

ORIGINAL ARTICLE

Health Issues among transgenders in urban PondicherrySachin Bhaskar Palve¹, N Seetharaman², T Lochan³, Rajkumar Patil⁴, A Lokeshmaran⁵

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Abstract

Background: Transgender is an umbrella term for people whose gender identity and expression does not conform to the norms and expectations traditionally associated with the sex assigned to them at birth. **Aim & Objectives:** To study the health problems among the transgenders, to study the health seeking behaviour of the transgenders, to study the social stigma and discrimination faced by the transgenders and to study the sexual behaviour among the transgenders. **Settings and Design:** It is a community based, cross-sectional, study design done among 121 transgenders (TGs) registered under a Non-Government Organisation. **Methods and Material:** A convenience sampling was undertaken. A pre-designed, pre-tested and self-administered, semi-structured questionnaire in local language was used. Statistical analysis used: Proportion, mean, standard deviation, Kruskal-Wallis & Mann-Whitney test were applied using EpiData and chi-square test was applied using MS Excel. **Results:** The common places of discrimination faced by the Transgender were public bathrooms for 36 (29.8%), school for 36 (29.8%) TGs and in bus for 29 (24.0%) TGs. 57 (47.1%) had sexual relationship with more than one partner. Tobacco chewing was the commonest form of substance abuse found among the distressed transgenders. (p=0.007). **Conclusions:** Lower per capita income, no fixed job status; low education status, prevalent health problem of knee joint arthritis, were the main findings among the transgenders. Substance abuse of alcohol and consumption of tobacco products were high and an association was found between products of tobacco consumption to their psychological distress.

Keywords

Transgenders; Health; Social stigma; Discrimination.

Key Messages: Despite the legal recognition of the third gender, transgenders continue to face difficulties in enjoying the basic human rights. These include education, health, employment, subsidized commodity entitlement. Their incomplete status to benefit these rights creates gender distinction and a nation to be called as developed.

Introduction

Gender identity refers to a person's internal, deeply felt sense of being either man or woman, or something other or in between. In contrast, a person's "gender expression" is external and socially perceived and also refers to all of the external characteristics and behaviors that are socially defined as either masculine or feminine, such as dress, mannerisms, speech patterns and social interactions. (1)

Transgender is an umbrella term for people whose gender identity and expression does not conform to the norms and expectations traditionally associated with the sex assigned to them at birth. Transgender people may self-identify as transgender, female, male, or by a variety of indigenous terms used in specific cultures. (2)

Transgender terminologies in India are many such as Hijras, Aravanis, guru/chela and Shiv-Shakthis. Hijra is a biological male who rejects the 'masculine' identity to identify either as woman or "not-man". Others include terms like Aravani – 'neither male; nor female' in Tamilnadu, Kinnar – used in Delhi/ the north and other parts of India. (3)

Transgenders have major social disadvantage and inability to express their sexual orientation, problems of sexual exploitation, employment, subsidized health care services, and violence they suffer especially when they choose to take up sex work. (4)

In India, total population of transgender is around 4.88 Lakh as per 2011 census. (5)

Being included in the census officially hasn't changed the day-to-day life of the transgenders. The transgenders face social exclusion, finds difficulty in employment and they are being abused verbally, physically and sexually. (6)

The socio-economic problems like no property ownership, low economic status, lower education level, non-ownership of ration card and unsatisfactory psychological health are some common problems found among transgenders. They also find it difficult to get employed and they are being abused verbally, physically and sexually. (7)

The problems faced by transgenders have a very intricate relation to the socio-cultural milieu they live in. Search availability showed little literature, in the form of research study, report and one in the form of fact-finding mission, exploring the health issues, discrimination and stigma faced by the transgenders

in the nation. (3,8,9) The other reason was provision of an institutional support to study the third gender health issues. Hence, we planned to undertake the study with an aim to explore health issues among transgenders living in an urban area.

Aims & Objectives

1. To study the health problems among the transgenders.
2. To study the health seeking behavior of the transgenders.
3. To study the social stigma and discrimination faced by the transgenders.
4. To study the sexual behavior among the transgenders.

