation in Hong Kong: 1991–2011." *Chinese Sociological Review* 49 (1): 35–64. https://doi.org/10.1080/21620555.2016.1166045.

Walker, Robert. 2014. *The Shame of Poverty*. Oxford, New York: Oxford University Press.

Weitoft, Gunilla Ringbäck, Anders Hjern, Ilija Batljan, and Bo Vinnerljung. 2008. "Health and Social Outcomes among Children in Low-Income Families and Families Receiving Social Assistance—A Swedish National Cohort Study." *Social Science & Medicine* 66 (1): 14–30. https://doi.org/10.1016/j.socscimed.2007.07.031.

Wong, Chack-Kie, and Vivian Wei-Qun Lou. 2010. "'I Wish to Be Self-Reliant': Aspiration for Self-Reliance, Need and Life Satisfaction, and Exit Dilemma of Welfare Recipients in Hong Kong." *Social Indicators Research* 95 (3): 519–534. https://doi.org/10.1007/s11205-009-9524-8.

Wu, Shiyou, Mark W. Fraser, Mimi V. Chapman, Qin Gao, Jin Huang, and Gina A. Chowa. 2018. "Exploring the Relationship between Welfare Participation in Childhood and Depression in Adulthood in the United States." *Social Science Research* 76: 12–22. https://doi.org/10.1016/j.ssresearch.2018.08.009.

Wu, Shiyou, Qi Wu, Mark W. Fraser, Mimi V. Chapman, and Qin Gao. 2018. "Welfare Participation and Depression among Youth in the United States: A Systematic Review." *Children and Youth Services Review* 94: 354–367. https://doi.org/10.1016/j.childyouth.2018.09.018.

Wu, Xiaogang. 2016. "Hong Kong Panel Study of Social Dynamics (HKPSSD): Research Designs and Data Overview." *Chinese Sociological Review* 48 (2): 162–184. https://doi.org/10.1080/21620555.2015.1129495.

Yang, Shen, Bo Miao, and Alfred M. Wu. 2022. "Immigration and Public Attitudes towards Social Assistance: Evidence from Hong Kong." *Journal of Economic Policy Reform* 25 (1): 28–44. https://doi.org/10.1080/17487870.2020.1760102.

Appendix A

Table A1. Full models of CSSA participation and depression, HKPSSD Waves 3 and 4.

	Pooled OLS	FE	FE after matching
Variables	Model 1	Model 2	Model 3
CSSA recipients	0.199***	0.166*	0.189*
	(0.044)	(0.074)	(0.076)
Male	−0.033*	–	–
	(0.014)		
Age	−0.000	–	–
	(0.001)		
Immigrant (yes = 1)	0.013	–	–
	(0.016)		
Marital status (ref. = unmarried)			
Married	−0.061*	−0.017	−0.016
	(0.024)	(0.053)	(0.053)
Divorced/widowed	0.034	0.057	0.129
	(0.039)	(0.105)	(0.095)
Health issues (yes = 1)	0.134***	0.116***	0.105***
	(0.018)	(0.026)	(0.025)
Post-secondary degree (yes = 1)	−0.020	−0.049	−0.051
	(0.017)	(0.044)	(0.044)
Employed (yes = 1)	−0.026+	0.014	0.013
	(0.015)	(0.026)	(0.026)
Household size	−0.018**	−0.018	−0.023
	(0.007)	(0.019)	(0.019)
Household structure (ref. = no older people)			
Older person(s), but not all older persons	0.010	–	–
	(0.018)		
All older people	−0.091**	–	–
	(0.032)		
Below poverty line before CSSA (yes = 1)	0.062**	0.043	0.039
	(0.020)	(0.029)	(0.028)
Home ownership (yes = 1)	−0.031*	0.055	0.053
	(0.016)	(0.063)	(0.064)
Wave 4 (yes = 1)	0.136***	0.137***	0.139***
	(0.012)	(0.013)	(0.013)
Constant	1.250***	1.146***	1.152***
	(0.041)	(0.073)	(0.073)
R-squared	0.107	0.088	0.093
Observations	4,166	4,166	4,074
Unique observations	2,083	2,083	2,037

Notes: Standard errors adjusted for household cluster effects are in parentheses. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$.