

Over-indebtedness, mastery and mental health: A cross-sectional study among over-indebted adults in Switzerland

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Summary

OBJECTIVES: The aim is to investigate whether (and why) over-indebted individuals in German-speaking Switzerland have poorer mental health than the general population.

METHODS: A cross-sectional study among over-indebted people in the canton of Zurich was conducted in 2019. The study population ($n=219$) was compared to the cantonal subsample of the general adult population (selected from the nationally representative sample of the Swiss Health Survey 2017 ($n=1,997$)). Bivariate and multivariate statistical analyses were used to examine associations between over-indebtedness, mastery and health outcomes like mental stress and depression.

RESULTS: Over-indebted people have poorer mental health and weaker mastery than the general population. Low mastery is the strongest predictor of poor mental health (β coefficient $=0.58/-0.62$ for mental stress/depression (respectively)) among the over-indebted, followed by the perception of one's health being affected by over-indebtedness (β coefficient $=-0.19/0.15$). The amount of debt, anticipated time until repayment of debt and duration of indebtedness had no predictive effects.

CONCLUSION: Surprisingly, traditional debt parameters cannot explain the poor mental health of the over-indebted, in contrast to a strong sense of mastery, which was identified as a highly protective factor.

Introduction

The incidence of over-indebtedness has increased significantly throughout Europe over the last couple of years. Over-indebtedness is a complex social phenomenon caused by a combination of economic, social, individual and cultural factors [1]. Unlike debts, which simply mean having outstanding accounts and payment commitments, over-indebtedness describes the precarious financial situation of being not or hardly able to repay and/or service all debts and outstanding accounts fully and on time. Al-

though there is no common and established definition of over-indebtedness, it has different aspects and characteristics, and accordingly there are a number of indicators and criteria that can be used – either individually or collectively – in order to measure or capture over-indebtedness [2]: (1) spending a large proportion of household income on repayments or debt service payments, (2) being in arrears with repayments or with servicing debts, (3) making heavy use of credits or having multiple debts (loans or credit commitments) and, finally, (4) finding debt and/or servicing debt a heavy burden financially and/or psychologically. Another indicator of over-indebtedness which is closely related to this fourth criterion is seeking professional assistance or debt advice in order to cope better with debts and financial obligations.

Although most people with (many) debts are still far from being over-indebted, and although being (deeply) indebted does not necessarily mean a long-lasting inability to service or repay these debts and hence mean one is over-indebted, multiple and high debts (in relation to household income) are usually the starting point for over-indebtedness.

Although Switzerland is one of the wealthiest countries, with some of the highest incomes in the world, large proportions of the Swiss resident population are indebted. Moreover, according to an analysis by the online comparison service website comparis.ch in 2019, around 6.5% of the resident population in Switzerland are unable to service their debts [3]. According to the Swiss Federal Office of Statistics and based on the Statistics on Income and Living Conditions (SILC) of 2017 and 2019, about 8% of the entire Swiss population and over 6% of the population of German-speaking Switzerland have at least three kinds of debts, while 7% of all Swiss households have two or more kinds of payments in arrears [4]. In the French- and Italian-speaking parts of Switzerland, these proportions are about twice as high (12–13%).

Debts can quickly lead to over-indebtedness, especially following unplanned changes in life circumstances, particularly critical life events such as unemployment, severe

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illness or divorce. In Switzerland, there is no evidence on the relationship between over-indebtedness and mental health. Internationally, there are some studies which indicate an association between over-indebtedness and mental and physical health. Two systematic reviews show an overview of the current state of research. Turunen and Hilamo [5] evaluated 33 studies on the subject and demonstrated that serious health effects related to (over-)indebtedness exist. In their review, they report the effects of (over-)indebtedness on mental health, depression, suicidal behaviour, mortality, physical health and health-related behaviour. Richardson and colleagues' review and meta-analysis of 65 studies showed that outstanding debts are strongly associated with mental disorders overall, as well as with neurotic and psychotic disorders, suicide and attempted suicide, problem drinking, and drug dependence [6]. The majority of the studies in both reviews came from the US and the UK, and most of them were conducted using a cross-sectional study design. Most studies have examined the effects on mental health [7] and depression [8] in particular. Studies on physical health have shown that debts lead to poorer self-reported general health [9] and that over-indebted people have higher prevalences of back pain [10], obesity [11] and sleep problems or sleep medication use [12]. The first longitudinal study among Finnish adults supports these findings and found an increased incidence of chronic diseases among over-indebted individuals [13].