Material & Methods

It is a community based cross-sectional study. The study was conducted from April to October 2016. A convenience sampling for selecting the transgenders in an NGO and snow-ball sampling for including transgenders from the city was used. The estimated sample size to be covered was based on country's 2011 census of 488,000 TG populations. The sample size calculated was 96 at 95% confidence level and a confidence interval of 10 using online software. (10) Further, consideration of 20% non-response was added and the estimated sample size to be included was 118. The present study covers one hundred and twenty-one (121) transgenders. No invasive procedures were done and institutional human ethics committee approval was obtained. (IHEC, No: ICMR-ST/2016/10, dated 07/9/16)

Transgenders above 18 years of age, registered under the NGO named, Sahodaran Community Oriented Health Development (SCOHD) organization and identified through snowball sampling were included in the study.

Prior written informed consent was obtained in local language from all the study participants.

A pilot study was conducted among thirty transgenders for finalizing the questionnaire.

A pre-designed, pre-tested and self-administered, semi-structured questionnaire in local language - Tamil was finalised after the pilot study. The General Health Questionnaire-12 (GHQ-12) summary score was used to assess transgenders level of distress. (11)

A thorough co-operation and assistance was obtained from a transgender employee who also works as the head of an NGO (SCOHD) - a community

based organization, working for the welfare of the Transgenders in Puducherry city.

The transgenders meet weekly once at their mother NGO. The NGO team members helped in providing contact details of nearby residing and working transgenders. A snowball technique was used to interview these irregular and recently attended transgenders meet, at their residence and workplace in the city.

Statistical analysis: Proportion, mean, Kruskal-Wallis and Mann-Whitney test using EpiData (V2.2.2.186) and Chi-square test using MS Excel were applied. (12) The GHQ-12 summary score does not follow normal distribution. Hence, we applied non-parametric test Kruskal-Wallis and Mann-Whitney test.

Definitions and concepts:

Health seeking behaviour: Health or care seeking behaviour has been defined as any action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy. (13)

Social stigma: Social stigma is the extreme disapproval of a person or group on socially characteristic grounds that are perceived, and serve to distinguish them, from other members of a society. Stigma may then be affixed to such a person, by the greater society, who differs from their cultural norms. Social stigma can result from the perception of mental illness, physical disabilities, diseases such as leprosy, illegitimacy, sexual orientation, gender identity, skin tone, education, nationality, ethnicity, religion or criminality. (14)

Discrimination: Discrimination (different treatment) is treating a person or group of people differently, especially in a worse way from the way in which you treat people, because of their colour, sex, sexuality, etc. (15)

General Health Questionnaire (GHQ): The (GHQ-12) summary scores consists of 12 items like able to concentrate, sleep, playing useful part, decision making, constant strain, overcoming difficulties, enjoying day to day activities, facing own problems, unhappiness, confidence, worthless thinking, feeling reasonable happy. The scale consists of 0,1,2,3 from left to right each scale marked with initial either not at all or more so than all, to much more than usual or much less than usual. The selected option is than summed to a total score and distressed level calculated accordingly. The GHQ-12 summary score

questionnaire was translated in preferred Tamil language by a Tamil teacher. The translated questionnaire was then re-translated to English by another person and the matching was done by us. After this, the pilot study was initiated.

The GHQ was originally developed in the United Kingdom and has since become one of the most widely used screening questionnaires internationally, including in India. (16)

Results

[Table 1](#) shows majority, 105 (86.7 %) of the study participants belong to the age group 21-40 years and more than half, 67 (55.3%) TGs had their age between 21-30 years. The average Mean \pm SD age of the study participants was 31.77 \pm 8.68 years.

104 (85.9%) of the study participants were born as male and 82 (67.8%) of the transgenders prefer to be identified as a separate 'third gender'.

Many 112 (92.6%) of the study participants claimed to have undergone 'sex transformation' procedure. Out of these, 76 (67.7 %) TGs mentioned the type of sex transformation procedure. Surgical procedure was done in around half that is 54 (48.2%) of the TGs (n=112).

[Table 2](#) shows, 106 (87.6%) of the transgenders were Hindu by religion. 67.8% of TGs were never married. 64% TGs had their per capita monthly income below Rs. 2000.

76 (62.8%) of the study participants were only school educated and about 14 (11.6%) TGs were illiterate. The form completion for them was assisted by their literate colleagues.

An equal number of 38 TGs (31.4%) lived in Joint and nuclear type of family.

About ration card used, 14 (11.6%) of the study participants do not possess any. 62 (51.23%) of study Transgender participants had green coloured ration card.

Substance abuse of tobacco chewing among 53 (43.8%) TGs and alcohol consumption among 48 (39.6%) TGs were high as compared to other substance abuses in the form of tobacco chewing and Tapkir (sneeze powder).

[Figure 1](#) shows, 42 (35%) TGs earn by begging and 6 (5%) mentioned themselves to earn as sex workers.

[Figure 2](#) shows 15 (12.3%) TGs complained of Knee pain (locomotor problem) and 13 (10.7%) mentioned consulting for their psychological problem. 3 (2.4%) of transgenders had genital problem with lesion. 62

(51.2%) TGs mentioned having no health problem. Multiple responses allowed. 14 (11.5%) of the TGs didn't respond.

[Table 3](#) shows that 82 (67.8%) of study participants preferred Government PHCs for the treatment of their common ailments.

42 (34.7%) and 40 (33.1%) transgenders prefer health centres due to the accessibility and non-discrimination as the main reasons.

[Table 4](#) shows sexual health service utilization and sexual behaviour among the study participants (n=121).

116 (95.9%) TGs sought information regarding sexual health, of these, majority 109 (89%) had received information regarding sexual health from their parent NGO.

72 (59.5 %) TGs preferred to receive condoms from their parent NGO and 33 (27.3%) TGs accessed Govt. city hospital and PHC for receiving the same.

65 (53.7%) TGs preferred to access Govt. city hospital for using sexual health services.

50 (41%) TGs felt the service at their preferred sexual health clinic and counselling health centre at Govt. hospital, Teaching hospital, PHC, SCOHD as comfortable in terms of less waiting time. Many about 99 (81.8%) TGs experienced the service appropriate for cost. Majority, 115 (95.1%) had no problem in accessing their preferred place for utilizing sexual health services. 116 (95.9%) TGs did not wish to discontinue utilising the sexual health service in future.

Regarding sexual behaviour, 102 (84.3%) of TGs mentioned having exposure to sexual contact. Near to half of the TG participants, around 57 (47.1%) under study had sexual relationship with more than one partner. Vast majority of 115 (95%) TGs prefer usage of condom during sexual activity and similar number also consults a doctor for blood tests. Also history of genital discharge was mentioned by fewer one in forty, 3 (2.5%) of the study participants.

[Table 5](#) shows that majority 118 (97.5%) of the study participants felt being discriminated in the society because of being a transgender.

The common places of feeling discriminated were public bathrooms and schools with an equal single response from 36 (29.8%) TGs.

The above table also reveals that 55 (45.5%) TGs felt their school colleagues as most common

'discriminators' followed by men in society for 33 (27.3%) TGs. An equal proportion of 17 (14.0%) TGs also shared families and public place as discriminators towards them.

Majority 108 (89.3%) of transgenders report being derogatively addressed different gender.

The common places where the study participants were verbally abused were, 50 (41.3%) TGs while asking for money in public places, 34 (28.1%) TGs by the society in general and 12 (9.9%) TGs were abused at their workplace, commonly related to their source of earning like daily wage worker, sex worker and also those begging at public places.

81 (66.9%) of study participants prefer using ladies' toilet and remaining preferred gents toilets. 65 (53.7%) of study participants felt preference over having a separate ward in the hospitals. 88 (72.7%) of transgenders had discrimination as the major reason for their worry.

[Table 6](#) data shows the general health questionnaire (GHQ-12) summary scores (n=121).

19 (15.7%) of TGs had evidence of distress and another 12 (9.9%) were traced with severe psychological distress.

[Table 7](#) shows transgenders with substance abuse of tobacco chewing had distressed level of living as compared to those TGs with other forms of substance abuse (p = 0.007). Also, those transgenders having their per capita income lower than 4000 had high level of distress and highest among those having their per capita income from 2001-4000. (p=0.0061)

[Table 8](#) The level of distress of transgenders among the transgenders was not related to their social characteristics like sex at birth, sex transformation procedures and their literacy status. (p value = 0.899, 0.071, 0.786). Kruskal Wallis test was applied to test the association of GHQ-12 summary scores with more than two categories of different variables tested and Mann Whitney's test was applied for two categorical variables. Others 8 (7.1 %) TGs under sex transformation procedure were not included as they did not undergo any procedure.