However, there is to date not a single study for Switzerland, and very little is known about which factors influence the mental health of over-indebted individuals. The main aim of this study is to show how and to what extent the mental health status of the small subpopulation of over-indebted individuals differs from that of the general population and whether the level and/or duration of debt and the subjective prospect of a debt-free life influence mental health among over-indebted adults.

Furthermore, this study also focuses on mastery as a personal trait and a possible protective factor for health because prior studies have shown associations between a strong sense of mastery and positive mental health outcomes [14, 15]. The assumed relevance of mastery regarding over-indebtedness and health is supported by a study which showed that mastery mediates the effects of economic hardship on health, with the strongest effect being seen in people with depression [16].

Mastery has been defined as "the extent to which one regards one's life as being under one's own control in contrast to being fatalistically ruled" [17]. People with a strong sense of mastery are convinced that they can largely shape their own lives. On the other hand, people with a weaker sense of mastery see life as primarily determined by external factors such as chance or fate and feel that they have little control over their lives and what happens to them [18].

Given that a strong sense of mastery is an important health-related resource, it is crucial to study and understand the role that mastery as a personal characteristic and a health resource plays in the relationship between over-indebtedness and mental health. Therefore, we investigate whether a strong sense of mastery acts as a protective factor with regard to mental health, particularly among over-indebted individuals.

Methods

Data and study sample

A written survey was conducted among adult clients of debt advisory centres who lived in the canton of Zurich, the most populous canton of Switzerland by far with over 1.5 million inhabitants, equating to 17% of the Swiss population. Between January and August 2019, a written questionnaire was handed out to all those clients of the four official debt advisory centres of the canton of Zurich who had sufficient German language skills and were of legal age.

The clients were asked to voluntarily and anonymously participate in the survey and had the option of filling in the questionnaire on the spot or taking it home (in which case they received a stamped return envelope). The participants who completed the questionnaire on site received 10 Swiss Francs. The counsellors administering the questionnaire received training, the study materials and a comprehensive document that detailed both the aim of the study and the selection criteria to ensure a standardized procedure. For supervisory reasons, the debt advice centres were called by the researcher once every month. Out of 369 clients in the eligible age range, 219 (59%) were preselected by the debt advisory centres and eventually agreed to participate. It was not recorded, however, how many of the 150 'non-responders' (clients not participating) were discounted by the debt advisors because of insufficient language skills. There is no doubt that the vast majority of non-responders were simply not willing to participate for whatever reason (self-selection).

The survey focused on the financial situation and the health status of the respondents. In order to assess the financial situation of the respondents appropriately, the questions on this subject were developed specifically for this survey with the support of one of the debt advice centres. To compare the study population with the general population in terms of health and other sociodemographic and personal characteristics, all other questions used in the survey were taken from the Swiss Health Survey [19, 20]. Mental health and mastery, two key concepts or constructs used in the present study, as well as other health outcomes and behaviours, were assessed by mostly validated multiple-item measures. In addition, the respondents were asked to what extent (not at all, partly, strongly) they felt that indebtedness influenced their health.

Ethical approval: The study was granted exemption from requiring ethical approval because it does not fall within the scope of the Human Research Act (HRA). (Kanton Zürich, Kantonale Ethikkommission. BASEC-Nr. Req-2019-00173).

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

Measures

Mental Health

Two validated scores and multiple-item scales (PHQ-9 and MHI-5) were used to measure the mental health status of the respondents.

The PHQ-9 is the depression module and a nine-item subscale of the brief Patient Health Questionnaire (PHQ). It consists of nine questions that correspond to the nine DSM-IV criteria [18]. It asks about the frequency of impairments caused by symptoms of depressive illness in the last two weeks. The answers are scored from 0 (“not at all”) to 3 (“nearly every day”) and are summed to give a total score from 0 to 27. The PHQ-9 is a reliable and valid multiple-item measure used to diagnose depressive disorders and to assess depression severity [21, 22]. A score of 15 or more indicates severe or major depression, while lower scores of 5 to 14 indicate mild or moderate (minor) depression. Scores between 0 and 4 indicate the (almost) complete absence of any depression or depressive symptoms at all.