Discussion

This work was done through a NGO named 'Sahodaran' (SCOHD) meaning, born from the same womb, located in the city. The study data was collected in a period of two months. The principle

aim of the study was to find the health issues among the transgenders.

The Supreme Court in April 2015 recognized transgenders as third gender in a landmark judgment lauded by the human rights group. (17)

1.86 lakh populations out of 3.35 lakh ration card holders in Puducherry alone has ration card of red colour. In present study, we didn't come across any TG holding red color type of ration card. The yellow card is for family below the poverty line. Those families having an annual income of over Rs. 1 lakh are given white cards. Blue ration card is issued to people above the poverty line (APL). (18,19) In the present study, the transgenders were helped to get their ration card by requesting the government through their mother NGO, SCOHD.

The total population of the transgender as per the census is an underestimation, as it includes only those who have 'come out of the closet' and proclaim their gender identity publicly. The real numbers are probably much higher as majority of the estimated transgender population remain hidden owing to the widespread discrimination against transgenders in our society.

Anitha Chettiar (20) in her study "Problems faced by hijras (Male to Female Transgenders) in Mumbai with reference to their health and harassment by the Police" interviewed 63 transgenders. She found that 95.24% of the transgenders biological sex at birth was male and their average age was 31.21 years. The current study finding shows 85.95% TGs sex at birth were male and the average age was 31.77 years. Around 19% of the TGs in her study were illiterate as compared to 11.6% in our study. Anitha's study finding about different earning sources were 31.7% earned begging and a high proportion around 20.6% were sex worker as compared to 35% begging and 5% sex workers in our study.

In another study by Aijaz Ahmad Bund, (7) the author interviewed 100 TGs, majority of the TGs in her study belonged to the age group 26- 50 years as compared to the current study, which showed high proportion of the TGs in the range 21-40. Around 15% of the authors study participants had ration card. The common health issues as revealed by Aijaz Ahmad Bunds study respondents were hypertension, diabetes, UTI, GIT ailments, joint pain etc. where as in the present study we reported knee pain/ locomotor problem as prevalent health problem.

20% of the respondents in their study illustrate the symptoms of Major Depressive Episode.

In our study, 11.6% of the TGs didn't have ration card. Those who responded (Non-Respondents=48), 11% consults psychiatry regularly. We didn't compare the association of distress score among two transgenders who had substance abuse of both smoking and alcohol, of which one was distressed as per the GHQ-12 summary score.

Erin C. Wilson, *et.al.*, (21) in their study, Sexual risk taking among transgender male-to-female youths with different partner types. analysed the data from 120 TGs. Fifty-eight youths in the authors study had a main sexual partner, 67 had intercourse with a casual partner during the past 3 months, and 65 had intercourse with a commercial partner during the past 3 months. Participants were more likely to always use a condom while having sexual contact with a commercial partner. (81% versus vs 50% in main partner, P=0.01)

In the current study (n=121), 102 (84.3%) of TGs were exposed to sexual contact. 57 (47.1%) TGs had relationship with more than one partner and 115 (95.0%) TGs preferred use of condoms during sexual contact.

Keeping in view in avoiding feelings of the transgender participants from getting hurt, the sexual health information in the current study was limited to selected questions only.

Organizations like the SCOHD working for the TGs welfare play a major role in helping the TG meet their sociocultural, political and health demands.

Conclusion

Locomotor problem, consulting psychiatrist, substance abuse of tobacco product and alcohol consumption was seen as common health problem. Many preferred visiting Government PHC during illness. The common reason for preferring health centre was accessibility and no gender discrimination. Many were aware about the sexual health, primarily from their parent NGO. Majority of the discrimination occurred in school by their own colleagues, public bathroom and in buses by men.

Recommendation

Promote and support NGOs working for the TG welfare and rights.

Offer vocational training programs and easy provision of ration card to the state migrated.