The MHI-5 is a short form of the Mental Health Inventory questionnaire [23]. Its five items alternately ask about positive and negative feelings or emotional states of the subject in the last four weeks (nervous, depressed, calm and balanced, discouraged, happy). For each item, the 5-point response scale ranges from “never” to “always”, but the items are scored differently, from 1 (either “never” or “always”) to 5 (either “always” or “never”), depending on whether the emotional state is a positive or a negative one. A final score was calculated by adding the scores for each item and then transforming this total into a score on a scale from 0 to 100 ($100 * [\text{sum score} - 5] / 20$). A high final score of 73 or more indicates a low level of mental stress. Scores between 53 and 72 mean a moderate level of mental stress and scores below 53 a comparatively high level of mental stress.

Mastery

The multiple-item scale used to measure a general sense of mastery in the survey was an adapted, short version of the established Pearlin Mastery Scale [17], which indicates the degree to which people believe that they have control over the outcomes of events in their lives. Four out of the seven original Likert-scaled items were used in the Swiss Health Survey and thus were also included in the survey of over-indebted individuals on which this study is based. This four-item short scale consists of the following statements about the perceived extent of having control over one’s life:

- There is really no way I can solve some of the problems I have.
- Sometimes I feel that I am being pushed around in life.
- I have little control over the things that happen to me.
- I often feel helpless in dealing with the problems of life.

Response categories ranged from 1 (“fully agree”) to 4 (“do not agree at all”) and were summed to give a total score of up to 16, with higher scores indicating stronger mastery. This measuring instrument is highly reliable, with a Cronbach’s alpha of 0.88 indicating a strong internal consistency, and its validity has been confirmed [24].

Statistical analyses

Descriptive statistics for different sociodemographic, debt, personal and mental health characteristics were calculated and are presented stratified by sex and – where possible –

compared with the general population, or more precisely with Swiss Health Survey 2017 participants of the same age (18+ years) and living in the canton of Zurich.

Furthermore, crosstabulations were computed to assess possible bivariate associations between some debt characteristics and mastery (as a personal characteristic) on one hand and the two health outcomes used, namely mental stress and depression, on the other. Finally, stepwise multiple linear regression analyses were performed and standardized beta coefficients were calculated to estimate the independent predictive effects of different debt characteristics (amount of debt, duration of indebtedness, level of indebtedness, perception that one’s own health is affected by indebtedness) on mental health outcomes (step 1) and to examine mastery as a plausible protective factor and possible confounder in this relationship (step 2). R square values were calculated as a measure of the amount of the total variance in the dependent or outcome variables explained by the debt characteristics and by mastery.

Results

Sociodemographic characteristics

Compared to a random sample of the resident population of German-speaking Switzerland, the study population differs significantly and in various respects from the general population (see table 1). The over-indebted are significantly younger and less educated. They are also much more often unemployed (14% vs. 3%), unmarried (47% vs. 34%), divorced or separated (31% vs. 15%) and of foreign nationality (32% vs. 26%).

Financial situation

The financial or debt situation of the study population could not be compared with that of the general population because such data is not available in the Swiss Health Survey. Among the over-indebted individuals, there are some large differences between the sexes regarding their financial situation (see table 1). Women have a lower level but a longer duration of indebtedness than men. Women more often have comparatively low debts of below 40,000 Swiss Francs (65% vs. 44%) and have debts of over 40,000 Swiss Francs less frequently (35% vs. 56%). There are also more women who believe they will be debt-free within a year (15% vs. 9%). When asked in how many years they expect to be debt-free (anticipated time until repayment of debt), 24% of the women and 29% of the men answered “no full repayment possible”, which means that they expect life-long debt. In our sample 46% of over-indebted women, compared to only 27% of over-indebted men, had already been indebted for 10 years or more (see table 1). Regardless of such sex differences, neither the amount of debt nor the duration or level of indebtedness (anticipated time until repayment of debt) are significantly associated with the two mental health outcomes examined in this study (see tables 3 and 4). However, an unexpected, although statistically not significant, negative association between their amount of debt and their level of depression could be observed among over-indebted individuals: the greater the

amount of debt, the lower the number of depressive symptoms or the level of depression.

Mental health status

87% of the study population felt that their health is at least partly or even strongly impaired by their debt and financial difficulties (see table 2). In fact, the study population and the general population differ substantially from each other regarding mental stress and depression. Two thirds (67%) of the over-indebted reported high mental stress, compared to only a very small proportion (4%) of the general population. 54% of the study population showed symptoms of moderate or even severe depression, compared to only 7% of the general population.