Transgender clinics can be established which offers them counselling, care, support and treatment facilities.

Separate psychologist and psychiatric care for those at risk of distress can be given.

Free school education for the transgenders.

In secondary or higher secondary schools, a separate chapter on the anatomy, physiology and psychology of transgender, along with problems faced by them can be kept. This would help reduce discrimination by overcoming the barrier to understand them.

Inclusion of the transgenders in sociocultural, economic and political participation and also ensure provision of social security.

Sensitize the society regarding gender identity of transgenders and their acceptance in society and family.

Limitation of the study

Sensitive topic of sexual behaviour could not be explored.

Relevance of the study

The relevance was to the real-world issue of health, discrimination and social status of transgenders, their problems and context

Authors Contribution

Author 1: Contributed in all the process of study;
Author 2: Involved in all process except as guarantor;
Author 3: Involved mostly in Data acquisition/collection;
Author 4: Involved mostly in Manuscript editing;
Author 5: Involved mostly for Data and statistical, analysis.

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Tables

TABLE 1 AGE, GENDER AND SEX TRANSFORMATION DISTRIBUTION OF THE STUDY PARTICIPANTS (N=121)

General characteristics	Category	No. of persons	Percentage
Age group	21 – 30	67	55.3%
	31 – 40	38	31.4%
	41- 50	13	10.7%
	>50	3	2.5%
Gender at birth	Male	104	85.9%
	Female	02	1.65%
	Don't know	15	12.3%
Perceived Gender	Male	1	0.8%
	Female	38	31.4%
	Third gender	82	67.8%
Transformation of sex	Done	112	92.6%
	Not done	9	7.4%
Sex Transformation procedure (n=112, NR* =28)	Surgery	54	48.2%
	Hormone therapy	17	15.1%
	Implants(silicone)	5	4.4%
	Others**	8	7.1%

*NR = Non-respondent, **others under sex transformation procedure continued living their perceived gender without undergoing any surgery, hormone therapy or using implants.

TABLE 2 SOCIAL FACTORS, SOCIAL ORGANIZATION AND PROBLEMS. (N=121)

Variables	Category of Variables	No.	Percentage
Religion	Hindu	106	87.6%
	Muslim	7	5.8%
	Christian	8	6.6%
Literacy and education Status	Illiterate	14	11.6%
	School	76	62.8%
	College	31	25.6%
Marital status	Single	82	67.8%
	Married	24	19.8%
	Divorced	7	5.8%
	Separated (not divorced)	8	6.6%

Type of family (*NR=2)	Nuclear	38	31.4%
	Joint	38	31.4%
	Living separately	14	11.5%
	Single (not married, not living with family)	20	16.5%
	**Others	9	7.43%
Total family members (NR=7)	0-2	33	27.2%
	3-5	71	58.6%
	6-8	8	6.6%
	9-11	2	1.6%
Ration card colour	Green	62	51.2%
	Orange	35	28.9%
	Don't have	14	11.6%
	Blue	6	5.0%
	Yellow	3	2.5%
	White	1	0.8%
Per capita income (NR=12)	Up to 1000	44	36.3%
	1001 – 2000	34	28.0%
	2001 – 3000	12	9.9%
	3001 – 4000	2	1.6%
	> 4000	17	14.0%
***Addictions NR=1	Alcohol	48	39.6%
	Tobacco chewing	53	43.8%
	Smoking	35	28.9%
	Not applicable	8	6.6%
	Other [tapkir (sneeze powder)]	2	1.6%

* NR= Non-respondent, ** Others = other than family member, ***Multiple responses allowed.

TABLE 3 HEALTH CARE UTILIZATION AMONG STUDY PARTICIPANTS (N=121)

Health centre preferred during illness	Government PHC	82	67.8%
	Private clinic	22	18.2%
Medical college hospital	16	13.2%	
Other	1	0.8%	
Reason for preferring health centre during illness	No discrimination	40	33.1%
	Accessibility	42	34.7%
	Economical	15	12.4%
	Better treatment	21	17.4%
	Others	3	2.5%

TABLE 4 SEXUAL HEALTH SERVICE UTILIZATION AND SEXUAL BEHAVIOUR AMONG PARTICIPANTS (N=121)

Category of Variables	Options	No. of persons	Percentage
Obtained sexual health information	Yes	116	95.9%
	No	5	4.1%
Primary source of Sexual health information	SCOHD (parent NGO)	104	89.3%
	Other NGOs	5	4.1%
	Govt. hospital	4	3.3%
	PHC	3	3.3%
Source of condoms	SCOHD	72	59.5%
	Govt. hospital	21	17.4%
	Other NGOs	14	11.6%
	PHC	12	9.9%
	Private Clinic	2	1.7%

Place of Accessing SHS	Government hospital	65	53.7%
	SCOHD	28	23.1%
	Teaching hospital	12	9.9%
	PHC	12	9.9%
	VDRL clinic (Govt. Outlet)	3	2.5%
	ICTC centre	1	0.8%
Reason for preferring the place	Comfortable	50	41.3%
	Easy access	29	24.0%
	Good service	21	17.4%
	Importance to TG clinic	4	3.3%
	No discrimination	4	3.3%
	Routine	4	3.3%
	Secrecy	9	7.4%
Appropriate Cost of service	Yes	99	81.8%
	No	22	18.2%
Any problems in accessing SHS	Yes	6	4.9%
	No	115	95.1%
Discontinued accessing SHS	Yes	5	4.1%
	No	116	95.9%
Exposed to sexual contact	Yes	102	84.3%
	No	5	4.1%
	Not willing to reveal	14	11.6%
Multiple sexual partners	Single partner	64	52.9%
	More than one partner	57	47.1%
Use of condoms during sexual contact	Yes	115	95.0%
	No	6	5.0%
Consult doctor for blood test	Yes	115	95.0%
	No	6	5.0%
Genital Lesion/discharge	Yes	3	2.5%
	No	118	97.5%

* Note: Fewer category options under few variables are taken from open ended answers given by the TGs.

TABLE 5 SOCIAL STIGMA AND PERCEIVED DISCRIMINATION BY THE STUDY PARTICIPANTS (N=121)

Felt discriminated by society due to different gender	Yes	118	97.5%
	No	3	2.5%
Common place felt discriminated	Public bathrooms	36	29.8%
	Schools	36	29.8%
	Bus	29	24.0%
	Hospitals	12	9.9%
	Temple	8	6.6%
Discriminated by- discriminator	School colleague/friends	55	45.5%
	Men	33	27.3%
	Family	17	14.0%
	Public	17	14.0%
	Co-workers	3	2.5%
	Other transgenders	3	2.5%
Derogatively addressed as different gender	Yes	108	89.3%
	No	13	10.7%
Place / Source of Verbal Abuse	While asking money	50	41.3%
	Society, in general	34	28.1%
	Working place	12	9.9%
	Family	5	4.1%
	Men	4	3.3%

	Friends	4	3.3%
	School	3	2.5%
Preference of toilet	Gents	40	33.1%
	Ladies	81	66.9%
Felt need for separate service in health care setting	Separate ward	65	53.7%
	Separate bed	28	23.1%
	Separate service	19	15.7%
	All the above	9	7.4%
Discrimination a major reason of worry	Yes	88	72.7%
	No	33	27.3%

TABLE 6 GENERAL HEALTH QUESTIONNAIRE (GHQ-12) SUMMARY SCORES (N=121)

General Health Questionnaire Summary score	Normal	90 (74.4%)
	Evidence of distress (score 15>)	19 (15.7%)
	Severe problems with psychological distress (score 20>)	12 (9.9%)

Scoring – Likert scale 0,1,2,3 from left to right (assessed in excel)
 12 items, 0 to 3 each item. Score range 0 to 36. Score about 11-12 typical. ¹¹

TABLE 7 ASSOCIATION OF GHQ -12 SUMMARY SCORE WITH DRUG ABUSE AND PER CAPITA INCOME

Level of Scores	Smoking	Tobacco chewing	Alcohol	Smoking & Tobacco chewing	Per capita Income ≤ 2000	2001-4000	> 4000
Distressed**	8	20	9	3	24	7	0
Normal***	27	33	39	18	54	7	17
Total	35	53	48	21	78	14	12
p-value	0.657	0.007	0.160	0.190	0.0061****		

* Chi-square statistic p-value < 0.05 significance level is significant, **GHQ-12 score of 15 and > 15
 GHQ-12 score < 15, * Single response, hence common value.