However, parameters of indebtedness almost all completely fail to explain the relatively bad mental health status of over-indebted people. There are no associations between the amount or duration of debt and mental stress or depression (see tables 3 and 4). There is a partly significant association between the level of indebtedness, as measured by the anticipated time until repayment of debt, and mental health status (see tables 3 and 4). Aside from that, there is a very strong association between the extent to which one perceives one's own health to be affected by debt and both mental health measures. There is also a very strong association between the degree of mastery and the levels of mental stress and depression (see the following section).

Table 1: Characteristics of the study population (n = 219) stratified by sex and compared to the general adult population of the canton of Zurich (n = 1,997).

| | | Study population | | | General population | | |
|---|--------------------------------|---|-----------------|-------------------------------|---------------------------------------|-------------------|-------------------|
| | | Over-indebtedness study 2019 ^b | | | Swiss Health Survey 2017 ^d | | |
| | | Men (n = 114) | Women (n = 102) | Total (n = 219 ^c) | Men (n = 947) | Women (n = 1,050) | Total (n = 1,997) |
| Sex | Men | 100.0% | – | 52.8% | 100.0% | – | 50.5% |
| | Women | – | 100.0% | 47.2% | – | 100.0% | 49.5% |
| Age | 18–30 years | 23.7% | 17.6% | 20.8% | 17.2% | 18.2% | 17.7% |
| | 31–40 years | 21.9% | 37.3% | 29.3% | 20.5% | 17.8% | 19.2% |
| | 41–50 years | 32.5% | 19.6% | 26.4% | 18.9% | 18.0% | 18.5% |
| | 51–60 years | 17.5% | 16.7% | 17.1% | 15.8% | 16.3% | 16.0% |
| | 61–70 years | 2.6% | 4.9% | 3.7% | 14.0% | 13.0% | 13.5% |
| | >70 years | 1.8% | 3.9% | 2.8% | 13.6% | 16.7% | 15.1% |
| Education (highest level achieved)^a | Primary | 13.2% | 20.0% | 16.2% | 12.3% | 18.0% | 15.1% |
| | Secondary I | 58.8% | 55.0% | 56.5% | 29.4% | 36.4% | 32.9% |
| | Secondary II | 14.9% | 16.0% | 15.8% | 24.6% | 18.0% | 21.3% |
| | Tertiary | 13.2% | 9.0% | 11.6% | 33.7% | 27.7% | 30.7% |
| Nationality | Swiss (incl. dual citizenship) | 71.9% | 65.0% | 68.5% | 71.9% | 76.0% | 73.9% |
| | Foreign | 28.1% | 35.0% | 31.5% | 28.1% | 24.0% | 26.1% |
| Marital status | Single / unmarried | 52.6% | 40.2% | 46.8% | 37.1% | 30.8% | 34.0% |
| | Married | 20.2% | 25.5% | 22.7% | 52.2% | 50.0% | 51.1% |
| | Divorced / separated / widowed | 27.2% | 34.3% | 30.5% | 10.7% | 19.2% | 14.9% |
| Activity status | Employed | 71.9% | 62.7% | 67.6% | 76.8% | 66.2% | 71.6% |
| | Unemployed / jobless | 15.8% | 11.8% | 13.7% | 2.0% | 3.1% | 2.5% |
| | Non-working | 12.3% | 25.5% | 18.7% | 21.2% | 30.7% | 25.9% |
| Amount of debt (excl. mortgage loan) | ≤10,000 CHF | 10.5% | 19.0% | 14.3% | – | – | – |
| | >10,000–40,000 CHF | 33.3% | 46.0% | 38.7% | – | – | – |
| | >40,000–100,000 CHF | 35.1% | 20.0% | 29.0% | – | – | – |
| | >100,000 CHF | 21.1% | 15.0% | 18.0% | – | – | – |
| Duration of indebtedness | <2 years | 21.1% | 16.7% | 18.7% | – | – | – |
| | 2–5 years | 22.8% | 16.7% | 20.1% | – | – | – |
| | >5–10 years | 28.9% | 20.6% | 25.6% | – | – | – |
| | >10–15 years | 13.2% | 21.6% | 16.9% | – | – | – |
| | >15 years | 14.0% | 24.5% | 18.7% | – | – | – |
| Anticipated time until repayment of debt | Within 1 year | 8.8% | 15.0% | 12.0% | – | – | – |
| | Over the next 3 years | 27.4% | 28.0% | 28.2% | – | – | – |
| | Over the next 5 years | 34.5% | 33.0% | 33.3% | – | – | – |
| | No full repayment possible | 29.2% | 24.0% | 26.4% | – | – | – |

^a The four levels of education considered were: primary education (no or only compulsory education), secondary education I (basic vocational education; apprenticeship), secondary education II (higher vocational education), tertiary education (college/university degree)

^b Full survey sample of the preselected clients of the four official debt advisory centres in the canton of Zurich

^c The separate numbers of male and female respondents in the study population do not add up to the total of 219 study participants because three missing cases did not disclose their sex in the survey.

^d Proportions based on weighted data and analyses restricted to a subsample of adult respondents (18 years of age and above) from the canton of Zurich

Mastery

Just like with the mental health outcomes, the two populations differ greatly from each other regarding the personal characteristic of mastery (see table 2). 40% of the general population but only 8% of the study population of over-indebted individuals had a strong sense of mastery, while 76% of the over-indebted individuals had only a weak feeling of having control over their life, compared to just 21% of the general population.

A strong sense of mastery turns out to be a powerful protective factor for mental health among over-indebted individuals. Mastery and mental health outcomes are very strongly associated with each other (see table 3). In other words: the greater the sense of control or mastery, the lower the level of mental stress and the less likely it is that an

individual has mild, moderate, or particularly, severe depression. Among over-indebted individuals, four fifths of those with a weak sense of mastery but only one eighth of those with a strong sense of mastery also had high levels of mental stress. And only 6% of the over-indebted with a strong sense of mastery but 93% of those with a weak sense of mastery had mild to moderate (minor) or severe (major) depression.

A stepwise multiple linear regression analysis revealed that the initially fairly or very strong associations between the level of indebtedness and the perception of one's own health being affected by indebtedness on the one hand and both mental health outcomes on the other disappear entirely or become substantially weaker when, in a second step, mastery is added to the model (see table 4). Mastery seems to be an important mediator in the relationship be-

Table 2:

Health-related risk factors or resources and mental health status of the study population (n = 219) stratified by sex and compared to the general adult population of the canton of Zurich (n = 1,997).

| | | Study population | | | General population | | |
|---|-----------------------|------------------------------|-----------------|-----------------|---------------------------------------|-------------------|-------------------|
| | | Over-Indebtedness Study 2019 | | | Swiss Health Survey 2017 ^a | | |
| | | Men (n = 114) | Women (n = 102) | Total (n = 219) | Men (n = 947) | Women (n = 1,050) | Total (n = 1,997) |
| Perception that own health is affected by indebtedness | No, not at all | 16.7% | 9.8% | 13.2% | – | – | – |
| | Yes, partly | 63.2% | 50.0% | 57.5% | – | – | – |
| | Yes, strongly | 20.2% | 40.2% | 29.2% | – | – | – |
| Mastery | Weak (4–11) | 72.6% | 80.0% | 75.9% | 21.6% | 21.2% | 21.4% |
| | Moderate (12–14) | 16.8% | 15.0% | 16.2% | 36.7% | 41.3% | 38.9% |
| | Strong (15–16) | 10.6% | 5.0% | 7.9% | 41.7% | 37.5% | 39.7% |
| Mental stress (MHI-5) | No or low (73–100) | 20.5% | 8.4% | 14.8% | 85.9% | 78.4% | 82.2% |
| | Moderate (53–72) | 21.4% | 14.7% | 18.1% | 10.7% | 16.4% | 13.5% |
| | High (0–52) | 58.0% | 76.8% | 67.1% | 3.3% | 5.2% | 4.3% |
| Depression (PHQ-9) | None or minimal (0–4) | 24.1% | 14.7% | 19.4% | 70.8% | 62.9% | 66.9% |
| | Mild (5–9) | 29.5% | 23.5% | 26.7% | 23.0% | 28.4% | 25.7% |
| | Moderate (10–14) | 28.6% | 30.4% | 30.0% | 4.1% | 5.9% | 4.9% |
| | Severe (15–27) | 17.9% | 31.4% | 24.0% | 2.1% | 2.8% | 2.5% |

^a Proportions based on weighted data and analyses restricted to a subsample of adult respondents (18 years of age and above) from the canton of Zurich

Table 3:

Crosstabulations and bivariate associations of debt and personal characteristics with health outcomes in the study population of over-indebted individuals (n = 219).