TABLE 8 GHQ-12 SUMMARY SCORES AND ITS ASSOCIATION WITH VARIABLES (N=121)

Characteristics	Average and deviation				Kruskal Wallis/ Mann-Whitney test value	p-value
	Count	Mean	Median	Standard Deviation		
Sex at birth	Male	104	12.31	11.00	0.235	0.899
	Female	2	15.00	15.00		
	Don't know	15	11.73	12.00		
Transformation of sex *	Done	112	13.10	12.00	0.0014	0.057
	Not done	09	11.12	10.00		
Sex Transformation procedure	Surgery	54	13.46	12.00	7.015	0.071
	Hormone	17	10.00	9.00		
	Implants	5	21.00	21.00		
Literacy	Illiterate	14	13.00	12.50	0.483	0.786
	School	76	12.20	11.00		
	College	31	12.06	10.00		

*Mann-Whitney test applied, other parameters tested using Kruskal-Wallis test.

Figures

FIGURE 1 SOURCE OF TG EARNINGS (N=121)

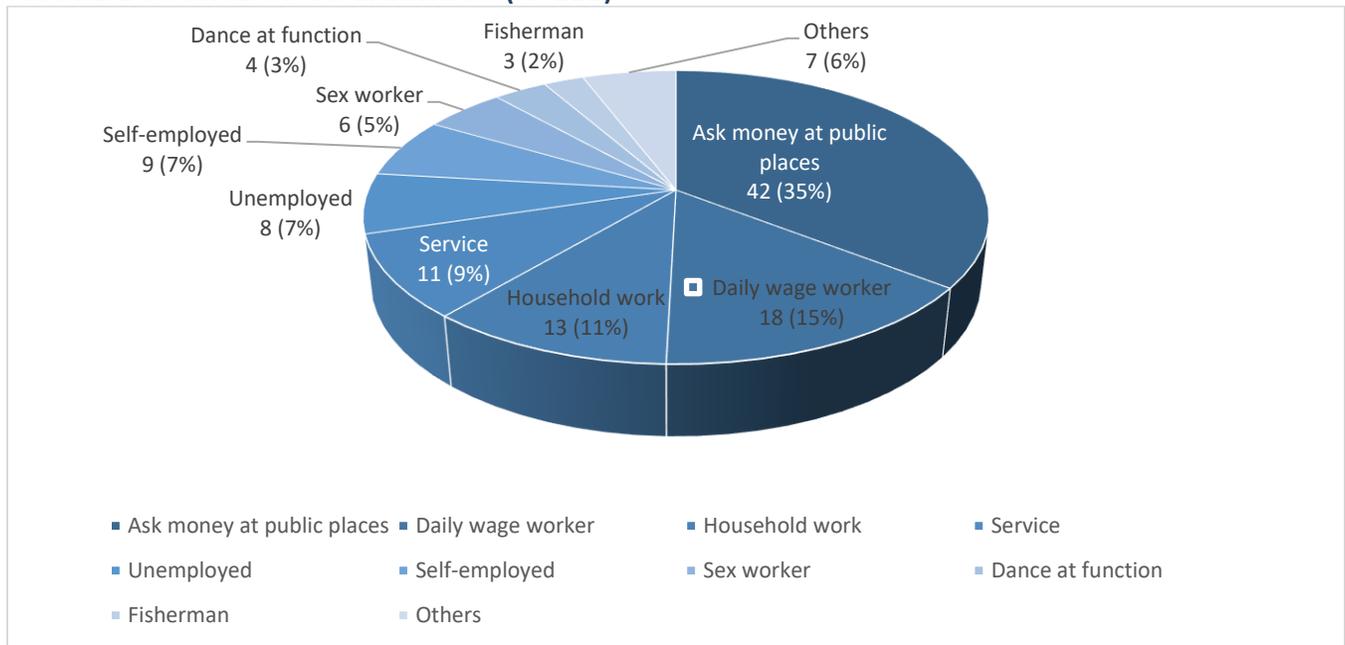


FIGURE 2 EXISTING MORBIDITIES (N=121)