| | | Mental stress (MHI-5) | | | | γ ^a | Depression (PHQ-9) | | | γ ^a |
|---|-----------------------|-----------------------|------------------|---------------------|------------|----------------|-------------------------|----------------|------|----------------|
| | | Strong (0–52) | Moderate (53–72) | No or weak (73–100) | None (0–4) | | Mild to moderate (5–14) | Severe (15–27) | | |
| | | n | % | % | % | | % | % | % | |
| Total study population | | 219 | 67.1 | 18.1 | 14.8 | | 19.4 | 56.7 | 24.0 | |
| Amount of debt(excl. mortgage loan) | ≤10,000 CHF | 31 | 70.0 | 23.3 | 6.7 | n.s. | 12.9 | 58.1 | 29.0 | n.s. |
| | >10,000–40,000 CHF | 84 | 66.2 | 18.2 | 15.6 | | 18.1 | 57.8 | 24.1 | |
| | >40,000–100,000 CHF | 63 | 69.4 | 19.4 | 11.3 | | 20.6 | 55.6 | 23.8 | |
| | >100,000 CHF | 39 | 64.1 | 10.3 | 25.6 | | 23.7 | 57.9 | 18.4 | |
| Duration of indebtedness | <2 years (1) | 41 | 64.9 | 13.5 | 21.6 | n.s. | 22.0 | 63.4 | 14.6 | n.s. |
| | 2–10 years (2–3) | 100 | 69.1 | 18.6 | 12.4 | | 15.2 | 60.6 | 24.2 | |
| | >10 years (4–5) | 78 | 65.8 | 19.7 | 14.5 | | 23.4 | 48.1 | 28.6 | |
| Level of indebtedness (anticipated time until repayment of debt) | Within 1 year | 26 | 62.5 | 16.7 | 20.8 | –0.22* | 23.1 | 53.8 | 23.1 | n.s. |
| | Over the next 3 years | 61 | 56.1 | 24.6 | 19.3 | | 26.2 | 55.7 | 18.0 | |
| | Over the next 5 years | 72 | 70.4 | 14.1 | 15.5 | | 18.1 | 52.8 | 29.2 | |
| | No full repayment | 57 | 75.0 | 17.9 | 7.1 | | 12.5 | 64.3 | 23.2 | |
| Perception that own health is affected by indebtedness | No, not at all | 29 | 32.1 | 25.0 | 42.9 | –0.74*** | 51.7 | 48.3 | – | 0.68*** |
| | Yes, partly | 126 | 61.2 | 24.0 | 14.9 | | 20.0 | 61.6 | 18.4 | |
| | Yes, strongly | 64 | 95.1 | 3.3 | 1.6 | | 3.2 | 50.8 | 46.0 | |
| Mastery | Weak (4–11) | 164 | 79.2 | 17.6 | 3.1 | 0.84*** | 7.4 | 61.7 | 30.9 | –0.91*** |
| | Moderate (12–14) | 35 | 31.3 | 31.3 | 37.5 | | 40.0 | 60.0 | – | |
| | Strong (15–16) | 17 | 12.5 | – | 87.5 | | 94.1 | 5.9 | – | |

^a Gamma coefficient (chi-square test); * p ≤ 0.05; ** p < 0.01; *** p < 0.001; n.s. = not significant (p > 0.05)

tween over-indebtedness and poor mental health and is by far the strongest predictor, or rather the strongest protective factor, for mental health among over-indebted people (beta coefficient = 0.58/−0.62 for mental stress/depression respectively), followed by the self-reported perception of one's health being affected by over-indebtedness (beta coefficient = −0.19/0.15). Other parameters of indebtedness, such as amount of debt or duration of indebtedness, do not play any role in this regard.

Discussion

The present study found remarkably pronounced differences between the two populations it compared, namely over-indebted individuals and members of the general population of the same age (18+ years) and from the same region (canton of Zurich). These differences concern several sociodemographic, at least one personal and two mental health characteristics. Not surprisingly, over-indebted individuals were observed to be clearly younger and less educated and much more often unmarried and unemployed. Furthermore, and as a second major finding, the study results revealed fairly strong positive associations of the perception of one's own health being affected by over-indebtedness and a weak sense of mastery as a personality trait with poor mental health outcomes such as mental stress and depression. An important 'non-finding' of the study was the absence of any association between different debt parameters (amount, duration and anticipated reduction or complete relief of debt) and mental health outcomes such as mental stress and depression among over-indebted people.

Studies outside of Switzerland have already previously shown that there is an association between over-indebtedness and health, and evidence from other studies strongly suggests that there may also be a causal relationship between the two [5–13]. This study, however, is the first to examine the relationship between over-indebtedness and mental health in Switzerland and one of the very few worldwide to investigate predictors or risk and protective factors for mental health outcomes among over-indebted individuals, instead of just comparing them as an entire group to the general population. According to the study's results, the perception of one's health being affected by indebtedness and, in particular, a strong sense of mastery or

the feeling of having control over one's life were found to be decisive influencing factors for the mental health of over-indebted individuals. This knowledge is important when it comes to finding out how over-indebted people can lead a mentally healthy life (see conclusions).

The present study also shows that in Switzerland, the mental health of over-indebted people is clearly worse than that of the general population. The self-reported perception of the majority of the over-indebted is that their mental health suffers due to their financial or debt situation, and this seems to strongly affect their mental health, like a self-fulfilling prophecy. In other words: the perception of one's own health being affected by debt is associated with a comparably poor mental condition. However, based on the cross-sectional data used and the regression analyses performed, it cannot be determined whether causality really exists in this relationship, nor in which direction this causality runs. It could also be argued that the poorer the mental health of over-indebted individuals, the stronger their belief that their bad mental health status must be caused by their debt situation. Or, even more plausibly, the causal relationship may be bi-directional, i.e. the causality runs in both directions. Against this background, it is of particular interest that no association was found between the debt characteristics (amount of debt, duration of indebtedness, level of indebtedness) and mental health status. With regard to future studies, it is important to focus more on the subjective sensitivity of the over-indebted to find out what specifically they find burdensome about their financial situation.

The results suggest that merely having debts, no matter how severe or high they are and how long they have existed, is a major mental burden. In any case, it is not the level or duration of indebtedness, nor the prospect of a debt-free life that seems to be important for the over-indebted and their (mental) health, but the widespread feeling among over-indebted individuals that their own health is partly or even strongly affected by their debt situation and that they have little control over their life in general. The differences in mental health within the sample could not be explained by the severity of the indebtedness. The decisive factor here is a weak sense of mastery. Mastery had a strong and significant association with both mental health measures and acts as a protective mental health factor for over-indebted individuals.

Table 4:

Multiple linear regression analyses and multivariate associations of debt and personal characteristics with mental health outcomes in the study population of over-indebted individuals (n = 219).

| Dependent or outcome variables | | Mental stress (0–100) ^a | | Depression (0–27) | |
|-----------------------------------|--|------------------------------------|----------------|-------------------|----------------|
| | | Step 1 | Step 2 | Step 1 | Step 2 |
| | | β ^b | β ^b | β ^b | β ^b |
| Independent or exposure variables | Amount of debt (1–8) | n.s. | n.s. | n.s. | n.s. |
| | Duration of indebtedness (1–5) | n.s. | n.s. | n.s. | n.s. |
| | Level of indebtedness (1–4) | −0.16* | n.s. | 0.14* | n.s. |
| | Perception that own health is affected by indebtedness (1–3) | −0.43*** | −0.19*** | 0.43*** | 0.15** |
| | Mastery (4–16) | – | 0.58*** | – | −0.62*** |
| Control variables | Sex (male) | 0.17** | 0.17*** | n.s. | −0.12* |
| | Age (1–8) | 0.12* | n.s. | −0.13* | n.s. |
| | Educational level (0–7) | n.s. | n.s. | n.s. | 0.12* |
| R square (adjusted) | | 0.310 (0.284) | 0.560 (0.541) | 0.270 (0.244) | 0.555 (0.536) |
| Number of cases in model | | 200 | 197 | 207 | 204 |

^a Note: the higher the score, the lower the stress level; ^b Beta coefficient (standardized regression coefficient); * p ≤ 0.05; ** p < 0.01; *** p < 0.001; n.s. = not significant (p > 0.05)

The somewhat paradoxical finding of a relatively low frequency of severe depression among the less indebted (see table 3) can be attributed to the fact that women usually suffer more frequently and/or severely from depression (or at least report depressive symptoms more frequently), but at the same time are less likely to be highly indebted than men, as is known and has been shown in this study. In fact, when the relationship, or rather the weak and statistically not significant association, between the level of debt and depression is adjusted for sex, the surprising negative effect of the amount of debt on the level of depression initially found completely disappears.

In conclusion, the present study showed for the first time that the mental health of over-indebted individuals is strongly affected not by objective parameters such as the amount or duration of indebtedness, but rather by subjective aspects and measures such as the anticipated payback period or the self-perceived impairment of one's health as a result of one's financial misery. These measures seem to indicate the severity of indebtedness better than the amount or duration of debt. But above all, a personal trait, namely a strong sense of mastery or the feeling of having control over life in general, turned out to be by far the most predictive and protective factor regarding mental stress and the health of over-indebted people. And exactly this sense of mastery was found to be much weaker or far less pronounced among over-indebted individuals compared to the general population, possibly because of their loss of control regarding their financial situation (and not because of them having a different personality).

Limitations

Due to the cross-sectional design of the study, no causal conclusions can be drawn. However, in view of the fact that various studies have shown an association between over-indebtedness and mental health [5–8], it is quite conceivable that there is causality in this association. Further research, and in particular longitudinal studies, are therefore necessary to investigate whether or not a causal relationship exists.

Given the non-random selection of the over-indebted individuals included in the survey, a potential systematic selection bias cannot be excluded. The study sample includes only over-indebted people who were seeking advice from a debt advisory centre and who speak German well enough to understand and complete the questionnaire. Since in Switzerland consulting official debt advisory centres is stigmatized and is only considered as a last resort; since people with severe personal (financial) problems, in poor (mental) health or with insufficient language skills usually do not participate in (written) surveys; and since – if problems arise – they may seek help and support somewhere else, very late or not at all, one can argue that these most affected people may be underrepresented in the study sample and that our study population may be the tip of an iceberg rather than a representative sample of (over-)indebted individuals.

However, such a selection bias would presumably lead to an underestimation rather than an overestimation of the group differences and the associations studied and found in this work.

The Swiss Health Survey which was used as a reference population suffers from the same problem of self-selection, or rather self-exclusion, and underrepresentation of marginalized groups and individuals. This means that socially less well integrated, more disadvantaged and underprivileged individuals such as over-indebted, poorly educated, widowed or unemployed people or people of foreign origin and/or language are usually underrepresented in population-based surveys and samples of the general population. These social groups in turn, and due to their disadvantages and low social status or lack of integration, tend to have poorer mental health than the general population. Therefore, the large differences found and presented in table 2 regarding the mental health and sense of mastery of the two populations compared (study and general populations) are presumably overestimates. In other words: a substantial part of these differences and the relatively very low prevalences of high mental stress, moderate to severe depression and a weak sense of mastery found among the general population compared to the study population may be attributed to the underrepresentation of certain social characteristics and groups in a random sample of the general population along with their strong overrepresentation in the study population. The very unequal proportions of people who are unemployed, divorced or widowed, poorly educated or of foreign nationality between the two populations compared are presumably partly responsible, along with their different levels of (over-)indebtedness, for the strong differences in mental health status and degree of mastery found between the study and the general populations. Although we used a weighted subsample of the Swiss Health Survey in order to address this issue of insufficient representation and generalizability, this kind of selection bias cannot be completely excluded and has to be considered.

Conclusions

The present study has shown that over-indebted people have relatively poor mental health compared to the general population. Surprisingly, traditional debt parameters cannot explain the bad mental health status found among the over-indebted. However, a strong sense of mastery was identified as a major predictive and strongly protective factor with regard to mental health. This finding should be considered by debt counselling centres for their work with their clients and could be of great importance for Switzerland in particular, since under current Swiss law heavily indebted or destitute individuals do not have the opportunity to sustainably restore their finances [25]. In contrast with most European countries, as well as with the United States, Switzerland has no real debt relief process. This means that it is often difficult or even impossible for highly indebted people in Switzerland to pay off their debts during their lifetime. This is a heavy burden on the individual and can often lead to a life with no prospects and little control over the course of their own financial situation. It is easy to imagine that people who are over-indebted and have no prospect of debt relief cannot see or find a way out of their financial misery and the spiral of debt, and hence experience a great feeling of loss of control and develop a weak sense of mastery, which turned out to be a major risk factor for (mental) health.

The finding that the primary influence on mental health is not the often hopeless (objective) situation of over-indebtedness, but above all each individual's sense of mastery, may be useful for supporting and working with over-indebted individuals. It is important to give over-indebted people an active role in the counselling process and to help them obtain or regain an overall feeling of control over their life, and particularly over their financial situation. The small subgroup of over-indebted individuals with a strong sense of mastery are probably extraordinarily resilient people. And although gaining or developing such a strong sense of mastery may be an unrealistic and overly ambitious goal for over-indebted people, ending, or at least reducing, their feelings of losing control or complete helplessness is probably a promising approach.

Finally, qualitative and/or longitudinal studies must be performed in order to get more information about the over-indebted and their coping strategies, which might differ in many cases from seeking help or assistance from a debt advisory centre.

Potential competing interests

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflict of interest was disclosed.

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